



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 As defined by the Premises maps attached to the Revised Licence
Date of Report	22 April 2022
Proposed Decision	Intent to grant revised licence

**ALANA KIDD
MANAGER, RESOURCE INDUSTRIES**

an officer delegated under section 20 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.

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 15 December 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). The following amendments are being sought:

- Add South Flank Infrastructure (Systems C, E, F, G H, J, K and L), which have been constructed and commissioned under works approval W6142/2018/1 and are now in Time Limited Operations;
- Add location of South Flank Primary Crushers 1 and 2;
- Increase the Assessed Production Capacity from 71 Mtpa up to 151 Mtpa; and
- Remove discharge point L11 as it is no longer in use (L20 is used instead).

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

Table 1 below outlines the proposed changes to the existing Licence

Table 1: Proposed design or throughput capacity changes

Category	Current design throughput capacity	Proposed design throughput capacity	Description of proposed amendment
5	71,000,000 tonnes per Annual Period	151, 000,000 tonnes of ore per Annual Period	Increase the capacity of Category 5 by 80,000,000 tonnes per annum for operations of South Flank Infrastructure
6	34,931,000 tonnes per Annual Period	N/A	N/A
12	2,000,000 tonnes per Annual Period	N/A	N/A
52	20 MW	N/A	N/A

54	1,138 m ³ /day	N/A	N/A
63	25,000 tonnes per Annual Period	N/A	N/A
73	10,000 m ³ in aggregate	N/A	N/A
85B	0.9125 gigalitres per Annual Period	N/A	N/A
89	5,000 tonnes per Annual Period	N/A	N/A

2.2.1 Category 5 Systems C, E, F, G, H, J, K and L

South Flank infrastructure Systems C, E, F, G, H, J, K and L have been constructed, commissioned and are now in time limited operations under works approval W6142/2018/1.

The infrastructure includes:

Stockyard 2 (South Stockyard):

- RC02 South Stockyard to TL02; and
- RC01 South Stockyard to TL01 CV314 Shuttle.

Primary Crushing Stations (PC1 and PC2):

- Two Metso gyratory 70-89s Mk III primary crushing stations (PC1 and PC2) 40 Mtpa name plate capacity each; and
- ROM pad for each crushing facility.

Overland conveyors:

- Overland conveyers CV411, CV412, CV413 and Interconnecting conveyors.

Table 2 shows the dust controls in place for System C, E, F, G, H, J, K and L 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.

Dust monitors have also been installed as part of the Dust Management and Monitoring Plan and are shown in Schedule 1: Maps, Figure 7 of the Licence L7851/2002/6 with monitoring to date shown in Table 3.

Highway Visibility Trials

The dust visibility trial is ongoing with Stage 1 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.

Table 2: Dust Controls Systems C, E, F, G, H, J, K and L

Infrastructure	Dust Management and Monitoring Plan (Section 6) Equipment Control Requirements	Dust Suppression Infrastructure Constructed	Verification of Dust Suppression Infrastructure
Systems C, E, F, G, H, J, K and L			
<p>Stockyard 2 (South Stockyard): RC02 South Stockyard to TL02. RC01 South Stockyard to TL01 CV314 Shuttle.</p>	<p>Dust suppression water cannons, sprays or sprinklers for stockpile surfaces.</p> <p>Dust suppression fogging systems and Bulk Ore Conditioning (BOC) systems dust along conveyors to control the moisture in the ore by targeting the optimum moisture level.</p> <p>Sprays can be strategically installed at high dust generation areas. These can include overbelt sprays, chute sprays, boom sprays and capping sprays.</p>	<p>Automated dust suppression water cannons installed, able to wet the stockpiles and surrounding areas.</p> <p>Stockpile reclamation area and train load out (TLO):</p> <ul style="list-style-type: none"> Water sprays used and maintained on the conveyor belt associated with ST04; and Luffing is enabled on Stacker 4 (ST04). <p>Automated dust suppression water cannons installed along the embankments (CV485, CV513, MC308, MC314, CV484), are able to wet the stockpiles and surrounding reclamation areas (Row H, G, F, E, J) in South Stockyard (SY2):</p> <ul style="list-style-type: none"> CV485 – 29 new water cannons; CV513 – 41 water cannons; 28 new and 13 existing; MC308 – 26 existing water cannons; MC314 – 37 water cannons 9 new and 28 existing; and CV484 – 40 new water cannons. <p>Bulk ore conditioning sprays maintained along Conveyor 484 (CV484)</p> <p>Ore car capping spray (OC522) at Train Load Out 2 is operational.</p> <p>Construction confirmed in the report:</p> <ul style="list-style-type: none"> Works Approval W6142/2018/1 – South Flank– Compliance Report Systems B and D), Table 1 (Page 3) and Figures 6 and 7 (Pages 13 and 14); Works Approval W6142/2018/1 – South Flank– Compliance Report System C), Table 1 (Page 1) and Figures 2 to 5 (Pages 8 to 11); 	<p>These controls were verified during commissioning and detailed in the reports:</p> <ol style="list-style-type: none"> W6142 Commissioning Compliance Report (Category 5 Infrastructure) Systems B and D: <ul style="list-style-type: none"> Table 1 (Page 1) and Figures 2 and 3 (Pages 4 and 5) of the report. W6142 Commissioning Compliance Report (Category 5 Infrastructure): <ul style="list-style-type: none"> Table System C (Page 2 and Appendix C); Table System G (Page 6 and Appendix H and I); Table System H (Page 4 and Appendix F); and Table System F (Page 7 and Appendix J).

		<ul style="list-style-type: none"> • Works Approval W6142/2018/1 – South Flank– Compliance Report System G), Table 1 (Page 1) and Figures 2 to 6 (Pages 8 to 11); • Works Approval W6142/2018/1 – South Flank– Compliance Report System H), Table 1 (Page 1) and Figures 2 to 5 (Pages 8 to 11); and • Works Approval W6142/2018/1 – South Flank– Compliance Report System F), Table 1 (Page 3) and Figures 2 to 26 (Pages 13 to 36). 	
<p>Primary Crushing Stations (PC1 and PC2)</p> <p>Two Metso gyratory 70-89s Mk III primary crushing stations (PC1 and PC2) 40 Mtpa name plate capacity each.</p> <p>ROM pad for each crushing facility.</p>	<p>Dust suppression fogging systems and/or dust suppression misting systems for crushing facilities.</p> <p>Dust suppression water cannons, sprays or sprinklers for stockpile surfaces.</p> <p>Dust suppression fogging systems and Bulk Ore Conditioning (BOC) systems dust along conveyors to control the moisture in the ore by targeting the optimum moisture level.</p> <p>Covers and/or hoods installed on primary crushing stations and ore handling plant.</p> <p>Dust collectors and hoods can be used where material is tumbled with the dust laden material drawn through a dust collection</p>	<p>The following dust control equipment is fitted and maintained at the primary crushing stations:</p> <ul style="list-style-type: none"> • Foggers and water cannons; • Covers and/or hoods; • Enviromist System DSF401 (PC1); and • Enviromist System DSF404 (PC2). <p>All process infrastructure buildings (PC1, PC2, OHP3) and associated transfer stations have floor slabs installed and maintained for washdown and clean-up including slurry disposal systems:</p> <ul style="list-style-type: none"> • System B (TS314); • System D (TS477); • System E (TS412); • System F (TS439, TS471, TS472, TS476); • System G (TS473); and • System H (TS513). <p>Construction confirmed in the report:</p> <ul style="list-style-type: none"> • Works Approval W6142/2018/1 – South Flank– Compliance Report Systems B and D), Table 1 (Page 3) and Figures 6 and 7 (Pages 13 and 14); • Works Approval W6142/2018/1 – South Flank– Compliance Report System E), Table 1 (Page 1) and Figures 2 to 8, 10 to 15 (Pages 10 to 16, 17 to 23); • Works Approval W6142/2018/1 – South Flank– Compliance Report System F), Table 1 (Page 3) and Figures 2 to 26 (Pages 13 to 36); 	<p>These controls were verified during commissioning and detailed in the reports:</p> <ol style="list-style-type: none"> 1. W6142 Commissioning Compliance Report (Category 5 Infrastructure) Systems B and D: <ul style="list-style-type: none"> • Table 1 (Page 1) and Figures 2 and 3 (Pages 4 and 5) of the report. 2. W6142 Commissioning Compliance Report (Category 5 Infrastructure): <ul style="list-style-type: none"> • Table System E (Page 10 and Appendix M); • Table System F (Page 7 and Appendix J); • Table System G (Page 6 and Appendix H and I); • Table System H (Page 4 and Appendix F); and

	<p>system.</p> <p>Process Infrastructure buildings and transfer stations with floor slabs designed for washdown and clean-up including slurry disposal systems.</p>	<ul style="list-style-type: none"> • Works Approval W6142/2018/1 – South Flank– Compliance Report System G), Table 1 (Page 1) and Figures 2 to 6 (Pages 8 to 11); • Works Approval W6142/2018/1 – South Flank– Compliance Report System H), Table 1 (Page 1) and Figures 2 to 5 (Pages 8 to 11); and • Works Approval W6142/2018/1 – South Flank– Compliance Report System K), Table 1 (Page 1) and Figures 2 to 7, 9 to 15 (Pages 8 to 14, 16 to 22). 	<ul style="list-style-type: none"> • Table System K (Page 1 and Appendix M).
<p>Overland conveyors</p> <p>Overland conveyors CV411, CV412, CV413 and Interconnecting conveyors</p>	<p>Dust suppression fogging systems and Bulk Ore Conditioning (BOC) systems dust along conveyors to control the moisture in the ore by targeting the optimum moisture level.</p> <p>Covers and/or hoods installed on primary crushing stations and ore handling plant.</p> <p>Scrapers and plough can be used to reduce carry back on conveyor belts.</p> <p>Dust collectors and hoods can be used where material is tumbled with the dust laden material drawn through a dust collection system.</p> <p>Dust skirts can be used to enclose conveyors.</p> <p>Process Infrastructure buildings and transfer stations with floor slabs</p>	<p>The following dust control equipment is fitted and maintained for the overland and interconnecting conveyors CV411, CV412, CV413:</p> <ul style="list-style-type: none"> • Bulk Ore Conditioning (BOC) systems which are informed by Low Frequency Microwave Moisture Analysis located on the Overland Conveyors, scalping screen conveyor, fines and lump transfer conveyors and the Train Load Out feed conveyors; and • Conveyor transfer chutes enclosed. <p>Bulk Ore Conditioning (BOC) systems are maintained to transport and transfer product at above Dust Extinction Moisture (DEM) Level and set to designed specifications on Overland Conveyors and interconnecting conveyors including:</p> <ul style="list-style-type: none"> • System D (CV477, 484, 49); • System B (MC314, MC315); • System C (CV512); • System E (CV405, 412, 413); • System F (CV434, 436, 435, 439, 471, 474, 472, 475, 476); • System K (CV411); • System H (CV503); • System G (CV473, 485, 495); and • System L (CV478). <p>Construction confirmed in the report:</p>	<p>These controls were verified during commissioning and detailed in the reports:</p> <ol style="list-style-type: none"> 1. W6142 Commissioning Compliance Report (Category 5 Infrastructure) Systems B and D: <ul style="list-style-type: none"> • Table 1 (Page 1) and Figures 2 and 3 (Pages 4 and 5) of the report. 2. W6142 Commissioning Compliance Report (Category 5 Infrastructure): <ul style="list-style-type: none"> • Table System E (Page 10 and Appendix M); • Table System F (Page 7 and Appendix J); • Table System G (Page 6 and Appendix H and I); • Table System H (Page 4 and Appendix F);

	<p>designed for washdown and clean-up including slurry disposal systems.</p>	<ul style="list-style-type: none"> • Works Approval W6142/2018/1 – South Flank– Compliance Report Systems B and D), Table 1 (Page 3) and Figures 6 and 7 (Pages 13 and 14); • Works Approval W6142/2018/1 – South Flank– Compliance Report System E), Table 1 (Page 1) and Figures 2 to 8, 10 to 15 (Pages 10 to 16, 17 to 23); • Works Approval W6142/2018/1 – South Flank– Compliance Report System F), Table 1 (Page 3) and Figures 2 to 26 (Pages 13 to 36); • Works Approval W6142/2018/1 – South Flank– Compliance Report System G), Table 1 (Page 1) and Figures 2 to 6 (Pages 8 to 11); • Works Approval W6142/2018/1 – South Flank– Compliance Report System H), Table 1 (Page 1) and Figures 2 to 5 (Pages 8 to 11); • Works Approval W6142/2018/1 – South Flank– Compliance Report System J), Table 1 (Page 1) and Figures 2 (Page 5); • Works Approval W6142/2018/1 – South Flank– Compliance Report System K), Table 1 (Page 1) and Figures 2 to 7, 9 to 15 (Pages 8 to 14, 16 to 22); and • Works Approval W6142/2018/1 – South Flank– Compliance Report System L), Table 1 (Page 1) and Figures 2 (Page 7). 	<ul style="list-style-type: none"> • Table System J (Page 5 and Appendix G); • Table System K (Page 10 and Appendix M); and • Table System L (Page 9 and Appendix L).
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Table 3: Dust monitoring PM₁₀ (µg/m³)

Parameter	ACAQRT005	ACAQRT012	ACAQRT013 ¹	ACAQRT015	SFAQRT001	SFAQRT002	SFAQRT003	SFAQRT004
Pre-Commissioning (1 January 2019 – 18 April 2021)								
Data availability	90%	97%	95%	96%	88%	91%	99%	97%
Maximum	3445	5471	3797	3951	3176	9219	1857	3943
95 th percentile	177	650	432	708	115	328	41	213
Average	50	206	105	197	39	93	17	55
Median	25	131	40	108	22	41	14	24
Standard deviation	89	242	185	261	75	223	19	89
Load Commissioning - (19 April 2021 – 23 November 2021)								
Data availability	94%	92%	65%	96%	99%	98%	100%	99%
Maximum	814	3688	3099	2378	4500	11804	352	2552
95 th percentile	105	564	159	645	194	669	35	222
Average	31	190	44	181	58	151	15	58
Median	17	129	19	99	24	41	12	25
Standard deviation	47	211	90	229	132	413	12	93
Time Limited Operations (23 November 2021 – 1 February 2022)								
Data availability	93%	100%	0%	100%	94%	99%	100%	37%
Maximum	558	4918	0	1601	2189	5514	969	1490
95 th percentile	111	578	-	352	156	505	59	223
Average	31	209	-	113	45	124	25	60
Median	15	151	-	69	22	38	20	29
Standard deviation	46	232	-	137	79	312	21	91
Filtered by wind direction								
Pre-Commissioning (1 January 2019 – 18 April 2021) – filtered by wind direction								
Data availability	89%	96%	96%	97%	90%	95%	99%	94%
Maximum	1304	4724	3096	3063	1942	8180	116	764
95 th percentile	138	813	445	460	145	351	43	184
Average	43	245	113	152	54	111	19	58
Median	25	144	50	102	36	57	16	34
Standard deviation	66	289	178	178	78	261	13	71
Load Commissioning - (19 April 2021 – 23 November 2021) – filtered by wind direction								
Data availability	88%	90%	57%	96%	98%	99%	100%	100%
Maximum	522	2595	1440	2218	4500	10889	224	1182
95 th percentile	108	666	156	438	296	759	32	202
Average	36	232	46	146	94	174	15	68
Median	24	164	23	99	49	62	12	42
Standard deviation	43	230	78	164	189	419	12	81
Time Limited Operations (23 November 2021 – 1 February 2022) – filtered by wind direction								
Data availability	98%	100%	0%	100%	97%	100%	100%	27%
Maximum	533	3641	0	1320	1769	4953	115	308
95 th percentile	108	713	-	314	230	769	51	203
Average	39	231	-	122	72	184	22	72
Median	27	147	-	93	40	58	19	46
Standard deviation	41	275	-	110	118	471	15	63

Notes

1. Data unavailable between July and December 2021.

A Summary of ambient dust concentrations following commissioning of South Flank Systems C, E, F, G H, J, K and L is provided by the Licence Holder:

PC1

SFAQRT003

The average, median and upper quartile PM₁₀ 10-minute average concentrations measured at SFAQRT003 and filtered by wind direction, are slightly higher for time limited operations compared to the concentrations measured during the pre-commissioning and commissioning periods. This monitor is located approximately 5.6 km east of PC1 and other PM₁₀ emission sources (i.e. unsealed roads, exposed surfaces and mining operations) are located within the same wind arc of influence as PC1. As such, the concentrations measured at SFAQRT003 are likely to reflect impacts associated with a combination of emission sources.

SFAQRT004

The average, median and upper quartile PM₁₀ 10-minute average concentrations measured at SFAQRT004 and filtered by wind direction, are slightly higher for commissioning and time limited operations periods compared to the concentrations measured during the pre-commissioning. This monitor is located approximately 3.0 km southeast of PC1 and other PM₁₀ emission sources (i.e. unsealed roads, exposed surfaces and mining operations) are located within the same wind arc of influence as PC1. As such, the concentrations measured at SFAQRT004 are likely to reflect impacts associated with a combination of emission sources.

PC2

ACAQRT005

The average, median and upper quartile PM₁₀ 10-minute average concentrations measured at ACAQRT005 and filtered by wind direction, are comparable across the pre-commissioning, commissioning and time limited operation periods. This monitor is located approximately 7 km northwest of PC2 and other PM₁₀ emission sources (i.e. unsealed roads, exposed surfaces and mining operations to the southwest) are located within the same wind arc of influence as PC2. As such, the concentrations measured at ACAQRT005 are likely to reflect impacts associated with a combination of emission sources.

SFAQRT001

The average and upper quartile PM₁₀ 10-minute average concentrations measured at SFAQRT001 and filtered by wind direction, are higher for the commissioning and time limited operations compared to the concentrations measured during the pre-commissioning period. The median values however, are similar for pre-commissioning and time limited operations. This monitor is located approximately 7.8 km west of PC2 and other PM₁₀ emission sources (i.e. unsealed roads, exposed surfaces and mining operations) are located within the same wind arc of influence as PC2. As such, the concentrations measured at SFAQRT001 are likely to reflect impacts associated with a combination of emission sources.

SFAQRT002

The average and upper quartile PM₁₀ 10-minute average concentrations measured at SFAQRT002 and filtered by wind direction, are higher for the commissioning and time limited operations compared to the concentrations measured during the pre-commissioning period. The median values however, are similar across all operational periods. This monitor is located approximately 7.1 km west of PC2 and other PM₁₀ emission sources (i.e. unsealed roads, exposed surfaces and mining operations) are located within the same wind arc of influence as PC2. As such, the concentrations measured at SFAQRT002 are likely to reflect impacts associated with a combination of emission sources.

OHP3

ACAQRT012

The average, median and upper quartile PM₁₀ 10-minute average concentrations measured at ACAQRT012 and filtered by wind direction, are comparable across the pre-commissioning, commissioning and time limited operation periods. This monitor is located approximately 600 m east of OHP3 and other PM₁₀ emission sources (i.e. OHP2 stockyards and OHP4) are located within the same wind arc of influence as OHP3. As such, the concentrations measured at ACAQRT012 are likely to reflect impacts associated with a combination of emission sources.

ACAQRT013

The average, median and upper quartile PM₁₀ 10-minute average concentrations measured at ACAQRT013 and filtered by wind direction, are higher for the pre-commissioning period compared to the commissioning period. However, as data is unavailable at ACAQRT013 between July and December 2021, the concentrations measured during commissioning (from April to November 2021) are not representative of the full operational period. This monitor is located approximately 1.2 km north-northwest of OHP3 and other PM₁₀ emission sources (i.e. unsealed roads, exposed surfaces and mining operations) are located within the same wind arc of influence as OHP3. As such, the concentrations measured at ACAQRT013 are likely to reflect impacts associated with a combination of emission sources.

ACAQRT015

The average, median and upper quartile PM₁₀ 10-minute average concentrations measured at ACAQRT015 and filtered by wind direction, are comparable across the pre-commissioning, commissioning and time limited operation periods. This monitor is located approximately 650 m southeast of OHP3 (at its closest point) and 740 m southwest of the Coarse Ore Stockpile (COS) and other PM₁₀ emission sources (i.e. unsealed roads, exposed surfaces and mining operations) are located within the same wind arc of influence, upwind of OHP3. As such, the concentrations measured at ACAQRT015 are likely to reflect impacts associated with a combination of emission sources.

Summary

Comparison of summary statistics for 10-minute average PM₁₀ concentrations recorded downwind of OHP3 indicates comparable average, median and upper quartile PM₁₀ 10-minute average concentrations were measured during pre-commissioning, commissioning and time limited operations periods. Comparison of the summary statistics for 10-minute average PM₁₀ concentrations recorded downwind of PC2 indicates the average and upper quartile concentrations are higher for the commissioning and time limited operations period compared to the pre-commissioning period, with similar trends evident in the data collected at monitors downwind of PC1. However, each monitoring site is also located downwind of other PM₁₀ emission sources in addition to the South Flank systems (such as mining operations, exposed surfaces, haul roads, other OHPs and stockyards) and the concentrations measured at each site are likely to reflect impacts associated with a combination of emission sources.

2.2.2 Category 6 Discharge Point

Discharge point L11 for the Western Sediment Basin is scheduled to be covered by an overburden storage area so a new discharge point L20 has been installed approximately 700m west of L11. Discharge point L11 is removed as part of this amendment as L20 is now in use. The sensitive receptors are unchanged by this modification, and this has been previously assessed so is an administrative amendment.

2.3 Part IV of the EP Act

Ministerial Statement - MS1072 dated 20 February 2018 for approval to implement revised proposal to mine the Mining Area C Northern Flank and Southern Flank orebodies.

Replaces former MS 491 which was for '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).

There are no relevant conditions or duplication on MS1072 with this licence amendment.

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 pathways during premises operation which have been considered in this Amendment Report are detailed in Table 4 below. Table 4 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 4: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Dust	Dust from iron ore transfer, stockpiling and processing	Air/windborne pathway causing impacts to health and amenity	<p>Numerous dust controls built into the infrastructure as per works approval W6142/2018/1 and these will all be maintained during the operational phase. These include, but are not limited to:</p> <ul style="list-style-type: none"> • Automated water cannons; • Water sprays; • BOC systems informed by Low Frequency Microwave Moisture Analysis; • Ore car capping sprays; • Foggers and water cannons; • Covers and/or hoods; and • Enviromist Systems. <p>Ambient dust monitoring stations in place.</p>
		Reduced visibility at Great Northern Highway	<p>Visibility trial outlined in the Dust Management Plan progressing with a 12-month trial to commence in March 2022. If the trial indicates that the locations are suitable, then the Licence Holder will work with Main Roads WA to make the locations permanent.</p>
Contaminated stormwater	Hydrocarbon spills/leaks	Direct discharges	<p>Numerous stormwater spills/leaks controls built into the infrastructure as per works approval W6142/2018/1 and these will all be maintained during the operational phase. These include, but are not limited to:</p> <ul style="list-style-type: none"> • Floor slabs installed and maintained for washdown and clean-up including slurry disposal systems; • Drains and culverts under conveyors and water diverted away from works areas; • Perimeter drains around stockyard to divert water away from infrastructure; and • Eastern side of stockyard includes series of breaks in the windrows to allow runoff from the stockyard floor to flow into the diversion drains.

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 5 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 5: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Newman	Approximately 100 km south east of the Premises
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 6.

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

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

Table 6. Risk assessment of potential emissions and discharges from the Premises during operations

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
Operations								
Category 5 Operations of Systems C, E, F, G, H, J, K and L	Dust from iron ore transfer, stockpiling and processing	Air/windborne pathway causing impacts to health and amenity	Rio Tinto Iron Ore's Hope Downs Ore Mining Operation and village is 1.5km from the premises boundary	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1, Table 1 Production of design capacity limits Requires capacity limit. Condition 2, Table 2 Infrastructure and equipment requirements Requires maintenance and dust controls. Condition 31, Table 20 Monitoring of ambient air quality Requires PM ₁₀ monitoring near the two receptors and addition of ambient air quality monitoring points. Condition 36, Table 21 Annual Environmental Report Requires reporting on capacity limits.	N/A
		Reduced visibility at Great Northern Highway	Vehicles using the Great Northern Highway	Refer to Section 3.1	C = Severe L = Unlikely High Risk	Y	Condition 1, Table 1 Production of design capacity limits Requires capacity limit. Condition 2, Table 2 Infrastructure and equipment requirements Requires maintenance and dust controls. Condition 31, Table 20 Monitoring of ambient air quality Requires PM ₁₀ monitoring	N/A

Licence: L7851/2002/6

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
							near the two receptors and addition of ambient air quality monitoring points. Condition 36, Table 21 Annual Environmental Report Requires reporting on capacity limits.	
	Contaminated stormwater or hydrocarbon spills/leaks	Direct discharges	Soils Vegetation	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 2, Table 2 Infrastructure and equipment requirements Requires maintenance and stormwater spills/leaks controls.	N/A

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

Table 7: Consultation

Consultation method	Comments received	Department response
Local Government Authority advised of proposal (23/02/2022)	No comments received.	N/A.
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (23/02/2022)	No comments received.	N/A.
Department of Jobs, Tourism, Science and Innovation (JTSI) advised of proposal (23/02/2022)	No comments received.	N/A.
Licence Holder was provided with draft amendment (6/04/2022)	Refer to Appendix 1	Refer to Appendix 1

5. Conclusion

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

5.1 Summary of amendments

Table 8 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 8: Summary of licence amendments

Condition no.	Proposed amendments
Cover page	Category 5 Assessed production capacity increased from 71,000,000 up to 151,000,000 tonnes per Annual Period.
1, Table 1	Category 5 Premises production or design capacity limit increased from 71,000,00 up to 151,000,000 tonnes per Annual Period.
2, Table 2	Addition of Systems C, E, F, G H, J, K and L operational requirements.
11, Table 6	Removal of L11 discharge point from the Western Sediment Basin as L20 is now used.
12, Table 7	Removal of capacity increase for inert landfill as this is captured in Table 1.
19, Table 11	Removal of L11 discharge point from the Western Sediment Basin as L20 is now used. Note 2 removed as linked to L11 and no longer required.
25, Table 14	Removal of L11 discharge point from the Western Sediment Basin as L20 is now used.
31, Table 20	Addition of the ambient air quality monitoring point ACAQRT005.

36, Table 21	Removal of L11 discharge point from the Western Sediment Basin as L20 is now used.
Definitions	Addition of definitions for South Flank Infrastructure.
Schedule 1: Maps	Figure 1 and Figure 2 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 Environmental Licence L7851 Mining Area C for South Flank Infrastructure 15 December 2021, Perth, Western Australia.
5. BHP Iron Ore Pty Ltd, RE: Updated Application Form for L7851 - Mining Area C 09 February 2022, Perth, Western Australia.
6. BHP Iron Ore Pty Ltd, RE: APPLICANT NOTIFICATION: APPLICATION FOR AN AMENDMENT TO LICENCE (L7851/2002/6) - INVOICE ISSUED (Summary of ambient dust concentrations following commissioning of South Flank Systems C, E, F, G H, J, K and L) 30/03/2022, Perth, Western Australia.

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

Condition	Summary of Licence Holder's comment	Department's response
Condition 31, Table 20	<p>BHP have reviewed the draft licence and requests that the following new dust monitors are not included in the licence:</p> <ul style="list-style-type: none"> • SFAQRT003; • ACAQRT012; • ACAQRT013; and • ACAQRT015 <p>This request is being made as:</p> <ul style="list-style-type: none"> • Monitors SFAQRT003, ACAQRT012, ACAQRT013 or ACAQRT015 are E-samplers (not BAM units) and therefore do not comply with Australian Standard AS3580.9.11 as referenced in Table 20; and • Monitors ACAQRT012, ACAQRT013 or ACAQRT015 will be highly impacted by nearby activities, including wheel generated and non-processing related dust. Therefore they will not provide useful data with respect to dust generation for the OHP. 	Updated as requested.
Condition 31, Table 20 Schedule 1: Maps, Figure 1	<p>To reflect this change BHP would like to propose the following for inclusion in the licence:</p> <ol style="list-style-type: none"> 1. The updated Table 20 (below) 2. The updated Figure 1 (attached in licence holder's email response 14/04/2022) showing the location of the monitors listed in the updated Table 20 and would replace the proposed Figure 7 in the draft Licence. 	Updated as requested.

Condition	Summary of Licence Holder's comment	Department's response																
	<p><u>Proposed Updated Table 20</u></p> <table border="1"> <thead> <tr> <th>Monitoring point</th> <th>Parameter</th> <th>Units¹</th> <th>Averaging period</th> <th>Frequency</th> <th>Method</th> </tr> </thead> <tbody> <tr> <td>Monitor 1 SFAQRT001</td> <td rowspan="5">Particulates as PM10</td> <td rowspan="5">µg/m3</td> <td rowspan="5">24 hours</td> <td rowspan="5">Continuous</td> <td rowspan="5">AS3580.9.11</td> </tr> <tr> <td>Monitor 2 SFAQRT002</td> </tr> <tr> <td>Monitor 4 SFAQRT004</td> </tr> <tr> <td>Mulla Mulla Village Monitor ACAQRT005</td> </tr> <tr> <td></td> </tr> </tbody> </table> <p>Note 1: All units are referenced to STP dry.</p>	Monitoring point	Parameter	Units ¹	Averaging period	Frequency	Method	Monitor 1 SFAQRT001	Particulates as PM10	µg/m3	24 hours	Continuous	AS3580.9.11	Monitor 2 SFAQRT002	Monitor 4 SFAQRT004	Mulla Mulla Village Monitor ACAQRT005		
Monitoring point	Parameter	Units ¹	Averaging period	Frequency	Method													
Monitor 1 SFAQRT001	Particulates as PM10	µg/m3	24 hours	Continuous	AS3580.9.11													
Monitor 2 SFAQRT002																		
Monitor 4 SFAQRT004																		
Mulla Mulla Village Monitor ACAQRT005																		

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY				
Application type				
Works approval	<input type="checkbox"/>			
Licence	<input type="checkbox"/>	Relevant works approval number:		None <input type="checkbox"/>
		Has the works approval been complied with?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Has time limited operations under the works approval demonstrated acceptable operations?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Date Report received:		
Renewal	<input type="checkbox"/>	Current licence number:		
Amendment to works approval	<input type="checkbox"/>	Current works approval number:		
Amendment to licence	<input checked="" type="checkbox"/>	Current licence number:	L7851/2002/6	
		Relevant works approval number:	N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:	None	<input type="checkbox"/>
Date application received	15 December 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:	DWERDT539746			
Key application documents (additional to application form):	Application Form Supporting Documentation			
Scope of application/assessment				

Summary of proposed activities or changes to existing operations.	<p>Licence amendment</p> <ul style="list-style-type: none"> • Add South Flank Infrastructure (Systems C, E, F, G H, J, K and L), which have been constructed and commissioned under works approval W6142/2018/1 and are now in Time Limited Operations; • Add location of South Flank Primary Crushers 1 and 2; • Increase the Assessed Production Capacity from 71 Mtpa up to 151 Mtpa; and • Remove discharge point L11 as it is no longer in use (L20 is used instead).
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Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Assessed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 5: Processing or beneficiation of metallic or nonmetallic ore	71,000,000 tonnes per Annual Period	151, 000,000 tonnes of ore per Annual Period
Category 6: Mine dewatering	34,931,000 tonnes per Annual Period	N/A
Category 12: Screening, etc. of material	2,000,000 tonnes per Annual Period	N/A
Category 52: Electric power generation	20 MW	N/A
Category 54: Sewage facility	1,138 m ³ /day	N/A
Category 63: Class I inert landfill site	25,000 tonnes per Annual Period	N/A
Category 73: Bulk storage of chemicals etc.	10,000 m ³ in aggregate	N/A
Category 85B: Water desalination plant	0.9125 gigalitres per Annual Period	N/A
Category 89: Putrescible landfill site	5,000 tonnes per Annual Period	N/A

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Ministerial statement No: MS1072 EPA Report No: 1610
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Reference No: N/A

Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input checked="" type="checkbox"/> Expiry: Other evidence <input type="checkbox"/> Expiry:
Has the applicant obtained all relevant planning approvals?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	Approval: Expiry date: If N/A explain why?
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Type: N/A Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Regional office: North West
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Priority: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx</i>)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>Iron Ore (Mount Goldsworthy) Agreement Act 1964</i> <i>Dangerous Goods Safety Act 2004</i> Dangerous Goods Licence DGS017237 <i>Environmental Protection (Controlled Waste) Regulations 2004</i>

Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<p>Site ID: 10797 Description: Coondewanna Airport Classification: Information Request Date of classification: N/A</p> <p>Site ID: 5154 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</p>