



Appeals Convenor

Environmental Protection Act 1986

REPORT TO THE MINISTER FOR ENVIRONMENT

**APPEAL IN OBJECTION TO THE CONDITIONS APPLIED TO A WORKS APPROVAL
BY THE DEPARTMENT OF WATER AND ENVIRONMENTAL REGULATION**

**WORKS APPROVAL W6281/2019/1: 12 MTPA RELOCATABLE
CRUSHER, MT WHALEBACK/OREBODY 29/30/35, NEWMAN**

WORKS APPROVAL HOLDER: BHP BILLITON IRON ORE PTY LTD

Appeal Number 006 of 2020

October 2020

Appeal summary

This report relates to an appeal against the dust management conditions applied to Works Approval W6281/2019/1, given by the Department of Water and Environmental Regulation (DWER), authorising BHP Billiton Iron Ore Pty Ltd to construct, install and commission a 12 million tonnes per annum relocatable crusher at the Mt Whaleback/Orebody 29/30/35 site.

Broadly, the appellant submitted that DWER's risk assessment was inadequate in relation to dust emissions and that the works approval should include further dust management conditions, including requiring an independent LiDAR study, monitoring and management of PM_{2.5}, and monitoring for public amenity.

Key findings of the appeal investigation are as follows:

- DWER's risk assessment was consistent with its *Guidance Statement - Risk Assessments, Part V Environmental Protection Act 1986 (2017)*
- DWER acknowledges the dust levels in Newman are high
- there will be no change to the type of ore processed and no increase in approved production volume as part of the works approval
- the new relocatable crusher is expected to reduce dust from the premises
- a condition has been applied requiring the permit holder to demonstrate that there has been a reduction in dust from the crusher, prior to any future licence amendment for the crusher being issued
- the current licence is under review by DWER in consultation with the Department of Health on health impacts related to dust and applicable standards for the protection of human health.

Following consideration of the issues raised in the appeal, advice from DWER and the works approval holder, it is considered that DWER had regard for dust emissions from the proposed works and applied appropriate conditions to manage the identified environmental risks and impacts for the construction, commissioning and time limited operations of the relocatable crusher.

Noting that DWER is relying on conditions to ensure dust control measures are implemented at the relocatable crusher and to demonstrate that the infrastructure has resulted in a decrease in dust emissions at the site prior to incorporating the operation of the new crusher into the licence, the Appeals Convenor considered that the conditions can be improved to clarify the authorised works and to provide better information on dust to inform any future licence amendment.

Recommendation

The Appeals Convenor recommended that the appeal be allowed to the extent that:

- condition 1 is amended to:
 - properly reflect the scope of works subject of the approval by deleting reference to 'multiple crushers' in column 1 of Table 2
 - clarify that all items in the first column of Table 2 are collectively defined as 'OHP5 Relocatable Crusher', and that this term is used consistently throughout the approval
- condition 12 is amended to require BHP to report on ambient dust levels to provide guidance to DWER on the extent to which dust levels have been reduced.

It is otherwise recommended that the appeal be dismissed.

INTRODUCTION

This report relates to an appeal lodged by Michael Hain, Hain FT Pty Ltd and Anderson UT Holdings Pty Ltd (the appellant) against the conditions applied to Works Approval W6281/2019/1 granted by the Department of Water and Environmental Regulation (DWER) on 23 January 2020 to BHP Billiton Iron Ore Pty Ltd (BHP). The works approval relates to the Mt Whaleback/Orebody 29/30/35 site and authorises the construction, installation, commissioning and time limited operations of a new 12 million tonnes per annum (Mtpa) relocatable crusher.

The Mt Whaleback Hub comprises iron ore operations to the west of Newman, and comprises Mt Whaleback and Orebodies 29, 30 and 35. Iron ore at the premises is mined by open-cut methods, then hauled to processing facilities.

A number of activities at the hub are prescribed for the purposes of Part V of the *Environmental Protection Act 1986* (EP Act) and are the subject of a licence (L4503/1975/14) issued by DWER. The licence regulates dust emissions from the processing or beneficiation of ore. DWER advised that it is currently reviewing L4503/1975/14 including:

consultation with Department of Health on the most applicable guidelines for dust and the implementation of further dust control measures and improvement conditions to better address dust management onsite.¹

The works the subject of the appeal will occur within the boundaries described in the licence. By section 53 of the EP Act, any occupier of the prescribed premises who alters the nature or volume of emissions from the premises commits an offence unless the person does so in accordance (among other things) with a works approval. The new crusher falls within the scope of section 53, and on that basis a works approval was sought and granted.

The new relocatable crusher will replace the existing 7 Mtpa relocatable crusher OHP5, to exclusively process Marra Mamba iron ore including that diverted from an existing 7 Mtpa relocatable crusher at OHP2.

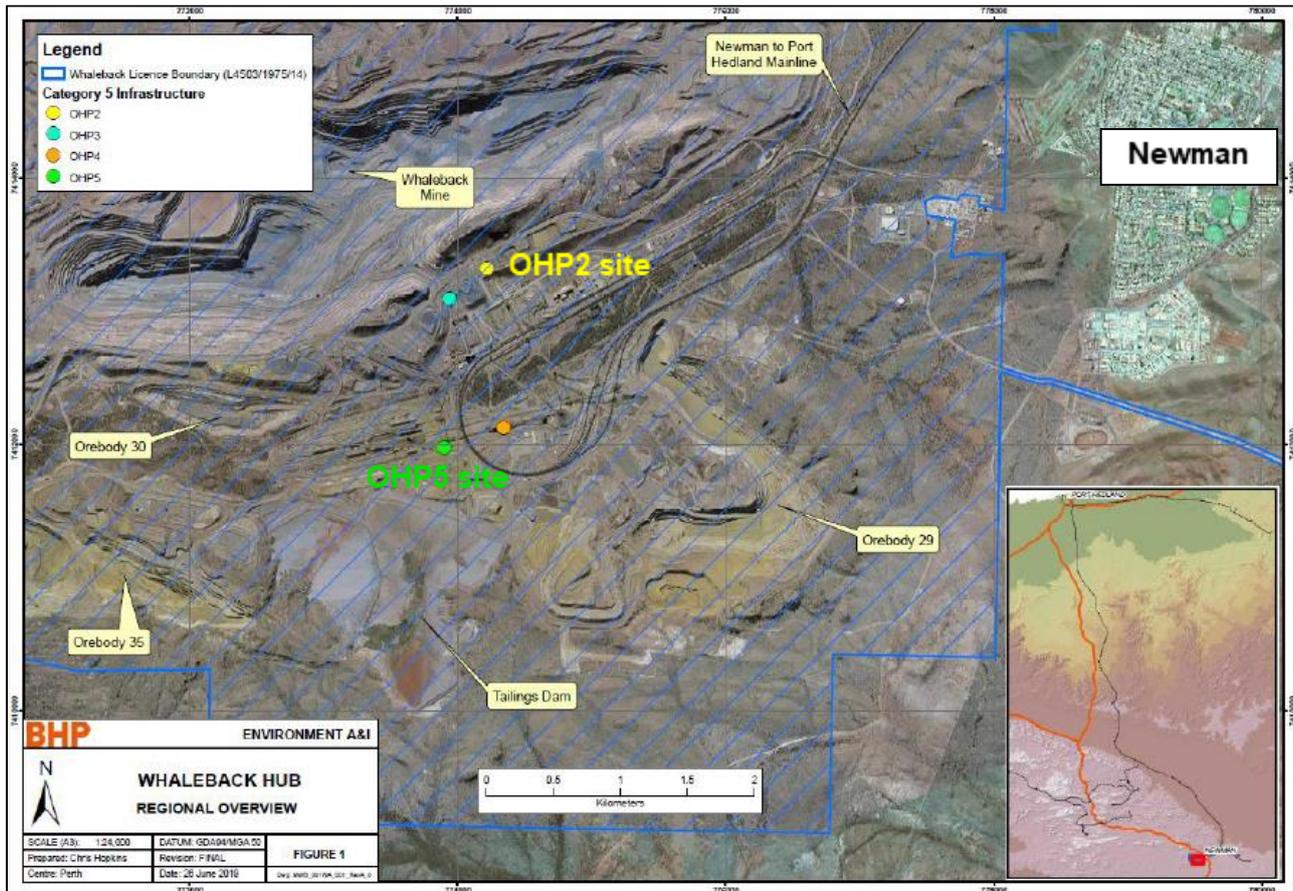
Despite the increase in capacity of the new crusher, DWER states that there will be no increase in overall production volumes as a result of the installation, and that increased production at OHP5 will be offset by reduced production at OHP2.² The location of OHP2 and OHP5, and their proximity to the Newman townsite, are indicated in Figure 1.

¹ DWER Appeal Report page 3.

² Decision document for Works Approval W6281/2019/1, pages 3-4.

Figure 1: Context map

(Source: DWER, W6281/2019/1)



OVERVIEW OF APPEAL PROCESS

In accordance with the EP Act, two reports relating to the matters raised on appeal are required for the Minister for Environment to determine the outcome of an appeal:

- a report from the Appeals Convenor, as required by section 109(3) of the EP Act
- a report from the decision-making authority of the decision under appeal, as required by section 106(1).

This document is the Appeals Convenor's report to the Minister.

In order to properly advise the Minister, the Appeals Convenor investigated the matters raised on appeal. The investigation included:

- review of the matters raised in the appeal and subsequent submissions made by the appellant
- review of DWER's report provided on 14 May 2020 under section 106 of the EP Act
- meeting video conferences with the appellant on 4 June and 11 August 2020
- provision of DWER's report to the appellant and the permit holder, and review of and regard for the appellant's and the permit holder's response to DWER's report
- meeting with BHP on 18 August 2020
- video conference with DWER's Air Quality Branch on 27 August 2020
- review of other information, policy and guidance as considered necessary.

The environmental appeals process is a merits-based process. Appeal rights in relation to a works approval are normally against the specifications of a works approval and whether the conditions of the works approval are adequate or appropriate to control the environmental impacts of the design and construction of the plant. Issues of whether the plant operates so as to manage or abate pollution and to ensure that it operates in an environmentally acceptable manner are normally considerations of the licensing process rather than a works approval. Consistency with previous Ministerial appeal determinations is also relevant, subject to new information or evidence being presented that was not previously considered.

OUTCOME SOUGHT BY APPELLANT

The appellant is seeking for additional conditions to be applied to the works approval in respect to the management of dust from the premises. The appellant also submitted that the works approval should not have been granted however, under section 102(3) of the EP Act, a revocation of a works approval is not an outcome available on appeal.

GROUND OF APPEAL

In summary, the appellant submitted that DWER inadequately assessed dust impacts from the proposed works, applied inappropriate standards to the assessment of the proposal, and failed to apply conditions to ensure dust emissions from the works will be identified and acted upon.

In addition, the appellant also challenged the validity of the works approval on the basis of inappropriate delegation of authority.

These matters are considered under three grounds:

1. Adequacy of the risk assessment
2. Adequacy of the dust management conditions
3. Validity of the works approval

GROUND 1: ADEQUACY OF THE RISK ASSESSMENT

By this ground of appeal, the appellant submitted that DWER's risk assessment for dust was flawed and the risk for public health was underestimated for the following reasons:

- modelling of dust dispersion and independent analysis of results has not been conducted
- an independent LiDAR study should be commissioned to inform DWER's decision-making
- no medical or Health Risk Assessment Study has been undertaken for Newman to support the *National Environment Protection (Ambient Air Quality) Measure*³ (NEPM) of 50 µg/m³ being disregarded for the measurement of particulates.
- the health risks of the input material were not considered, including tailings material, the inherently dusty nature of Marra Mamba ore and risks associated with asbestos, silica and fine particulates (PM_{2.5})
- rating of risk is incorrect and should be 'Extreme and not 'High'

The appellant also submitted that DWER have assessed the application against a draft *Guideline – Air Emissions*⁴, with which the appellant has concerns and had made submissions, particularly in relation to the application of occupational standards for asbestiform materials in a public health (residential) setting.

³ The NEPM sets the maximum average concentrations for particles as PM₁₀ at 50µg/m³ over 24 hours and 25µg/m³ over one year, and for particles as PM_{2.5} at 25µg/m³ over 24 hours and 8µg/m³ over one year

⁴ Department of Water and Environmental Regulation (2019) *Guideline – Air Emissions*. Draft for external consultation, dated October 2019. Government of Western Australia. Available at: <https://www.der.wa.gov.au/our-work/consultation/69-closed-consultations/552-draft-guideline-on-air-emissions>

Consideration

In accordance with section 52 of the EP Act, BHP submitted a works approval application to construct, commission and undertake time limited operations (a period not exceeding 180 calendar days) of the 12 Mtpa relocatable crusher. DWER reported that one of the primary purposes of the new crusher, as stated in BHP's application documentation, is to reduce dust emissions produced through the processing of Marra Mamba ore.⁵

BHP expects that the new relocatable crusher will result in a reduction in dust emissions by:

- reducing haul distances from Orebodies 29, 30 and 35 (it is a significantly shorter journey to OHP5 from Orebodies 29, 30 and 35 than to OHP2 where the ore is currently hauled)
- reducing the Marra Mamba ore drop-height to the stockpile (due to landscape position)
- focus dust reduction measures on Marra Mamba ore as OHP5 Relocatable Crusher will only process Marra Mamba ore
- a reduction in the number of transfer stations the ore moves through (by about 16).⁶

Dust emissions relating to other infrastructure and activities conducted at the premises are covered under the current licence for the premises. It is also understood that the ongoing operation the new crusher would require a licence amendment.

On the basis of the above, DWER's assessment only related to the construction, commissioning and time limited operations of the OHP5 relocatable crusher.

DWER, in response to the appeal advised that it followed a risk-based approach to its assessment of the application and the assessment was consistent with *Guidance Statement - Risk Assessments, Part V Environmental Protection Act 1986* (2017). DWER's risk assessment identified potential emission pathways and receptors, to establish where there is a Risk Event, which would require a detailed risk assessment. DWER's risk assessment is detailed in Section 9 of the decision report.

The framework provides for consideration of the consequence and likelihood of each risk event in accordance with Table 1 below.

Table 1 – Risk Rating Matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost Certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

(Source: DWER Guidance Statement - Risk Assessments https://www.der.wa.gov.au/images/documents/our-work/licences-and-works-approvals/GS_Risk_Assessments.pdf)

⁵ DWER. Decision Report for Works Approval W6281/2019/1, page 3.

⁶ DWER. Decision Report for Works Approval W6281/2019/1, page 3.

As noted in the decision report, DWER's risk assessment for dust had consideration to BHP's documents as well as the existing premises (history and compliance), legislative context (including under Part V of the EP Act), ambient air quality monitoring network, and specifics relating to the siting of the new infrastructure. It is also noted that DWER considered findings from Port Hedland's health risk assessment (HRA) in relation to dust. The dust controls proposed by BHP for the relocatable crusher are outlined in Table 20 of the decision report and includes enclosed transport points, dust curtains and covers, water sprays and cannons, rubber sealings and dust skirts.

In relation to the appellants submission that modelling should have been undertaken for the assessment of the works approval, DWER acknowledged that ambient dust in Newman is high⁷ and noted that fugitive dust is generated as a result of a number of variables and factors from the premises as a whole, including ore throughputs, the manner in which ore is handled at the premises, the moisture content of the ore and meteorological conditions.

However, as the new crusher under the works approval is expected to decrease dust emissions, DWER was of the view that modelling would not be required if BHP could demonstrate that the new crusher will reduce dust emissions as anticipated. To this end, DWER advised the following:

To ensure that a reduction in dust will occur, the dust reduction commitment has been conditioned by condition 8(e) of the Works Approval ... where the Applicant is required to provide *information to adequately demonstrate the OHP5 Relocatable Crusher has resulted in a reduction of dust emissions when processing ore at full capacity, as compared to the previous crusher.* This is an outcome-based condition, where the Department can determine the adequacy of the information provided, on the basis of monitored emission data.

Monitoring data is more accurate than modelling data. Time limited operations under the works approval and operation of the Relocatable Crusher under the licence will not be authorised until adequate data is provided to demonstrate a dust reduction as committed.⁸

Health risk assessment for Newman and targets

In the absence of modelling, DWER also considered the results of ambient dust monitoring for the premises. DWER's risk assessment identified that there had been a high number of dust exceedances in Newman above the NEPM target of 70 µg/m³ (24 hour average). As advised by DWER, this target was selected based on consistency with the NEPM target used for Port Hedland.

The appellant submitted that there is no HRA for the Newman population available that allows the use of the target 70 µg/m³ applied in the risk assessment rather than the NEPM guideline of 50 µg/m³ as the daily average for PM₁₀.

In support of his appeal, the appellant submitted that the Department of Health advised that a HRA had not been undertaken for Newman.⁹ The appellant also submitted correspondence between the Department of Health and DWER, in which the former advised that, the application of the standard NEPM measure (50 µg/m³) would be expected to be applied.¹⁰

In the case of Port Hedland, the interim guideline of 70 µg/m³ was applied based on an HRA report which identified that, due to the small population size there would be negligible difference in the estimated health effects between the interim guideline of 70 µg/m³ and the NEPM of 50 µg/m³ for particles as PM₁₀ averaged over 24 hours. In 2018, the Government endorsed the recommendation made by the Dust Management Taskforce to continue to apply the interim guideline of 24-hour PM₁₀ of 70 µg/m³ to residential areas of Port Hedland.¹¹

In response to this element of the appeal, DWER advised that:

⁷ DWER response to Appeal 006/20, page 7.

⁸ DWER response to Appeal 006/20, pages 3-4.

⁹ Further information provided by the appellant on 3 July 2020.

¹⁰ Further Information Provided by the appellant on 23 July 2020.

¹¹ Appeals Convenor Report L4432/1989/14 Eastern Operations Port Hedland Pilbara Port Authority.

As part of the scheduled licence L4503/1975/14 review, the Department is consulting with the DoH on the most applicable guideline for dust. In 2017, the Department, with DoH support, initiated a dust monitoring assessment for Newman, which will inform the current licence review.

The Department acknowledges the contention between the use of 50 µg/m³ (NEPM) against the current assessed value of 70 µg/m³ which was previously selected based on consistency with Port Hedland.

As the Applicant has committed to a reduction in dust emissions through the operation of this new Relocatable Crusher, the Department expects that the number of dust exceedances should reduce and further reductions may be required as a result of the review. The Department supports measures to reduce dust emissions and notes the reduction in haul distances, drop height and transfer stations from information provided by the Works Approval Holder.

The Department's Air Quality Branch has recently conducted a 12-month study of Total Suspended Particulates, heavy metals and asbestos in Newman. Advice from the DoH in relation to the results of the study and the current BHP LiDAR program will also inform the review of licence L4503/1975/14.¹²

In any event, as outlined in the explanatory statement accompanying NEPM, the intent of the NEPM is to provide a national framework for ambient air quality management in Australia. The AAQ NEPM requires participating jurisdictions to undertake nationally consistent monitoring and reporting activities that support the formulation of air quality management policies. The AAQ NEPM monitoring protocols provide guidance to jurisdictions on monitoring population exposure to air pollution.

The AAQ NEPM standards are health based, with a focus on large urban areas where the majority of Australia's population resides. DWER advised that the NEPM standards are not intended to be applied as environmental standards by jurisdictional environmental regulators without consideration of the regulatory impacts. In relation to air quality, DWER further advised that it:

... carries the responsibility to ensure activities do not pose unacceptable risks to public health or the environment. In undertaking its regulatory function to manage and regulate risks from air quality, the Department is in the process of undertaking a comprehensive licence review for this premises, including the application of particulate matter targets (refer to Appeal ground 1). The ambient dust in Newman is acknowledged as high.

Draft Air Emissions Guideline

In relation to the appellant's submission that DWER inappropriately used the draft *Guideline – Air Emissions*, it is noted that this guideline was not referred to in DWER's decision report and does not relate to dust emissions. The draft Guideline states:

Fugitive dust and odour emissions are not discussed in this guideline. For guidance on these emission types, see *Guideline: odour emissions* and *Guideline: dust emissions* (under development).¹³

It is therefore considered that the Draft Guideline is not relevant to the works approval.

Input Material

Tailings

The appellant submitted that tailings should not be listed in Table 4 of the decision report as a description for a Category 5 prescribed premises under Schedule 1 to the *Environmental Protection Regulations 1987*.

In response to the appeal, DWER advised that:

Although tailings is included in the standard description of category 5 (this description is quoted directly from Schedule 1 – Prescribed premises of the *Environmental Protection Regulations 1987*), the processing of tailings is not authorised through the Works Approval for the Relocatable Crusher.

¹² DWER response to Appeal 006/20, page 5.

¹³ *Guideline – Air Emissions*, page 1.

The Works Approval Holder will need to submit a new application which would be assessed by the Department for consideration of the reprocessing of tailings.¹⁴

BHP also confirmed that the works approval is not related to the construction or commissioning of a tailings facility.¹⁵

Characteristics of Marra Mamba ore

The appellant submitted that DWER's risk assessment did not consider the characteristics of the Marra Mamba ore, namely that Marra Mamba ore is dustier than generic iron ore, PM_{2.5} is a major proportion of the dust, and the dust comprises crystalline silica, halloysite fibres and asbestos.

DWER advised that there will be no change to the ore type as a part of the works approval, the new crusher will only process Marra Mamba ore and there will be no change to the authorised throughput for the premises. By this, it is understood that in the context of the works approval, DWER considered that there is no requirement to assess the dust related impacts from the operational aspects of processing of Marra Mamba ore, as this activity is already managed under the current licence, which is currently under review.

Noting that the overall outcome of the new crusher is to reduce dust emissions, it is considered that DWER's position is justified. However, for completeness, DWER's response to the appellant's submission in relation to the characteristics of Marra Mamba ore are provided below.

DWER advised that the document *Literature Review and Report on Potential Health Impacts of Exposure to Crustal Material in Port Hedland, 2007* referred to in support of the appellant's submission has been superseded by the *Port Hedland Air Quality Health Risk Assessment for Particulate Matter, Environmental Health Directorate, January 2016*. DWER noted that this document states that:

... the air monitoring results for all monitored metals indicate that exposure to these metals in ambient air in the Port Hedland is unlikely to pose any risk to human health. The risk characterisation method employed by Toxikos is typical and consistent with current practice. The assumptions are conservative and therefore the risks are considered negligible. The same can be concluded for both silica and asbestos.

In response to DWER's advice above, the appellant stated:

The report fails to identify that Marra Mamba ore is mined at the subject premises and is mined and also sourced to the Subject Premises from other mines, notable Mining Area C...

... This is an important additional concern for applying condition as noted further below, since the Proponent has acknowledged itself that there is potential for fibrous intersections occurring at Mining Area C.

In relation to PM_{2.5}, the appellant submitted that DWER should have considered PM_{2.5} in its assessment and as a monitoring condition, noting that:

- exceedances of PM_{2.5} NEPM in Port Hedland (Richardson Street) can be used as a proxy for Newman
- Marra Mamba ore is dustier than iron ore in general
- the correlation between PM₁₀ and PM_{2.5} from iron ore, as evident from studies in Port Hedland¹⁶

¹⁴ DWER response to Appeal 006/20, page 4.

¹⁵ BHP Billiton Iron Ore Pty Ltd response to Appeal 006/20, page 3.

¹⁶ Literature Review and Report on Potential Health Impacts of Exposure to Crustal Material in Port Hedland. https://www.jtsi.wa.gov.au/docs/default-source/default-document-library/ph_dust_management_health_impacts_of_exposure_to_material_0407.pdf?sfvrsn=4

- historically DWER has required monitoring for PM_{2.5} in the Town of Newman under previous licence L4503/1975/12 (11 November 2010)¹⁷

In response to the appeal, DWER advised that:

... particulates of the size fraction PM_{2.5} are considered as part of the PM₁₀ fractions, but not for their specific health impacts as respirable particles. A concern of respirable dust would only arise from specific sources such as combustion processes or other fine particle sources such as coal material, which are not present at the assessed project.

The *Port Hedland Air Quality Health Risk Assessment for Particulate Matter, Environmental Health Directorate, January 2016* found that exceedances of PM_{2.5} can be largely explained by bushfire impact in the area and that these are not amenable to local controls.¹⁸

In response, the appellant disagreed with the explanation that exceedances of PM_{2.5} in Port Hedland are largely attributable to bushfire. The appellant provided PM_{2.5} dust monitoring data for Port Hedland (Richardson Street, Taplin Street and Yule River) which shows an average annual increase in PM_{2.5} for Richardson Street in Port Hedland which is not explained by bushfire events, but in the appellant's view is correlated with the dustier Marra Mamba ore.

As stated in DWER's decision report, NEPM standards do not require DWER to ensure that dust emissions do not at any time or in any location exceed the criteria intended to protect human health. The NEPM guidance specifically states that the measure is not suitable for use as a boundary or compliance limit in regard to individual premises.¹⁹

DWER has acknowledged the substantial increase in the concentration of PM₁₀ in 2018/2019 in Newman compared with the previous year, and the majority of the results were linked to mining activities. As stated above, DWER is currently undertaking a review of the licence and dust emission from the premises as a whole and as a part of its review is liaising with the Department of Health on health-related emission standards and criteria.

In relation to asbestos, the appellant submitted that DWER's finding that no reportable limits of asbestos were recorded in total suspended particles in Newman, possibly infers that asbestos is in fact present, and that DWER erroneously applied occupational standards in a residential setting. In response, DWER advised:

Sampling of asbestos conducted in Port Hedland during 2014 showed samples collected were at or below the level of detection of 0.01 fibres/mL. The *Port Hedland Air Quality Health Risk Assessment for Particulate Matter, Environmental Health Directorate, January 2016* states "As all samples were below the level of detection no assessment of the risk to the Port Hedland population was required. The level of detection for the method is well below the WA Department of Health guideline for asbestos of 0.01 fibres/mL and below the EPA Victoria guideline for asbestos fibres in air of 0.05 fibres/m³."

In relation to crystalline silica, the appellant referred to a presentation²⁰ to the CEED Seminar in 2018²¹ (CEED presentation). The key topic of the presentation is additives in water for dust suppression. The presentation indicated that Marra Mamba iron ore possess a higher friability (ability to crumble) compared to other types of iron ore resulting in a greater tendency to form dust and contains crystalline silica, which (according to an IRAC publication²²) is believed to be carcinogenic towards humans, and that occupational inhalation of high iron oxide dust concentrations over the long term can lead to benign pneumoconiosis, termed siderosis.

¹⁷ Supplementary Information provided by the appellant - email dated 23 September 2020.

¹⁸ DWER response to Appeal 006/20, page 6.

¹⁹ DWER Decision Report Works Approval W6281/2019/1.

²⁰ Huynh, E., Leggoe, J. and Black, D. (2018) *Additives to Marra Mamba Iron Ore to Reduce Dust Emissions*. Presentation to the CEED Seminar 2018.

²¹ Co-operative Education for Enterprise Development, in collaboration with the University of Western Australia and Curtin University

²² World Health Organization (1997). IRAC Monographs on the evaluation of carcinogenic risks to humans. Volume 68, Silica, some silicates, coal dust and para-aramid fibrils.

In response to the appellant's submission, DWER advised:

Sampling of crystalline silica conducted in Port Hedland during 2014 ... showed that "the risk posed by Respirable Crystalline Silica in Port Hedland at all sites monitored is very low and is not of concern."

In relation to halloysite fibres, DWER did not make comment, however BHP advised that halloysite fibres have not been recorded at Mt Whaleback Hub.

In response to this element of the appeal, BHP also advised that:

... the Port Hedland [HRA Report] states: "... despite epidemiological studies investigating observed health effects associated with iron-ore dust inhalation, and in vitro studies investigating the effect of iron oxides on reactive oxygen species and cellular reactivity, there is no clear causal link between iron-oxides and disease. Overall, there is no clear evidence of a causal link between exposure to airborne iron oxide particles and disease." ...

BHP's *Hazardous Fibrous Minerals, Reactive Ground and Dust Management Plan* (0118497) is used to manage the health risks associated with fibrous minerals, inhalable / respirable dust and silica. The plan outlines how BHP identifies, assesses, controls, records and reports on these materials. This includes the dust management requirements with ore handling plants.²³

In respect to dust at the premises, DWER's assessment noted the following findings of the assessment:

- Newman dust has high levels of particles as total suspended particulates (TSP), with elevations in iron content and manganese content, with no reportable asbestos in TSP particles, heavy metals and asbestos in Newman.
- The [Port Hedland] Health Risk Assessment²⁴ identified that the major constituent of ambient dust from port and commercial operations in Port Hedland is iron oxide with particulate matter as PM₁₀ being the key parameter of concern; this is also relevant to Newman due to mining and ore processing facilities in close vicinity of residents.
- A number of factors or variables influence the amount of dust generated at the premises including throughput, the method of ore handling, moisture content of the ore and meteorological conditions
- A high number of target exceedances have occurred above the NEPM 70 µg/m³ value, including an increase of 37 days of exceedances reported since 2018.
- The licence and NEPM exceedances are currently being reviewed by DWER with a Dust Management Plan requirement to be added to the operational licence. The applicant will be required to review all current dust controls and provide detailed mechanisms and timeframes for continuous improvement to reduce dust emissions from the Mt Whaleback Hub as a whole.
- A review of the current dust monitoring network will also be recommended with improvements to be implemented.
- While the applicant has not undertaken modelling of dust emissions, a reduction in dust emissions from this new crusher as compared to the current will need to be demonstrated as part of compliance documentation and prior to the licence being amended.

Considering the above, DWER's overall risk rating for the risk of dust to health and amenity from the new crusher was determined to be 'high'. In its determination of the risk rating, DWER considered the consequence to be 'major', noting that there may be a *mid-level*²⁵ impact to amenity from the new crusher and that Specific Consequence Criteria for public health are not being met for the site as a whole.

²³ BHP Billiton Iron Ore Pty Ltd response to Appeal 006/20, page 3.

²⁴ As set out in: Department of Health (2016) *Port Hedland Air Quality Health Risk Assessment for Particulate Matter*. Environmental Health Directorate, January 2016. Government of Western Australia.

²⁵ DWER Guidance - Table 1 – Risk Criteria, page 7.

In relation to likelihood, based on exceedances of dust recorded in 2018/2019 reporting period, DWER determined that it is 'likely' that a risk event will occur, that is '*The risk event will probably occur in most circumstances*'.²⁶

In response to the appellant's view that the risk should have been rated as 'extreme' DWER advised that:

[if] the overall risk rating should be determined to be *extreme*, which would imply that the either the consequence would need to be changed to *severe*, however there is not *high level or ongoing medical treatment*, or the likelihood would need to be changed to *almost certain*, however, the risk event *is not expected to occur in most circumstances*. Therefore, the risk rating is most accurate in its current state and consistent with exceedance data in the previous two years.²⁷

DWER's Guidance Statement *Risk Assessments*²⁸ states that an overall risk rating of 'high' may require multiple regulatory controls. DWER determined that the risk of dust during commissioning and time limited operation would be acceptable subject to BHP's proposed controls as well as outcome-based controls and additional site-specific controls applied through the works approval. DWER applied conditions to the permit to reflect the proposed controls proposed by BHP. The adequacy of the conditions is discussed under Ground 2.

Conclusion

The appellant has raised concern regarding DWER's risk assessment for dust due to the construction, and commissioning and time limited operations of the new relocatable crusher.

Based on the information available, the following is noted:

- DWER's risk assessment was consistent with its *Guidance Statement - Risk Assessments, Part V Environmental Protection Act 1986 (2017)*
- DWER acknowledges that the dust levels in Newman are high
- there will be no increase in approved production volume at the premises as part of the works approval
- the works approval does not authorise any change to the type of ore currently mined and processed at the premises the relocatable crusher is expected to reduce dust from the premises
- a condition has been applied requiring the permit holder to demonstrate that there has been a reduction in dust from the crusher, prior to any future licence amendment being issued
- the current licence is under review by DWER in consultation with the Department of Health on health impacts related to dust and applicable standards for the protection of human health.

Taking the above into account, it is considered that the works approval is unlikely to result in an increase in dust impacts or risks to health and amenity from those that currently exist at the premises. It is therefore considered that DWER's conclusion regarding the level of risk in relation to dust during construction, commissioning and time limited operations was justified and it is recommended that this ground of appeal be dismissed.

It is noted, however, that dust from the whole premises, has been identified as a concern. It is understood that this issue will be considered by DWER through the licence review process currently underway.

²⁶ DWER Guidance - Table 1 – Risk Criteria, page 7.

²⁷ DWER response to Appeal 006/20, page 3.

²⁸ Available at: <https://www.der.wa.gov.au/our-work/regulatory-framework>

GROUND 2: ADEQUACY OF THE DUST MANAGEMENT CONDITIONS

The appellant submitted that the works approval should include further dust management conditions, including:

- an independent LiDAR²⁹ monitoring study
- particulate measures for public amenity should be specified.

Consideration

On the basis of its risk assessment, DWER was satisfied that potential adverse impacts associated with construction and installation of the new infrastructure, and the high risk of dust to health and mid-level impact to public amenity associated with ore handling during commissioning and time limited operations, can be managed through implementation of BHP's proposed controls and the additional controls applied through the works approval conditions.

As noted above, DWER advised that it is expected that new relocatable crusher will decrease dust emissions from the premises. It is therefore understood that the conditions of the works approval have been applied to ensure that appropriate controls are in place (during commissioning, installation and time limited operations) to ensure that BHP's dust management commitments are applied and the expected outcome of reduced dust emissions is demonstrated prior to any future licence amendment being granted for ongoing operation of the new crusher.³⁰

The appellant's submission in relation to LiDAR and monitoring dust for public amenity are discussed below.

LiDAR monitoring

Noting that there have been multiple exceedances of PM₁₀ and the NEPM, the appellant submitted that the works approval should include a condition requiring an independent LiDAR study in Newman. The appellant submitted that LiDAR would improve understanding of the meteorology of the air shed and its dust sources.

In response to the appeal, DWER advised that:

[It] acknowledges the Appellant's efforts to illustrate the benefits of dust monitoring using LiDAR technology. However, it is not deemed necessary for this specific Works Approval as the Works Approval Holder has committed to a reduction in dust emissions through the operation of this new Relocatable Crusher. This commitment has been conditioned by condition 8(e) of the Works Approval (Attachment 1) where the Works Approval Holder is required to provide *information to adequately demonstrate the OHP5 Relocatable Crusher has resulted in a reduction of dust emissions when processing ore at full capacity, as compared to the previous crusher.*

BHP advised that it uses LiDAR technology at Mt Whaleback Hub as a part of a suite of dust monitoring tools to increase its understanding of the dust behaviours and meteorological conditions.

Monitoring for public amenity

The appellant submitted that the works approval should include a condition requiring monitoring of particulate matter and limits for public amenity (in addition to public health), similar to those used in the NSW *Voluntary Land Acquisition and Mitigation Policy*³¹ and Ministerial Statement 741³².

²⁹ An acronym for light detection and ranging

³⁰ Under conditions 7 and 8(e) of W6281/2019/1.

³¹ Available at: planning.nsw.gov.au/-/media/Files/DPE/Plans-and-policies/voluntary-land-acquisition-policy.pdf?la=en

³² Available at: www.epa.wa.gov.au/0741-cape-lambert-upgrade-increase-throughput-85-million-tons-annum-shire-roebourne

The NSW *Voluntary Land Acquisition and Mitigation Policy* describes the NSW Government's policy for the management of noise and dust impacts from State significant mining, petroleum and extractive industry developments. In relation to dust impacts on amenity, the policy sets out mitigation criterion for TSP of 90 $\mu\text{g}/\text{m}^3$ (annual average) and for deposited dust of 2 $\text{g}/\text{m}^2/\text{month}$ (incremental impact) and 4 $\text{g}/\text{m}^2/\text{month}$ (cumulative impact).

Ministerial Statement 741 relates to the increase in throughput of iron ore at the Cape Lambert Port Operations. The Statement includes a requirement for the proponent to prepare and implement a Dust Monitoring Program to establish the proposal's contribution to PM_{10} and TSP levels and short-term TSP impacts (over 200 $\mu\text{g}/\text{m}^3$ (10 minute average)) at Port Samson townsite. The Statement also requires the proponent to prepare and implement a Dust Management Plan to minimise dust emissions from the proposal.

It is noted that Ministerial Statement 741 relates to the operational phase of a proposal, whereby the works approval relates to construction, commissioning and time limited operations. Dust impacts from ongoing operation of the new crusher will be considered in any future licence amendment applications.

Condition 1 of the works approval describes the infrastructure authorised by the works approval and sets out the dust measures to be implemented by BHP during the construction and installation of the new crusher.³³ This includes application of water and dust suppressants and sealing traffic areas, speed limits and education of site personnel as well as design requirements implemented on the infrastructure. It is noted that this condition contains a typographical error as it refers to 'multiple crushers' which has been confirmed with BHP as incorrect.

For BHP to progress to time limited operations, condition 7 requires an Environmental Commissioning Report to be provided to DWER prior to time limited operations. During time limited operations, it is considered that the ambient dust levels should also be reported to DWER to provide guidance to DWER on the extent to which dust levels have been reduced.

In relation to the ongoing operation of the new crusher, it is understood that (subject to the applicant establishing that emissions from the new crusher are lower than the previous crusher) dust emissions will be regulated under an amendment of the existing licence for emissions and discharges across the broader premises. As noted under Ground 1, DWER also noted in the decision report that the licence 'is currently under amendment to implement further dust control conditions and improvement conditions to better address dust management onsite'.³⁴

Conclusion

In relation to LiDAR, noting DWER's advice and the limitations of LiDAR, it is not considered appropriate to require LiDAR monitoring under the conditions of this works approval. It is noted however, that BHP uses LiDAR for parts of the premises, the results of which may be useful to inform the current licence review currently being undertaken.

In relation to public amenity, this is considered an operational issue and it is expected that impacts to public amenity will be considered as a part of the current licence review and for any future licence application.

As noted above, the new relocatable crusher is expected to reduce dust emissions of Marra Mamba ore. Given that the conditions applied to the works approval ensure dust management measures and controls are in place and that the outcome of reduced dust emissions is demonstrated prior to any future licence amendment being granted to operate the new crusher, it is considered that the conditions are appropriate and justified.

³³ Works Approval W6281/2019/1 condition 1, Table 2.

³⁴ Section 5.2.3 of the decision document for Works Approval W6281/2019/1, page 14.

Notwithstanding the above, noting that DWER is relying on the conditions to ensure that dust is managed and outcomes are demonstrated, it is recommended that the conditions be improved to clarify the authorised works and to provide better information for any future licence amendment. The recommended changes are:

- condition 1 is amended to:
 - properly reflect the scope of works subject of the approval by deleting reference to 'multiple crushers' in column 1 of Table 2
 - clarify that all items in the first column of Table 2 are collectively defined as 'OHP5 Relocatable Crusher', and that this term is used consistently throughout the approval
- condition 12 is amended to require BHP to report on ambient dust levels to provide guidance to DWER on the extent to which dust levels have been reduced.

It is otherwise recommended that this ground of appeal be dismissed.

GROUND 3: VALIDITY OF THE APPROVAL

The appellant submitted that the works approval is invalid because:

- the purported Delegate under section 20 does not bear the same title as the CEO's delegation order
- the applicant is BHP Billiton Iron Ore Pty Ltd, however should reflect the joint venture partners.

Consideration

It is noted that the list of delegates in DWER's Delegation 137³⁵ includes the position 'Manager, Resource Industries'.

In response to this issue, DWER advised that the signatory to the works approval was duly authorised by the instrument of delegation dated July 2018 to grant the works approval.

In relation to the status of the applicant and joint venture partners, DWER advised that it:

... is satisfied that BHP Billiton Iron Ore Pty Ltd has operational control of the premises and is the 'occupier' of the premises under the EP Act.

The Applicant has been identified in accordance with the instructions in the Application form: Works Approval / Licence / Renewal / Amendment / Registration:

"The applicant (the occupier of the premises) must be an individual(s), a company, body corporate, or public authority, but not a partnership, trust, or joint-venture name. Applications made by or on behalf of business names or unincorporated associations will not be accepted."

The full legal entity name was inserted on the Application Form and the Australian Company Number (ACN) provided, was checked by the Department.³⁶

Conclusion

As these matters do not relate to the conditions of the works approval, they are considered to be outside the scope of the appeal. In any event, given the content of DWER's response to these issues, they are considered to be without merit. It is recommended that this ground of appeal be dismissed.

³⁵ Published in the *Government Gazette* No. 109, 13 July 2018, page 2592.

³⁶ DWER response to Appeal 006/20, pages 6-7.

CONCLUSION AND RECOMMENDATIONS

The works approval allows for a temporary period of construction, commissioning and operation to validate performance. The longer term operation of the infrastructure requires a licence to operate under the EP Act. A licence, if granted, would be expected to contain conditions to monitor and report on emissions for the authorised infrastructure.

In reviewing the matters raised by the appellant, it is considered that DWER has had regard for the available information and its own guidelines in its risk assessment, and that there are a range of regulatory controls available through the works approval conditions to manage and control dust emissions during construction, commissioning and time limited operations of the new relocatable crusher.

Based on the above, and noting that the proposed crusher is predicted to decrease dust emissions compared to the crusher it is replacing, it is considered that the additional conditions requested by the appellant are not warranted for the purposes of the works approval.

Furthermore, DWER acknowledges that the dust levels in Newman are high as a result of mining activities and as such are undertaking a review of the current licence. It is understood that this review will be undertaken in consultation with the Department of Health in relation to dust-related health impacts, guidelines and standards.

It is noted however that the conditions could be improved to clarify the authorised works and to inform any future licence amendment. On this basis, it is recommended that the appeal be allowed in part and the following amendments to conditions are made:

- condition 1 is amended to:
 - properly reflect the scope of works subject of the approval by deleting reference to 'multiple crushers' in column 1 of Table 2
 - clarify that all items in the first column of Table 2 are collectively defined as 'OHP5 Relocatable Crusher', and that this term is used consistently throughout the approval
- condition 12 is amended to require BHP to report on ambient dust levels to provide guidance to DWER on the extent to which dust levels have been reduced.

It is otherwise recommended that the appeal be dismissed.

If the Minister agrees to the recommended changes, it will be for DWER to give effect to the changes under section 110 of the EP Act.

Emma Gaunt
APPEALS CONVENOR

Investigating Officers:
Tonya Carter, Senior Environmental Officer
Jean-Pierre Clement, Deputy Appeals Convenor