



Appeals Convenor

Environmental Protection Act 1986

REPORT TO THE MINISTER FOR ENVIRONMENT

APPEALS IN OBJECTION TO THE CONDITIONS APPLIED TO A WORKS APPROVAL

**WORKS APPROVAL W6142/2018/1: MINING AREA C – SOUTH FLANK
NEWMAN**

WORKS APPROVAL HOLDER: BHP BILLITON IRON ORE PTY LTD

Appeal Number 021 of 2018

April 2019

Appeal Summary

This report relates to an appeal in objection to the conditions of works approval W6142/2018/1 (works approval) by the Department of Water and Environmental Regulation (DWER) under Part V of the *Environmental Protection Act 1986* in respect of prescribed premises 'Mining Area C – South Flank' at Newman (premises), operated by BHP Billiton Iron Ore Pty Ltd (works approval holder).

The appellant raised concerns in relation to the generation and control of dust emissions resulting from the construction and commissioning of new infrastructure at the premises. The appellant sought for a number of changes to be made to the works approval conditions in respect to the prevention, control and abatement of dust from the premises.

During the appeal investigation, the works approval holder provided additional information regarding its dust management strategies for the whole of the Mining Area C – South Flank project.

Having regard for the information provided during the appeal investigation, including information from the appellant, the works approval holder and DWER, the Appeals Convenor considered that DWER applied appropriate conditions to ensure that dust generated during the construction and commissioning of infrastructure at the premises is controlled. This includes conditions to control emissions to ensure that the premises does not pose an unacceptable risk to public health or the environment.

Recommendation

The Appeals Convenor recommended that the appeal be dismissed.

INTRODUCTION

This report relates to an appeal lodged by Anderson UT Holdings Pty Ltd ATF Anderson Unit Trust, Hain FT Pty Ltd ATF Hain No.2 Family Trust and Michael Hain (appellant) in objection to the conditions of works approval W6142/2018/1 (works approval) by the Department of Water and Environmental Regulation (DWER) under Part V of the *Environmental Protection Act 1986* (EP Act) in respect of prescribed premises 'Mining Area C – South Flank' at Newman (premises), operated by BHP Billiton Iron Ore Pty Ltd (works approval holder).

The prescribed premises categories on the works approval include Categories 5 and 73, defined under Schedule 1 to the *Environmental Protection Regulations 1987* (EP Regulations) as:

- Category 5: Processing or beneficiation of metallic or non-metallic ore; and
- Category 73: Bulk storage or chemicals etc.

The premises to which the works approval applies is located approximately 100 kilometres (km) north-west of Newman, on parts of Mining Tenements ML249SA, ML281SA and E47/1540-1. The extent of the premises is shown in Figure 1.

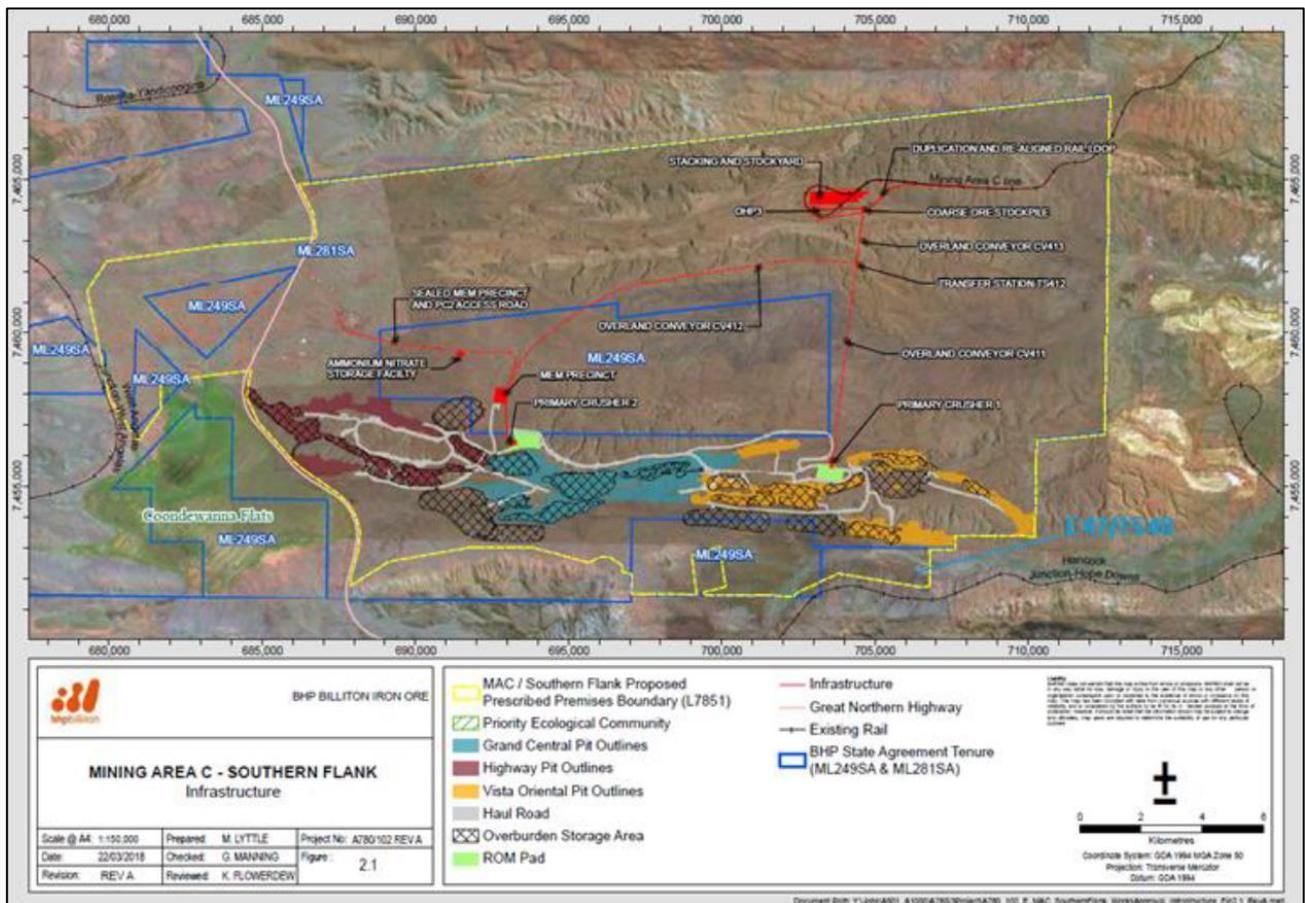


Figure 1: Premises map (boundary indicated in yellow)

(Source: DWER)

Background

Since 1998, the development of iron ore mining at Mining Area C has been the subject of assessments by the Environmental Protection Authority (EPA) under Part IV of the EP Act. Development of the North and South Flanks is managed through Ministerial Statement 1072.¹

¹ Available at: <http://www.epa.wa.gov.au/1072-mining-area-c-southern-flank>

Since 2002, the operation of iron ore processing facilities at Mining Area C – North Flank has been regulated through licence L7851/2002/6² under Part V of the EP Act. A licence amendment in October 2018 provides for (among other things) expansion of the premises boundary, increase in production by six million tonnes (Mt) per annum (Category 5), increase in fuel storage volume by 2,500 cubic metres (Category 73) and installation/operation of equipment relating to the South Flank.

On 13 July 2018, DWER granted the works approval for the construction and commissioning of infrastructure at the premises to support mining of a satellite iron ore body at Mining Area C – South Flank. Specifically, the works approvals has been granted for the construction of two x 40 Mt per annum iron ore processing facilities and two x two million litre diesel storage facilities at the South Flank, and an 80 Mt per annum iron ore handling plant at Mining Area C. It was against the conditions of this works approval that the appeal has been received.

This document is the Appeals Convenor's report to the Minister for Environment (Minister) under section 109(3) of the EP Act.

OVERVIEW OF APPEAL PROCESS

In accordance with section 106 of the EP Act, a report was obtained from DWER in relation to the issues raised in the appeal. The works approval holder was also given the opportunity to respond to the appeal. During the appeal investigation the Appeals Convenor consulted with DWER, the appellant and the works approval holder to discuss the matters raised in further detail. The appellant and the works approval holder requested a copy of DWER's report on the appeals, and provided additional information in response which was considered during the appeal investigation.

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.

OUTCOMES SOUGHT BY APPELLANT

The appellant sought for a number of changes to be made to the works approval conditions in respect to the prevention, control and abatement of dust from the premises.

GROUND OF APPEAL

The appellant raised concerns in relation to the generation and control of dust emissions resulting from the construction and commissioning of new infrastructure at the premises. The appeal grounds are summarised as relating to the following matters:

- Ground 1: Adequacy of risk assessment; and
- Ground 2: Adequacy of works approval conditions.

The appellant also raised matters that do not relate to the conditions of the works approval. These are noted under 'Other Matters' at the end of this report.

² Available at:
https://www.der.wa.gov.au/component/k2/itemlist/filter?fitem_all=7851&=&=&=&=&moduleId=94&ItemId=175

The appellant raised a number of legal grounds relating to the interpretation of terms and provisions of the EP Act. As the right of appeal against the amendment of a licence relates to the merits of the decision, questions of law are not considered in this report. The focus of the investigation is therefore on the specific objections raised in the appeals in respect to the licence amendments.

GROUND 1: ADEQUACY OF RISK ASSESSMENT

By this ground of appeal, the appellant questioned the adequacy of DWER's assessment of the risks posed by dust emissions resulting from the construction and commissioning of new infrastructure at the premises. Broadly, the appellant was concerned that DWER's risk assessment was deficient in its consideration and assessment of the following:

- applicable standards; and
- impacts to human health.

DWER's risk assessment

DWER advised that its risk assessment of emissions from the premises was based on a range of investigations, reports and data as described throughout its decision report, including:

- previous assessments under Part IV of the EP Act and Ministerial Statement 1072 (sections 5.1 and 5.2);
- other legislation and regulatory processes applying to the premises, including (among other things) the *Iron Ore (Mount Goldsworthy) Agreement Act 1964*, *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (section 5.3);
- overarching legislative framework under the EP Act and regulations, and DWER's Guidance Statements,³ and previous works approvals and licence amendments (section 5.4); and
- air quality monitoring and modelling,⁴ and potential impacts to sensitive receptors (section 7).

As set out in section 9 of the decision report, DWER advised that its risk assessment was undertaken in accordance with its published risk assessment framework which provides for consideration of the consequence and likelihood of each risk event in accordance with Table 1.

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

In relation to dust specifically, DWER identified dust to be a risk event resulting from commissioning and operation of Category 5 infrastructure at the premises, with the following key findings:

- dust emissions from prescribed activity of ore processing contributes to the cumulative dust emissions from the premises;

³ Available at: <https://www.der.wa.gov.au/our-work/regulatory-framework>

⁴ Pacific Environment Limited (2016) *Memorandum – Updated Air Quality Modelling For South Flank Proposal*. Unpublished report to BHP Billiton Iron Ore Pty Ltd, dated 22 August 2016.

- modelling of dust emissions from the premises predicts reduced visibility for a 15 km section of the Great Northern Highway, for up to 12 per cent of the time (at potential highway receptor 1), where vehicle closing speeds are 220 km per hour;
- the risk of vehicle collision from poor visibility due to dust is a safety risk that also requires management and regulation under relevant safety legislation by the agency with jurisdiction for vehicle transport (Main Roads WA);
- modelling of dust emissions from the premises predicts dust concentrations at Hope Downs Village will be within the *National Environment Protection (Ambient Air Quality) Measure*⁵ (NEPM) concentrations;
- the modelling worst case scenario is for the year of highest movement of tonnes of ore and waste in the closest proximity to the sensitive receptors;
- the works approval holder proposes a range of dust management measures, and dust monitors to inform site activities; and
- a dust monitoring plan including monitoring standards, monitor locations, trigger levels and management actions has not yet been submitted by the applicant.

Having regard for the above and the works approval holder's identified controls the outcomes of DWER's risk assessment as it relates to fugitive dust emissions are summarised in Table 2.

Table 2: DWER risk assessment for dust

Receptor	Consequence	Likelihood	Risk rating
Dust emission – Construction of new Category 5 and Category 73 infrastructure			
Hope Downs Village	DWER considered that a detailed risk assessment was not required due to the distance to the sensitive receptors and the relatively short duration of construction. DWER considered that no sensitive receptors likely to be impacted during construction.		
Great Northern Highway	<ul style="list-style-type: none"> • Hope Downs One Mining Operation and Village is 6.5 km east of closest construction and iron ore processing facility, and 1.5 km from the premises boundary. • Great Northern Highway is 5.5 km west of closest construction and iron ore processing facility, and 100 metres from the premises boundary. 		
Dust emission – Commissioning and operation of Category 5 infrastructure (processing of ore)			
Hope Downs Village	The potential consequence of health and amenity impacts from fugitive dust emissions is minor , on the basis that: specific consequence criteria for public health would be met if dust concentrations are as modelled; and impact to amenity would be low level at a local scale.	The potential likelihood of health and amenity impacts from fugitive dust emissions is unlikely , due to the modelled dust event causing health and amenity impacts will probably not occur in most circumstances.	Medium.
Great Northern Highway	The potential consequence of health impacts from fugitive dust emissions causing low visibility is severe , due to the potential for a vehicle accident and loss of life due to low visibility (up to 1 km).	The potential likelihood of health impacts from fugitive dust emissions causing low visibility is unlikely , on the basis that: a low visibility event is predicted for 10 per cent of the year at highest mine production; and reduced visibility will be managed by monitoring, and causing death will probably not occur in most circumstances.	High.

⁵ 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.

DWER's Guidance Statement *Risk Assessments*⁶ states that an overall risk rating of 'high' may require multiple regulatory controls, and an overall risk rating of 'medium' is likely to be subject to some regulatory control. In this case DWER determined that, while there is minimal risk of dust during construction of new Category 5 and Category 73 infrastructure, the risk of dust during commissioning (and subsequent operation) of Category 5 infrastructure would be acceptable subject to the works approval holder's stated controls as well as outcome based controls and additional site specific controls. The conditions of the works approval that are the subject of appeal are discussed separately at Ground 2.

Applicable standards

The appellant submitted that DWER had insufficient consideration of the NEPM, and that the decision report incorrectly states that five exceedances of the NEPM standard for particles as PM₁₀ are allowed per year. The appellant also submitted that DWER had insufficient regard for particles as PM_{2.5} in its risk assessment.

In relation to the air quality standards set out in the NEPM, DWER advised:

NEPM standards are health-based, with a focus on large urban areas where the majority of Australia's population resides. The standards in the NEPM are not intended to be applied as an environmental standard by jurisdictional environmental regulators without consideration of regulatory impacts. Section 7 of the *National Environment Protection Council Act 1994* allows jurisdictions to implement the NEPM by such laws and other arrangements as are necessary.

...

The NEPM provides for the Department the responsibility to manage, and where appropriate to regulate, air quality to achieve protection of human health. It does not obligate the Department to ensure that PM₁₀ emissions do not at any time, or in any location, exceed the criteria intended to protect population health.

The interpretation and implementation of the NEPM in the context of regulation of air pollutants is a technically complex and specialised field that requires expertise in air quality science and regulation such as that held within the Department.⁷

It is noted that Schedule 2 of the current version of the NEPM indicates that the maximum allowable exceedances for particles as PM₁₀ and PM_{2.5} is 'None'. DWER acknowledged this, and advised:

... that the five allowable exceedances in the previous version of the NEPM applied to natural dust events, not exceedances caused by operational emissions. However, this was sometimes misinterpreted as 'as of right' exceedances and consequently the amended NEPM has clarified this through revised wording. While the Department agrees that reference should be made to the current version of the NEPM, it does not agree that correcting the reference will make a difference to the risk assessment. ...⁸

In relation to particles as PM_{2.5}, DWER advised that it:

... determined that dust particulates PM₁₀ and [total suspended particles (TSP)] are the predominant air emissions from an iron ore mine and processing facility (Decision Report s 9.4.2). This means that particulates of the size fraction PM_{2.5} are considered as part of PM₁₀ and TSP fractions but not for their specific health impact 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.⁹

From the above, it is understood that particles as PM₁₀ and TSP are the predominant air emissions from an iron ore mine and processing facility, and that DWER has considered particles as PM_{2.5} as part of the PM₁₀ and TSP fractions.

⁶ Available at: <https://www.der.wa.gov.au/our-work/regulatory-framework>

⁷ DWER response to Appeal 021/18, pages 6-7.

⁸ DWER response to Appeal 021/18, page 3.

⁹ DWER response to Appeal 021/18, page 2.

Impacts to human health

By this element of the appeal, the appellant contended that DWER has not properly considered the impacts and risks of dust emissions from the premises to human health. Key issues raised relate to the following subject areas:

- impacts to human health underestimated; and
- impacts to road safety.

Impacts to human health underestimated

The appellant submitted that DWER has wrongly concluded that there '*is no significant impact on human health*' and that '*human health is not considered a key environmental factor*', and has underestimated risks to human health by not considering onsite personnel in the risk assessment.

In relation to the appellant's reference to significant impact, DWER advised:

... that the Appellant's concern relates to the assessment made by the Environmental Protection Authority, which is beyond the scope of the works approval and can therefore not be considered a valid appeal ground.¹⁰

Regarding consideration of risks to human health including workers, DWER advised that:

... *Guidance Statement Risk Assessment* outlines the Department's risk-based approach, which excludes onsite personnel as sensitive receptors, as protection of these parties often involves different exposure risks and prevention strategies and is provided for under other State legislation.

...

Air modelling has predicted two exceedances above 50 µg/m³, averaged over 24 hours, per year. The modelling scenario includes background dust, thus also accounting for naturally elevated dust levels ... The model gives an indication of the dust emissions expected but is not an absolute accurate prediction. The Department also considered the nature of residency at the impact location and the composition of residents, finding that as a FIFO camp, residents are construction, mining and camp service personnel that temporarily live at the camp, with daily activities concentrating on work. The camp population is not representative of the general population. Taking into account the level of accuracy that a model can give and the type of residency, the Department has determined that the dust emissions can be adequately controlled for health impacts on the temporary residents of the Mining Camp of Hope Downs Village and have not been underestimated.¹¹

Road safety

The appellant submitted that DWER has not had proper regard for road safety at Great Northern Highway, and has underestimated the risk profile for reduced visibility and relied on a measure that does not properly reflect periods of impacted visibility. The appellant specifically stated that by assuming vehicles on that stretch of road only travelled at the maximum legal speed limit underestimated the level of risk posed.

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

The Department considers the use of the closing speed of 220 km/h derived from the speed limit of 110 km/h appropriate for the risk assessment. The consequence rating of "severe" is the highest rating available. Considering higher closing speeds would not increase the risk consequence rating.

With regard to the averaging times used to determine visibility risks through air quality modelling, the air quality modelling report ... refers to a methodology used to assess the potential risk in visibility reduction along the Great Northern Highway that is consistent with the methodology used

¹⁰ DWER response to Appeal 021/18, page 2.

¹¹ DWER response to Appeal 021/18, page 3.

for BHP Billiton Iron Ore's Central Pilbara Strategic Environmental Assessment. This method uses five-minute averages, not 24-hour averages.

...

The Department considers that the risk of vehicle collision from poor visibility due to dust is a safety risk that requires management and regulation under relevant safety legislation by the agency with jurisdiction for vehicle transport. The Department understands that Main Roads will be liaising with the works approval holder on dust mitigation and traffic management. The Department also notes that due to location and proximity, the mining pit is likely to be the major dust source impacting visibility on the Highway. Dust generating activities of blasting and excavation at the pit are not prescribed activities under categories of the EP Regulations and therefore not regulated through instruments issued by the Department.¹²

It is noted that Great Northern Highway is approximately 5.5 km from the proposed infrastructure to which the works approval relates, and that DWER's risk assessment (as outlined in the decision report) took into account air quality modelling which predicted the highest TSP averaged over 24 hours at 285 µg/m³ from operations at the Mining Area C – North Flank and proposed South Flank combined:

The modelling was conducted for a number of scenarios to assess the ground-level impact of the emissions from [the Mining Area C North and proposed South Flanks]. The modelled scenarios utilised the year of mining with the highest movement of tonnes of ore and waste in the closest proximity to sensitive receptors, as a worst-case scenario. Key emission sources were considered to be: bulldozing, loading, unloading, wheel generated dust from haul roads, wind erosion from stockpiles and open areas, blasting, drilling, crushing, screening, stacking, reclaiming and transfer stations.¹³

In this regard, the modelling for dust impacts to sensitive receptors has been undertaken for a full operational scenario.

Conclusion

This ground of appeal questions DWER's assessment of the risk posed by dust emissions during the construction and commissioning of infrastructure at the premises. DWER found that the level of risk was 'high' for Great Northern Highway and 'medium' for the Hope Downs Village (see Tables 1 and 2).

Based on the information available in this appeal, the following is noted:

- DWER determined that particles as PM₁₀ and TSP are the predominant air emissions from an iron ore mine and processing facility;
- DWER considered particles as PM_{2.5} as part of the PM₁₀ and TSP fractions;
- DWER has applied its own expert knowledge in considering the air quality modelling provided by the works approval holder, particles as PM_{2.5}, and risks to human health.

Taking this information into account, it is considered DWER's conclusion regarding the levels of risk posed in relation to dust during construction and commissioning of infrastructure at the premises was justified. It is therefore recommended that this ground of appeal be dismissed.

Noting that DWER determined the potential consequence of dust emissions from the premises impacting on road users using Great Northern Highway was 'severe', DWER's identification of Main Roads WA as an important stakeholder is endorsed. In that regard, confirmation has been received from both Main Roads WA and the works approval holder that a dust management plan has been developed which meets the minimum requirements for managing impacts to road users, and it is expected this plan will be considered by DWER in due course.

¹² DWER response to Appeal 021/18, pages 3-4.

¹³ Decision report for works approval W6142/2018/1, page 31.

Having identified the levels of risk, and consistent with DWER's risk assessment framework, it is considered appropriate for conditions to be applied to the premises to ensure emissions during construction and commissioning of infrastructure at the premises are acceptable from an environmental and health perspective. The adequacy of the conditions applied to the works approval to address the identified levels of risk is considered in the next ground of appeal.

GROUND 2: ADEQUACY OF WORKS APPROVAL CONDITIONS

By this ground of appeal, the appellant submitted that DWER has not applied adequate conditions to the works approval in respect to monitoring and control of dust emissions. The appellant requested a number of amendments, which broadly relate to the following issues:

- LiDAR monitoring;
- authorised emissions;
- dust control equipment;
- dust monitoring and management;
- commissioning;
- compliance and reporting; and
- additional requirements.

LiDAR monitoring

The appellant requested additional requirements relating to dust monitoring, including the installation and operation of a LiDAR monitor and associated user qualification, record keeping, reporting and response actions (specifically through changes to conditions 1, 3, 6 and 9, and additional conditions requested by the appellant).

In response to recent appeals containing similar requests,¹⁴ DWER advised that LiDAR technology has the following limitations:

- there is no Australian Standard for the operation of LiDAR equipment;
- pre-processing of LiDAR monitoring data is required before usable imagery can be developed;
- although LiDAR and Beta Attenuation Monitor signals match reasonably well for its LiDAR campaign, correlations ranged between 0.55 and 0.77, which limits confidence in the use of LiDAR as a regulatory tool;
- there are no established, suitable criteria that can be used as limits for ambient PM₁₀ concentrations at receptors or along the premises boundary; and
- the LiDAR data only provides information on relative dust concentrations that are represented as colours on an image, each colour represents a range of concentrations within which the actual concentration may lie.

Noting DWER's advice regarding the limitations of LiDAR at this time, it is considered that in the absence of an accepted standard it was appropriate for DWER not to prescribe the use of LiDAR monitors in a regulatory capacity at this time.

Authorised emissions

This element of the appeal relates to condition 5 of the works approval, which authorises 'General Emissions' from undertaking the approved works (as set out in Schedule 2).

The appellant requested that condition 5 is changed to exclude authority for emissions or discharges which are or would be in breach of the NEPM.

¹⁴ DWER response to Appeal 004/18; DWER response to Appeals 007/18 and 011/18.

In response to this element of appeal, DWER advised:

With regard to the Appellant's request of application of NEPM-based exceedance limits through a monitoring and reporting program, the Department refers to the NEPM guidance publications including the Explanatory Statement that outlines the operation of the NEPM and identifies that the imposition of NEPM ambient air quality standards as boundary or compliance limits is not consistent with the aims and intent of the NEPM. The Appellant's proposed conditions to apply NEPM standards to manage emissions from a single source industrial premises are not consistent with NEPM implementation guidance.¹⁵

By this element of the appeal, the appellant seeks for emissions that are excess of NEPM standards are prohibited. As noted above in respect to the risk assessment, NEPM standards are for ambient pollution levels, and are not an appropriate regulatory tool for inclusion as a condition of a licence. It follows that no change to condition 5 is recommended.

Dust control equipment

This element of the appeal relates to conditions 1, 2 and 3 of the works approval.

Condition 1 requires the works approval holder to install and undertake specified works for infrastructure and equipment, including dust controls at specified locations.

Condition 2 permits the works approval holder to deviate from the requirements in condition 1 in the following circumstances:

- (a) where such departure does not increase risks to public health, public amenity or the environment; and
- (b) and all other Conditions in this Works Approval are still satisfied.

Condition 3 requires the works approval holder to, within 60 days of completion of the works specified in condition 1, provide to DWER a pre-commissioning report from a suitably-qualified professional confirming that each item or component of infrastructure has been constructed with no material defects and to the specified design requirements.

The appellant requested that condition 1 be changed to include additional dust controls, including LiDAR monitoring, and that these dust controls are aligned with current best practice specifications in order to achieve the air quality standards set out in the NEPM. The appellant requested that condition 2 be changed to specify that departure from the requirements under condition 1 excludes requirements related to dust monitoring and control. The appellant also requested that condition 3 be changed to include specifications relating to LiDAR monitoring.

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

... considers the mandated dust controls and conditions are appropriate to the risks during construction and commissioning. The dust emissions generated during the works approval phase of the project are different and lower than those occurring when the facility is in full operation and processing to capacity.

While the Decision Report also reviews operational dust risks, the works approval concentrates on dust mitigation during the construction and commissioning phase and specifies that the infrastructure to be constructed is designed with appropriate engineering controls for dust suppression. The Appellant does not differentiate between the different phases in his concerns regarding inadequate dust controls. Dust control conditions for the operational stage of the project will be mandated through the licence.

¹⁵ DWER response to Appeal 021/18, pages 5-6.

With regard to the Appellant's proposed change in condition wording, the Department disagrees that adding the wording *to no less than current best practice specifications* would improve the outcome or the clarity and enforceability of conditions. The term *current best practice* can be ambiguous without publication of further guidance to support its interpretation, and is not aligned with the risk-based approach as detailed in the Decision Report.¹⁶ ...

In relation to the appellant's request for requirements relating to LiDAR monitoring to be included in conditions 1 and 3, LiDAR monitoring is considered separately above.

From the above it is noted that dust emissions generated during construction and commissioning are different and lower compared to a full operational scenario. It is also noted that fugitive emissions are not permitted under the works approval. In any event, the dust-related works approval conditions in this case aim to prevent or minimise and manage the emission of dust from the premises during construction and commissioning. On this basis, it is considered that the additional dust controls requested by the appellant are not necessary, and no changes to conditions 1, 2 or 3 are recommended.

Dust monitoring and management

This element of the appeal relates to condition 6 of the works approval, which requires the works approval holder to provide to DWER a dust management and monitoring plan:

... to specify and site dust monitors for the purpose of monitoring and mitigating the risk of low visibility at Great Northern Highway, and risk of poor amenity and health from dust emissions at Hope Downs Village. The aspects of the plan pertaining to low visibility at Great Northern Highway shall be developed in consultation with Main Roads WA and include proactive controls to limit or control operations in the event of forecast adverse weather conditions

The appellant requested that condition 6 is changed to require DWER's prior approval of the dust management and monitoring plan, and that the dust management and monitoring plan includes reference to the installation of weather and LiDAR monitors, and risks to persons within the premises.

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

... the current level of operation, which only includes the construction and sequential establishment of the proper running and operational mode of infrastructure and equipment, the Department considers the mandated dust controls appropriate. It also considers it appropriate that a monitoring program should be developed during the initial phase of this process (first six months). The Department therefore does not consider it necessary that all monitoring is already in place during the works approval phase.

The Department expects the monitoring plan required by condition 6 of the works approval to include monitoring standards, locations, trigger levels and management actions (Decision Report s 9.4.6). Meteorological monitoring associated with particulate monitoring will also be required. The Department's Air Quality Services Branch will provide a review and expert advice on the program submitted by the works approval holder to inform the development of appropriate monitoring conditions in the licence. As monitoring requirements will be reflected in licence conditions, the Department does not see a need for a separate approval of the monitoring program by the CEO. Future licence conditions will address some of the concerns the Appellant has raised.

The specific monitoring techniques to be used in the monitoring program have not been prescribed, however an appropriate monitoring setup is likely to include monitors that can reliably quantify dust concentrations at sensitive receptors. LiDAR is currently not the appropriate monitoring method to achieve this goal. The Department does not oppose the application of a combination of different dust monitoring techniques or inclusion of innovative approaches should they be suggested in the submitted monitoring program.

¹⁶ DWER response to Appeal 021/18, pages 4-5.

The proposed development at South Flank was originally included in the works approval holder's Pilbara Expansion Strategic Proposal assessed by the EPA under Part IV of the EP Act (Report 1619),¹⁷ but was removed during assessment so that it could be progressed as a separate assessment. The EPA subsequently assessed the South Flank project as a separate proposal (Report 1610).¹⁸ For both proposals, the EPA identified 'Air Quality' to be a key environmental factor for its assessment on the basis of dust and greenhouse gas emissions, and also considered the impacts of dust emissions on human health.

Following the EPA's assessment of the South Flank project, Ministerial Statement 1072 relating to the development of both the North and South Flanks was published in February 2018.¹⁹ It is noted that Ministerial Statement 1072 does not include dust control provisions, on the basis of the EPA's findings that:

The location of crushers, ore handling infrastructure and conveyors was chosen in consideration of the location of key receptors at the accommodation camps to minimise impacts of dust emissions to these receptors. The EPA is satisfied that modelling has demonstrated that there will not be significant impacts from dust particulates.²⁰ ...

Terrestrial Environmental Quality: ... Licensing of discharges and emissions by the DWER under Part V of the EP Act would be required.

Human Health: ... Mining operations will be managed in accordance with licence conditions under Part V of the [EP Act]. This will include reduced activities in the vicinity of Great Northern Highway when conditions require. The proponent will liaise with Main Roads and implement traffic management measures when undertaking blasting activities.²¹

Noting DWER's advice regarding the scope of regulation under Part V of the EP Act (refer to Ground 1), the works approval holder was invited to provide further information in relation to the management of dust at South Flank. In response, the works approval holder provided a copy of its Dust Monitoring and Management Plan²², which the works approval holder advised was submitted to DWER in accordance with condition 6 of the works approval, and outlines its dust management strategies for the whole of South Flank (not limited to the prescribed activities).

The Dust Monitoring and Management Plan states that the works approval holder's existing ambient air quality monitoring network will be supplemented with the installation of three dust monitoring stations and an E-sampler at specified locations determined in consultation with an air quality expert, and that monitoring of parameters (including particles as PM₁₀) will be undertaken continuously. The Plan also states that, in relation to Great Northern Highway, a three-stage visibility dust monitoring trial will be undertaken to identify a dust monitoring methodology and appropriate triggers, and which will monitor meteorological and pollutant parameters to assess visibility.

The Dust Monitoring and Management Plan outlines the following dust management strategies:

Planning and design of Mining Area C – South Flank will consider air quality by;

- Siting the processing infrastructure, overburden stockpile areas (OSA's) etc away from sensitive receptors, where practicable.
- Minimising the haul distances as far as practicable and use conveying where it is technically and economically viable.
- Minimising rehandling of ore and waste materials.
- Minimising the exposure of bare surfaces by only clearing vegetation from areas as required and re-using existing cleared areas.
- Optimising the use of base materials during haul road design and construction to reduce dust.
- Setting aside sufficient water within the site's water balance for dust suppression throughout all phases of the mine.

¹⁷ Available at: <http://www.epa.wa.gov.au/proposals/bhp-billiton-iron-ore-pilbara-strategic-proposal>

¹⁸ Available at: <http://www.epa.wa.gov.au/proposals/mining-area-c-southern-flank>

¹⁹ Available at: <http://www.epa.wa.gov.au/1072-mining-area-c-southern-flank>

²⁰ EPA Report 1610, page 31.

²¹ EPA Report 1610, Appendix 4.

²² BHP Billiton Iron Ore Pty Ltd (2019) *Mining Area C – South Flank – Dust Monitoring and Management Plan*.

- Scheduling of preventative maintenance of dust suppression equipment and control systems.
- Consult with MRWA during the development of blast management plan activities near the Great Northern Highway.
- Progressively rehabilitating exposed surfaces by reshaping and revegetating final landforms.

The range of equipment controls available to the Mining Area C – South Flank include;

- Water carts and tankers.
- Dust suppression fogging systems and/or dust suppression misting systems for crushing facilities.
- Dust suppression water cannons, sprays or sprinklers for stockpile surfaces.
- 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.
- Covers and/or hoods installed on primary crushing stations and ore handling plant.
- Sprays can be strategically installed at high dust generation areas. These can include overbelt sprays, chute sprays, boom sprays and capping sprays.
- Scrapers and plough can be used to reduce carry back on conveyor belts.
- Dust collectors and hoods can be used where material is tumbled with the dust laden material drawn through a dust collection system.
- Rubbers seal and curtains can be installed at the junctions of equipment.
- Dust skirts can be used to enclose conveyors.
- Process Infrastructure buildings and transfer stations with floor slabs designed for washdown and clean-up including slurry disposal systems.
- High usage roads may be sealed.

Operational controls that are available at Mining Area C – South Flank include;

- Daily mine planning will include reviewing the Daily Dust Risk Forecast (in development) for the following 48 hours period to inform site activities and the potential level of dust control required. The forecast will be distributed to key site personnel. The forecast will include an alert for high risk dust conditions.
- Water tankers will apply water to areas of operation which have the potential to generate dust, including unsealed roads, haul roads, construction areas, OSA's and ROM pads.
- Water trucks will be available to provide dust suppression on haul and light vehicle roads.
- Assign additional dust control equipment to specific work areas.
- Traffic management via reduction of vehicle speed or use of alternative routes to reduce dust lift off from unsealed roads.
- Maintenance of dust suppression equipment and control systems.
- Blasting will consider the daily forecasts, proximity to sensitive receptors and prevailing conditions.
- Routine maintenance and housekeeping practices will be employed to avoid accumulating waste materials in or around the premises that would otherwise lead to the generation of unacceptable airborne dust.²³

Although the works approval does not specifically require DWER's prior approval of the dust management and monitoring plan, it is understood that the plan will be reviewed by DWER and will be used in determining licence conditions for dust management and monitoring during ongoing operation of the premises.

In relation to the appellant's request for requirements relating to LiDAR monitoring to be included in condition 6, LiDAR monitoring is considered separately above.

Noting the above, no changes to condition 6 are recommended.

Commissioning

This element of the appeal relates to conditions 7 and 9 of the works approval.

²³ Dust Monitoring and Management Plan, pages 18-19.

Condition 7 requires the works approval holder to, within three months of the grant of the works approval, provide to DWER a commissioning plan which includes construction and commissioning stages, timelines and commissioning parameters.

Condition 9 requires the works approval holder to submit a commissioning report to DWER within one month of the completion of commissioning of each stage for Category 5 infrastructure, which is to include a summary of the commissioning timeframes and volume of ore processed during wet commissioning, and a summary of the environmental performance of all plant and equipment as installed.

The appellant requested that condition 7 be changed to require DWER's prior approval of the commissioning plan, and specify that works cannot commence until both the dust management and monitoring plan (required under condition 6) and the commissioning plan have been approved by DWER. The appellant also requested that condition 9 is changed to include reference to LiDAR monitoring.

In relation to the appellant's requested changes to condition 7, DWER advised that it:

... does not agree that additional levels of approval or reporting will make the works approval conditions more effective or are an appropriate and effective way of structuring a works approval.²⁴

Although condition 7 does not specifically require DWER's prior approval of the commissioning plan, it is noted that the commissioning of Category 5 infrastructure is subject to compliance with conditions 3 and 9, which require the provision of a pre-commissioning report and a commissioning report respectively. It is expected that DWER would inform the works approval holder in the event that any of these documents were not to DWER's satisfaction.

In relation to the appellant's request for DWER's prior approval of the dust management and monitoring plan, this matter is considered separately above.

In relation to the appellant's request for requirements relating to LiDAR monitoring to be included in condition 9, LiDAR monitoring is considered separately above.

Noting the above, no changes to conditions 7 or 9 are recommended.

Additional conditions

The appellant requested that the works approval includes additional requirements relating to dust control, dust monitoring, moisture content monitoring, which are summarised as:

- requirement for additional dust control equipment, including moisture analysers at point sources;
- specification of minimum availability of dust control equipment, and requirements relating to the replacement of dust control equipment;
- requirements relating to the management of moisture content levels of iron ore;
- requirements for point source, boundary and ambient air quality monitoring, and specification methodology, frequency and parameters (etc.) in relation to these; and
- specification of triggers for reportable events and management actions based on monitoring outcomes.

The decision reports outlines that following DWER's risk assessment and review of the works approval holder's dust controls, DWER determined that the risk of dust emissions would be acceptable subject to the regulatory controls as set out in section 10 of the decision report. The works approval includes the following dust-related controls:

²⁴ DWER response to Appeal 021/18, page 5.

- processing infrastructure: infrastructure associated with primary processing facilities to be constructed in accordance with the works approval holder's application documents, specifically for (among other things) dust emission controls (water cannons, misters/foggers, bulk ore conditioning systems, cover and hoods, and dust monitors);
- specified actions: a dust management and monitoring plan to locate and specify dust monitors for the purpose of management of risk of low visibility at the Great Northern Highway and risk to amenity and health at the Hope Downs Village, and a commissioning plan detailing construction stages and commissioning parameters and timeframes, to be submitted to DWER within three months of the date of the works approval;
- monitoring: installation of dust monitors prior to operation of the processing facilities; and
- reporting: a compliance construction report for each stage of infrastructure detailing compliance with construction requirements to be submitted to DWER prior to commissioning and operation.

For the reasons outlined previously in this report, in particular noting that dust emissions generated during construction and commissioning are different and lower compared to a full operational scenario, and with regard for the dust monitoring and management strategies outlined in the works approval holder's Dust Monitoring and Management Plan, it is considered that the additional dust controls requested by the appellant are not necessary.

Conclusion

Having regard for the above, it is recommended that this ground of appeal be dismissed.

OTHER MATTERS

The appellant raised matters in their appeal that are not directly related to the conditions of the works approval. The appellant's concerns in respect to these matters are noted below, together with DWER's and the works approval holder's advice where provided, however as these matters do not relate to the conditions of the works approval they are not considered further in this report.

Report breaches to the Minister

The appellant requested that a new works approval condition should be added requiring the works approval holder to report breaches of works approval conditions directly to the Minister as well as to DWER.

In response to this issue, DWER advised:

The outcome sought by the Appellant in having breaches of conditions reported to the Minister is unclear as there are no actions available to the Minister in response to breaches. Compliance and enforcement actions in response to breaches are powers of the CEO and their delegate/s not requiring approval or endorsement of the Minister.²⁵

View that the NEPM cannot be achieved in the Pilbara

The appellant submitted that DWER has incorrectly formed the view that the NEPM cannot be achieved in the Pilbara.

The decision report does not state that the NEPM cannot be achieved in the Pilbara.

²⁵ DWER response to Appeal 021/18, page 5.

Air quality modelling for Port Hedland operations

The appellant questioned why DWER has provided only one forecast plume model image in the decision report for licence L4513/1969/18, considering that this image does not appear to correlate with the dust plume images in the LiDAR Report.

This matter relates to the works approval holder's port operations in Port Hedland, and is beyond the scope of the appeal right in relation to the condition of the works approval in this case.

Request for works approval holder document

The appellant requested a copy of the document *Memorandum – Updated Air Quality Modelling for South Flank Proposal*, prepared by Pacific Environment Limited and dated 22 August 2016.

The requested document is publicly available on the EPA's website as Appendix 9 to the Public Environmental Review in relation to the assessment of the Mining Area C – South Flank proposal.²⁶

CONCLUSION AND RECOMMENDATIONS

In reviewing the matters raised by the appellant in the context of the conditions of the works approval, it is considered that DWER has had regard for the available information and its own guidelines in its risk assessment and decision to grant the works approval, and that there are a range of regulatory controls available through the works approval conditions to manage and control dust emissions during construction and commissioning of prescribed infrastructure at the premises.

It is therefore considered that the works approval conditions are adequate to monitor and control dust generated during construction and commissioning of infrastructure at the premises.

On this basis, it is recommended that the appeal be dismissed.

Emma Gaunt
APPEALS CONVENOR

Investigating Officer:
Emma Bramwell, Senior Environmental Officer

²⁶ <http://www.epa.wa.gov.au/proposals/mining-area-c-southern-flank>