



Appeals Convenor

Environmental Protection Act 1986

REPORT TO THE MINISTER FOR ENVIRONMENT

APPEALS IN OBJECTION TO THE AMENDMENT OF A LICENCE

**LICENCE L4432/1989/14: EASTERN OPERATIONS
PORT HEDLAND**

PROPONENT: PILBARA PORTS AUTHORITY

Appeal Numbers 007 and 011 of 2018

April 2019

Appeal Summary

This report relates to appeals in objection to the amendment of licence L4432/1989/14 (licence) by the Department of Water and Environmental Regulation (DWER) under Part V of the *Environmental Protection Act 1986* in respect of prescribed premises at The Esplanade in Port Hedland (premises), operated by Pilbara Ports Authority (licence holder).

The appellant raised concerns in relation to the generation and control of dust emissions from a change in premises boundary and addition of spodumene concentrate as a bulk material handled through the premises. The appellant sought for a number of changes to be made to the licence conditions in respect to the prevention, control and abatement of dust from the premises.

Having regard for the information provided during the appeal investigation, including information from the appellant, the licence holder and DWER, the Appeals Convenor considered that DWER applied appropriate conditions to manage the identified risks (in particular regarding dust emissions) associated with the revised premises boundary and the addition of spodumene as a bulk material. This includes conditions related to the management of bulk materials handled at the premises and suitable conditions to control emissions to ensure that the facility does not pose an unacceptable risk to public health or the environment.

Recommendation

The Appeals Convenor recommended that the appeals be dismissed.

INTRODUCTION

This report relates to appeals lodged by the 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 two amendments of licence L4432/1989/14 (licence) 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 at The Esplanade in Port Hedland (the premises), operated by Pilbara Ports Authority (licence holder).

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

The prescribed premises categories on the licence include Category 58, defined under Schedule 1 to the *Environmental Protection Regulations 1987* as 'Bulk material loading or unloading'.

The premises is on a portion of Lot 6098 on Plan 35618. The location and extent of the premises are shown in Figure 1.

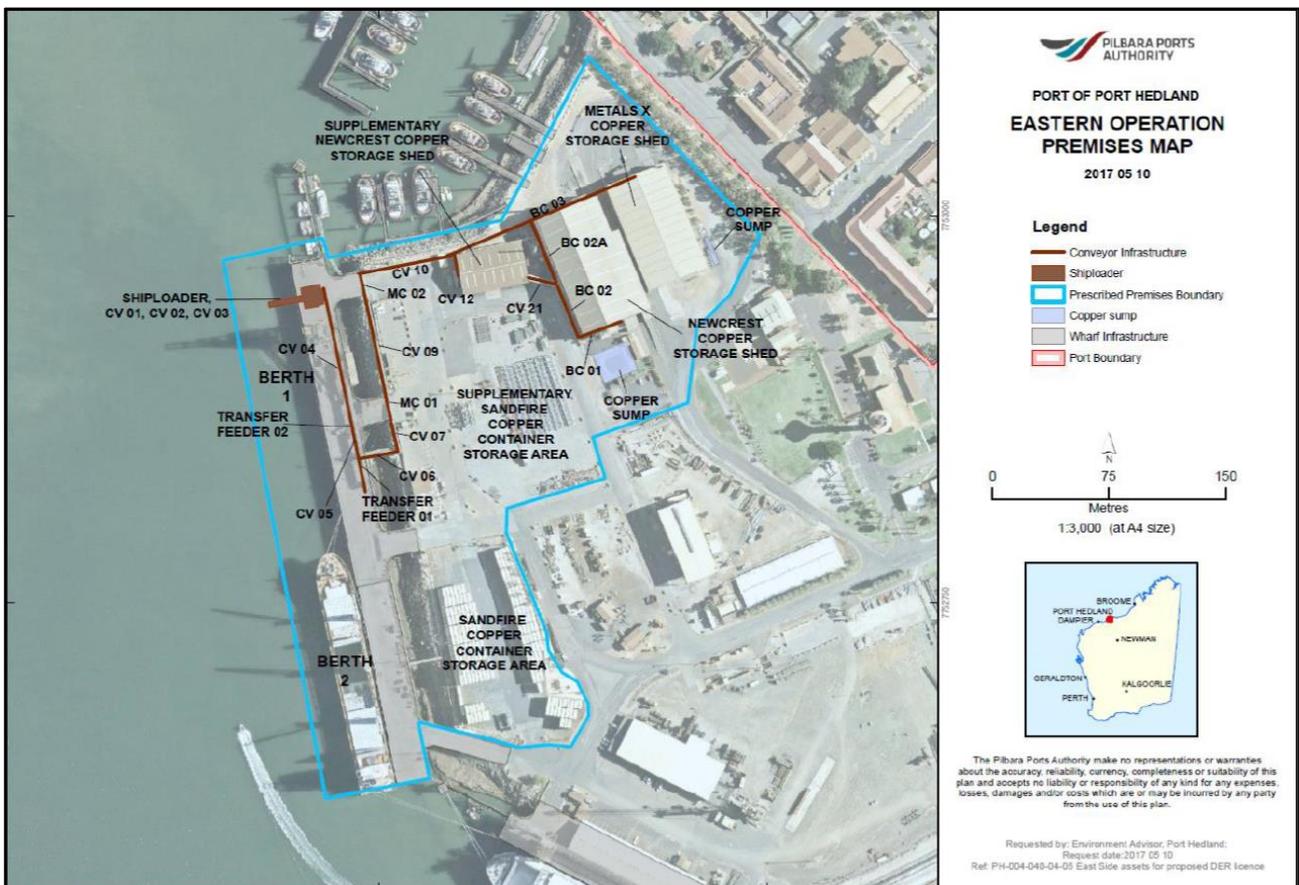


Figure 1: Premises map (boundary shown in blue)

(Source: DWER)

The licence was originally issued in 2010, and included the Utah Point Facility on the western side of the Port Hedland Harbour at Finucane Island as well as the Eastern Operations on the eastern side of the Port Hedland Harbour. As part of the State Government's consideration of port asset divestment, in November 2015 the licence holder applied to amend the licence for regulation of the Eastern Operations only, and for a separate new licence for regulation of the Utah Point Facility. The amended licence was granted for the Eastern Operations on 18 August 2016, and the then Department of Environment Regulation (DER) published a full risk-based assessment of all Category 58 activities at the premises in accordance with its Guidance Statement *Regulatory principles*¹.

¹ Available at: <https://www.der.wa.gov.au/our-work/regulatory-framework>

In March 2017, the licence holder applied to amend the licence to alter the premises boundary to enable an increase in storage space for rotainers, which are used in the transport of copper concentrate from the mines to the premises and onto vessels in port, once the existing storage area reaches capacity. The licence holder also sought several administrative changes in relation to licence conditions. Following a scheduled compliance inspection of the premises by DER officers in early May 2017, the licence holder also requested several changes to the description and operation details of the licence. During assessment of the licence holder's application, DWER updated its risk assessment of all Category 58 activities conducted under the licence, and amended the decision report to the licence to better reflect the current operations at the premises and improve monitoring and reporting (no works or operational changes were proposed).

On 7 March 2018, DWER amended the licence to contemporise the licence conditions and revise the premises boundary (Amendment 1). On 12 April 2018, DWER amended the licence to add spodumene concentrate as a second bulk material handled and monitored through the premises (Amendment 2). DWER's assessment and reasons for amending the licence are contained in the decision reports for Amendments 1 and 2. It was against Amendments 1 and 2 that appeals 007/18 and 011/18, respectively, have been received.

OVERVIEW OF APPEALS 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 licence holder was also given the opportunity to respond to the appeals. During the appeal investigation the Appeals Convenor consulted with DWER, the appellant and the licence holder to discuss the matters raised in further detail. A site visit of the premises was also conducted by the Appeals Convenor. The appellant 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 an amendment to a licence relate only to the amendment, and not to elements of the licence that are not amended. The Appeals Convenor normally considers consistency with any conditions set under Part IV of the EP Act and previous Ministerial appeal determinations, as well as new information or evidence being presented that was not previously considered. Enforcement and compliance with the conditions of a licence is a matter for DWER as the regulator and issues of this nature are considered to be outside the scope of an appeal against an amendment to a licence.

OUTCOMES SOUGHT BY APPELLANT

The appellant sought for a number of changes to be made to the licence 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 from a change in premises boundary and addition of spodumene concentrate as a bulk material handled through the premises. These concerns have been broadly summarised under the following grounds:

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

In the context of the licence conditions appealed, a table comparing the requirements of the previous version of the licence (dated 18 August 2016), Amendment 1 and Amendment 2 is contained in Appendix 1.

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 to the environment and public health by the amendments to the licence. The concerns relate primarily to impacts from dust emissions from the premises, which in the view of the appellant will be exacerbated by the change in premises boundary and addition of spodumene concentrate as a bulk material handled through the premises.

Broadly, the appellant was concerned that DWER's risk assessment was deficient in its consideration and assessment of the following:

- available monitoring data;
- applicable standards; and
- impacts to human health.

Available monitoring data

By this element of the appeal, the appellant submitted that DWER failed to have sufficient regard for the findings in *Mapping dust plumes at Port Hedland using a LiDAR*² (LiDAR Report), which was published on 23 February 2018 nine days after Amendment 1 and is briefly referenced in the decision report for Amendment 2.

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 reports, including:

- previous assessments under Part IV of the EP Act and Ministerial Statement 788 (section 3.1);
- the findings and recommendations of the Port Hedland Dust Management Taskforce (Dust Management Taskforce) in *Port Hedland Air Quality and Noise Management Plan*³ (Dust and Noise Management Plan) and *Port Hedland Dust Management Taskforce Report to Government*⁴ (Dust Management Taskforce Report to Government) (section 3.3);
- the findings from the Port Hedland health risk assessment (Port Hedland HRA) and recommendations of the Department of Health (DoH) in *Port Hedland Air Quality Health Risk Assessment for Particulate Matter*⁵ (HRA Report) (section 3.3.2);
- other legislation and regulatory processes applying to the premises, including (among other things) the *Mines Safety and Inspection Act 1994*, *Environmental Protection (Noise) Regulations 1997* and contaminated sites (sections 4.3, 4.6 and 4.7);
- previous licence amendments, the licence holder's compliance and complaints history (sections 4.2, 4.4 and 4.5); and
- previous air quality and noise monitoring, air quality modelling for the licence amendments, and potential impacts to sensitive receptors (section 4.6).

² Department of Water and Environmental Regulation (2018) *Mapping dust plumes at Port Hedland using a LiDAR*. Technical series – Report No. 2, February 2018. Government of Western Australia.

³ Department of State Development (2010) *Port Hedland Air Quality and Noise Management Plan*. March 2010. Government of Western Australia.

⁴ Department of State Development (2016) *Port Hedland Dust Management Taskforce Report to Government*. August 2016. Government of Western Australia.

⁵ Department of Health (2016) *Port Hedland Air Quality Health Risk Assessment for Particulate Matter*. Environmental Health Directorate, January 2016. Government of Western Australia.

As set out in sections 6 and 7 of the decision reports for Amendments 1 and 2 respectively, 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 fugitive dust to be a risk event resulting from activities at the premises, with the following key findings:

- proposed material handling techniques for spodumene (Rotabox system) minimise exposure pathways for dust to reach the nearest sensitive receptors;
- the concentration of dust generated during the handling of copper and spodumene concentrates at the premises correlates with the moisture content, and each product has a different dust extinction moisture (DEM) level;
- copper and spodumene concentrates are processed using a wet process, and moisture content analysis of copper concentrates has revealed that product received at the Eastern Operations typically has a moisture content above the DEM level;
- copper concentrate is handled within sheds or containers meaning that the most significant source of dust emissions is at the ship loader, and this is supported by data gathered from the light detection and ranging (LiDAR) campaign;
- existing dust levels in Port Hedland are high; and
- although iron ore handling has been found to be the most likely significant contributor to dust in the West End, bulk handling of copper and spodumene concentrates may contribute to the overall level of particulate matter.

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

Table 2: DWER risk assessment for dust

Emission	Consequence	Likelihood	Risk rating
Amendment 1			
Dust (health)	<p>The potential consequence of health impacts from fugitive dust emissions is major, due to the potential for:</p> <ul style="list-style-type: none"> cumulative PM₁₀ criterion (70 µg/m³ averaged over 24 hours at the Taplin Street monitor) to be exceeded, and the findings of the Port Hedland HRA; the Eastern Operations to contribute to the ground level concentrations of PM₁₀ at the Taplin Street monitor; and cumulative concentrations of PM₁₀ to result in adverse community health effects requiring medical treatment. 	<p>Potential impacts to health and amenity from fugitive dust emissions are unlikely, as dust emissions from the premises are not expected to significantly contribute to ambient air quality exceeding the relevant criterion in most circumstances. This is due to tonnages of bulk material handled, offsite processing techniques, handling methods and infrastructure controls.</p>	Medium
Dust (amenity)	<p>The consequence of amenity impacts from fugitive dust emissions is considered to be major, due to the cumulative impacts resulting from premises activities and surrounding industrial sources.</p>		
Amendment 2			
Dust (health and amenity)	<p>The potential consequences of health and amenity impacts remain as major, due to increased throughput volumes due to the inclusion of spodumene concentrate.</p> <p>However, in isolation, fugitive dust from the handling of spodumene concentrate would primarily be considered to be a low-level consequence to health and amenity due to the low fines, respirable crystalline silica and mica content.</p>	<p>The potential impacts to health and amenity from fugitive dust emissions remain as unlikely, as a result of the increases to the total amount of bulk granular material handled at the premises, the frequency in dust generating activity and the nature of fugitive dust.</p> <p>However, in isolation, the likelihood of dust emissions from the handling of spodumene concentrate reaching nearby receptors and causing health and amenity impacts is considered to be rare due to the handling methods, physical properties and high moisture content.</p>	Medium

DWER's Guidance Statement *Risk Assessments*⁶ states that an overall risk rating of 'medium' is likely to be subject to some regulatory control. In this case DWER determined that the risk of dust would be acceptable subject to the licence holder's stated controls as well as outcome based controls and additional site specific controls. The conditions of the licence that are the subject of appeal are discussed separately at Ground 2.

In relation to the appellant's submission that DWER had insufficient regard for the findings of the LiDAR Report in its risk assessment, DWER advised that it considered the preliminary results of the Port Hedland LiDAR campaign as they were made available – noting that during the period of the assessment and issuing of Amendment 1 (from March 2017 to 7 March 2018), the results from the campaign were being obtained, analysed, validated and reported on.

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

DWER advised that the major findings from the study as detailed in the LiDAR Report were:

- during the study period, there were three exceedances of the alternative ambient air quality standard for particles as PM₁₀ of 70 micrograms per cubic metre (µg/m³) averaged over 24 hours with 10 days of allowed exceedances per year (Interim Guideline) recorded at the Harbour monitoring site, two exceedances recorded at both the Richardson and Kingsmill sites, one exceedance recorded at Taplin Street, and one exceedance at the Bureau of Meteorology background site;
- PM₁₀ concentrations generally decreased as the distance from the port area increased;
- the ratio profile of PM_{2.5} to PM₁₀ indicates that the majority of dust was not due to combustion but was coarser in nature, indicating dust lift-off from wind or mechanical processes;
- the *National Environment Protection (Ambient Air Quality) Measure* (NEPM) for PM₁₀ annual average standard of 25 µg/m³ was exceeded at Taplin Street every year from 2011 to 2016; and
- directional analysis indicated that the majority of particle loading to all town sites originated from a southerly direction.⁷

DWER further advised:

While the LiDAR Report provides additional and important details, DWER considers that the results as published in the LiDAR Report do not represent significantly new or unexpected information. In addition, there are limitations with the use of LiDAR, which should be clearly understood and considered, including the use of a single point in time LiDAR image to justify additional and potentially significant regulatory requirements. The LiDAR cannot be used to provide information on the size or composition of airborne contaminants, such as the PM₁₀ fraction of the total suspended particulates, or the concentrations ('level') of airborne contaminants for comparison with health standards.

DWER considers that the major findings of the LiDAR Report are consistent with and have been reflected in the risk assessment, decision-making and Licence for the Premises ...

Due to the large amount of data obtained from the Port Hedland LiDAR campaign, DWER is continuing to review, analyse and validate the data. The ongoing analysis of the data will inform future regulatory decision-making under Part V of the EP Act in the Port Hedland area.⁸

Noting that DWER's advice indicates that the outcomes of its LiDAR campaign confirmed the point sources for dust emissions regulated through the licence conditions and its advice in relation to the various sources of information available to it, it is considered that DWER did have appropriate regard for relevant monitoring data as part of its risk assessment.

Applicable standards

By this element of the appeal, the appellant submitted that DWER had insufficient consideration of the NEPM in its risk assessment and instead applied the Interim Guideline.

In this regard, it is understood that the Interim Guideline was first recommended by the Dust Management Taskforce in 2010 and supported by DoH in 2016, following a number of studies⁹ into airborne dust particles in Port Hedland, the public health effects of PM_{2.5-10} and other pollutants, and whether an alternative to the NEPM might be appropriate in Port Hedland on the basis of dust composition.

⁷ DWER response to Appeal 007/18, page 3.

⁸ DWER response to Appeal 007/18, pages 3-4; DWER response to Appeal 011/18, page 3.

⁹ Lung Institute of Western Australia/Institute of Occupational Medicine (2007) *Literature Review and Report on Potential Health Impacts of Exposure to Crustal Material in Port Hedland*. Report prepared for the Department of Health, April 2006. Western Australia.

Department of State Development (2010) *Port Hedland Air Quality and Noise Management Plan*. March 2010. Government of Western Australia.

Toxikos Toxicology Consultants Pty Ltd (2015) *Report – Health Risk Assessment Port Hedland*. Unpublished report prepared for the Western Australian Department of Health, 20 July 2015. Pacific Environment Limited Pty Ltd.

The HRA Report indicates that owing to the small population of Port Hedland there would be negligible difference in the estimated health effects between the Interim Guideline (70 µg/m³) and the NEPM (50 µg/m³) for particles as PM₁₀ averaged over 24 hours (24-hour PM₁₀), and includes a recommendation to:

Apply the current interim guideline of 24-hour PM₁₀ of 70 µg/m³ (+ 10 exceedances to accommodate natural events) in residential areas of Port Hedland within a reasonable time frame that allows for local dust sources to be identified and managed (i.e. the spoil bank). A period of 5 years is suggested.¹⁰

Following the Port Hedland HRA, the Dust Management Taskforce Report to Government (August 2016) included the following recommendation:

The Taskforce recommends that the current interim guideline of 24-hour PM₁₀ of 70 µg/m³ (+ 10 exceedances to accommodate natural events) continues to apply to residential areas of Port Hedland and that measures should be introduced to cap (and if possible, reduce) the number of permanent residents in dust-affected areas of Port Hedland.¹¹

Relevant to this matter, DWER advised:

As documented in s 6 in the Decision Report, DWER has undertaken an extensive assessment of the risks from the Premises, including consideration of risk to public health from dust emissions caused by the operation of the Premises. DWER's assessment included consideration of the Port Hedland HRA and additional advice provided by the DoH.

DWER considers that the DoH is the lead agency responsible for public health matters in Western Australia. DWER's decision-making and regulatory functions under the EP Act are informed by the advice and recommendations of DoH. ...

... the longer-term dust management strategies for Port Hedland are currently being considered by the Government through the response to public comments on the *Port Hedland Dust Management Taskforce Report to Government* (Department of State Development, August 2016; Dust Management Taskforce¹²). The recommendations provided by the Taskforce include strategies for the ongoing regulation of port facilities and changing control and oversight of the ambient air quality monitoring network from the Port Hedland Industries Council to DWER. Subject to Government endorsement of the recommendations, DWER will implement any corresponding actions.¹³

On 15 October 2018, the State Government announced its position on the management of dust in Port Hedland.¹⁴ In relation to PM₁₀ and PM_{2.5}, the Government response states:

The Government endorses the Taskforce recommendation that the current interim guideline of 24-hour PM₁₀ of 70 µg/m³ (excluding natural events) continues to apply to residential areas of Port Hedland and that measures should be introduced to cap (and if possible, reduce) the number of permanent residents in dust-affected areas of Port Hedland.¹⁵

Impacts to human health

By this element of the appeal, the appellant submitted that DWER misidentified risk levels, and should have included the consequence of mortality (i.e. death) as a relevant risk factor with a consequence rating of 'severe' (rather than 'major') in the 'Risk criteria table' in the decision reports for Amendments 1 and 2.

¹⁰ HRA Report, pages 36-37.

¹¹ Dust Management Taskforce Report to Government, page 4.

¹² The report is available at: <http://www.jtsi.wa.gov.au/docs/default-source/default-document-library/port-hedland-dust-taskforce---2016-report-to-government---for-public-comment.pdf?sfvrsn=0>

¹³ DWER response to Appeal 007/18, page 4; DWER response to Appeal 011/18, page 3.

¹⁴ Available at: <https://www.jtsi.wa.gov.au/economic-development/economy/port-hedland-dust/port-hedland-dust-management-taskforce-report-government-response>

¹⁵ Port Hedland Dust Management Taskforce Report – Government Response.

In response to this matter, DWER advised:

The HRA notes that the number of affected individuals is very low due to the small population, and it is not obvious which exceedances contributed more to the observed increase in symptoms. The HRA adds that the numbers are too small to discern the impact of dust, meaning that dust alone does not cause the differences in life expectancy but that it contributes to the overall number of increased health outcomes.

The Decision Report found that cumulative concentrations of PM₁₀ in Port Hedland may result in adverse health effects to the community requiring mid-level or frequent medical treatment and that this was a more accurate reflection of health risks to the community. In accordance with DWER's published *Guidance Statement: Risk Assessments*, the potential consequence of health impacts from fugitive dust emissions has been assessed as major. ...

The Delegated Officer's 'major' conclusion takes into consideration the relevant factors discussed in the Decision Report for Licence L4432/1989/14, in particular the potential for the cumulative PM₁₀ consequence criterion (70 µg/m³ at Taplin Street over a 24-hour period) to be exceeded; and the findings of the Health HRA (refer to s 3.3.2 of the Decision Report). In particular, the likelihood of death as a consequence was considered highly unlikely as guided by the results of the HRA and associated Toxikos Report.

DWER has referred to the modelled mortality and morbidity rates for various concentrations of PM₁₀, presented in Tables 11 and 12 of the Toxikos Report. The numbers in Table 11 may appear excessive at first glance, however, it should be recognised that these are extrapolated to a population of 100,000 at levels of dust concentrations currently only found in the far west of the town, where fewer people reside. The most conservative figure in Table 11 is for long-term all-cause mortality, which states a percentage mortality risk of 0.03%. As such, DWER has considered the likelihood of the consequence of death as highly unlikely. The more likely consequence is morbidity and, as such, this is the consequence that has been assessed.¹⁶

Recommendation

This ground of appeal questions DWER's assessment of the risk posed by dust emissions on Port Hedland and the local environment. DWER found that the level of risk was 'medium', due to the tonnages of bulk material handled, material handling methods, infrastructure controls, off-site processing techniques using a wet process, and moisture content of products received.

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

- bulk materials are transported to the premises by truck, copper concentrate is handled within sheds or containers, spodumene concentrate is handled within containers (Rotabox system), and ship-loading is by covered conveyors;
- DoH, through the Port Hedland HRA, identified that particles as PM₁₀ at concentrations over 70µg/m³ is the contaminant of most concern in Port Hedland;
- DoH recommended that the interim guideline of 24-hour PM₁₀ of 70 µg/m³ (+ 10 exceedances to accommodate natural events) in residential areas of Port Hedland, and this has been supported by the State Government; and
- DWER has applied its own expert knowledge in considering the impacts to human health posed by the premises activities, including the risks of morbidity and mortality.

Taking this information into account, it is considered DWER's conclusion that the level of risk posed by the proposal in relation to dust as 'medium' was justified. It is therefore recommended that this ground of appeal be dismissed.

Having identified a medium risk, and consistent with DWER's risk assessment framework, it is considered appropriate for conditions to be applied to the premises to ensure emissions are acceptable from an environmental and health perspective. The adequacy of the conditions applied to the licence to address the identified level of risk is considered in the next ground of appeal.

¹⁶ DWER response to Appeal 011/18, pages 9-10.

GROUND 2: ADEQUACY OF LICENCE CONDITIONS

By this ground of appeal, the appellant submitted that DWER has not applied adequate conditions to the licence 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;
- bulk materials specification;
- moisture content monitoring; and
- dust monitoring.

These issues will be considered in turn.

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 6, 7 and 9 (Amendment 1) / condition 14 (Amendment 2) and Schedule 4).

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

LiDAR monitoring equipment was removed in June 2017 following a five-month dust monitoring campaign. The Licence Holder does not possess LiDAR monitoring equipment and DWER does not intend to use this technology as a regulatory tool that forms part of a licence condition under Part V of the EP Act due to the following limitations:

- there is no Australian Standard for the operation of LiDAR equipment;
- pre-processing of LiDAR monitoring data is required before useable imagery can be developed;
- although LiDAR and Beta Attenuation Monitor (BAM) signals match reasonably well for the Port Hedland campaign, correlations ranged between 0.55 and 0.77, which limits confidence in the use of the 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.¹⁷ ...

The LiDAR was not intended to be used as a regulatory requirement forming part of a licence condition under Part V of the EP Act. There are limitations with applying a requirement to undertake LiDAR monitoring to a licence ...

Ongoing LiDAR monitoring would require significant data analysis and pre-processing and, based on the limitations listed above, the amount of effort required would not justify the value received from obtaining these data over the longer term. Notwithstanding these limitations, the LiDAR technology has been found useful for identifying sources and pathways of airborne contaminants (as demonstrated by the images included in the LiDAR Report). DWER will continue to use information from this LiDAR campaign to better inform risk assessments of port activities in Port Hedland.¹⁸

Noting DWER's advice regarding the limitations of LiDAR, 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.

¹⁷ DWER response to Appeal 007/18, page 7; DWER response to Appeal 011/18, page 3.

¹⁸ DWER response to Appeal 007/18, page 8; DWER response to Appeal 011/18, page 3.

Authorised emissions

This element of the appeal relates to condition 1 of the licence, which lists fugitive dust as one of two 'Specified Emissions' types caused by primary activities on the premises (as set out in Schedule 2) which are regulated under the licence conditions.

The appellant requested that, due to the risk identified in relation to fugitive dust from the premises, the reference to fugitive dust being an 'authorised' emission should be removed from condition 1. The appellant cited licence conditions applying to Roy Hill operations, which (at the time the appeal was submitted) did not include fugitive dust as a 'Specified Emission'.

In response to this matter, DWER advised:

The structure and format of the Licence issued under Part V of the EP Act is such that the 'Specified Emissions' are those emissions explicitly authorised to occur from the prescribed activities, subject to compliance with relevant conditions on the Licence.

In determining what emissions should be authorised through a 'Specified Emission' or 'General Emission' there is a direct link to DWER's risk assessment (documented in s 6 of the Decision Report).

Generally, low risk emissions from the prescribed activities will be authorised through 'General Emissions', as they do not require additional licence restrictions and the general offence provision of the EP Act can be applied. For higher risk emissions that are authorised through 'Specified Emissions', these are restricted to the requirements of the applicable licence conditions.

For Licence L4432/1989/14, fugitive dust from the prescribed activity (Category 58) is permitted subject to compliance with Conditions 2 to 15¹⁹ on the Licence.²⁰

The outcome sought by the appellant is for condition 1 to be amended to (effectively) make fugitive emissions 'unauthorised', and thereby prohibit these emissions from the premises. As noted by DWER, 'specified' emissions are intended to identify the primary emissions from activities at prescribed premises. This reflects the notion that prescribed premises, by their nature, result in emissions to the environment.

In the case of the current proposal, fugitive dust is identified as a specified emission from operations at the premises. Condition 1 provides, however, that the emission of fugitive dust from the premises is only authorised if it is done so in accordance with other conditions of the licence. Noting the structure of the licence, it is considered that condition 1 is appropriate, and no amendment is required.

The operation of the Roy Hill Infrastructure Pty Ltd premises has been the subject of assessments under Part IV of the EP Act and conditions under Ministerial Statements 858, 978 and 1084, as well as Licence L8967/2016/1 under Part V of the EP Act. On 3 December 2018, DWER amended Licence L8967/2016/1 to include requirements relating to dust monitoring and management.

Bulk materials specification

This element of the appeal relates to condition 4 of the licence, which states:

The Licence Holder must only load the bulk granular material detailed in Table 6 of Schedule 2 onto a vessel by an open materials handling system at the Premises.

The appellant submitted that condition 4 should be changed to clarify that there is no restriction on the licence holder to take necessary steps to enclose relevant dust emission points in the loading system to control dust emissions.

¹⁹ Conditions 2-15 in Amendment 1; conditions 2-16 in Amendment 2.

²⁰ DWER response to Appeal 007/18, pages 4-5; DWER response to Appeal 011/18, page 4.

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

The intent of this condition is to limit the type of bulk granular material able to be handled at the Premises to copper concentrate as listed in Table 6 of Schedule 2 of the Licence and link to the prescribed premises activity for Category 58 (Bulk material loading or unloading using an open materials handling system). The condition does not prevent the Licence Holder from using enclosures to manage fugitive dust emissions. ...

... The limit applies to the types of materials handed and not to the type of equipment that is permitted to be used, which is specified in the schedules attached to the Licence. ...

For the interpretation of an open materials loading system, the Department characterises this as a system that is capable of generating emissions. A closed system would be one that is not capable of generating emissions and therefore not subject to any regulatory controls under the EP Act. Nothing in condition 4 precludes the Licence Holder from handling materials within a closed system e.g. containers.²¹

For its part, the licence holder advised that bulk materials are transported to the premises by truck, that copper concentrate is stored in fully-enclosed sheds pending loading onto ships via covered conveyors, and that spodumene concentrate is stored in lidded rotainers pending loading onto ships.

The *Environmental Protection Regulations 1987* (EP Regulations) describe the prescribed premises activity for Category 58 as:

Bulk material loading or unloading: premises on which clinker, coal, ore, ore concentrate or any other bulk granular material (other than salt) is loaded onto or unloaded from vessels by an open materials loading system.

Noting this, it is considered that condition 4 appropriately reflects the handling system described in the EP Regulations. Notwithstanding this, it is noted that that while an 'open' materials loading system is specified, the licence would not prevent the licence holder from considering an enclosed or contained materials loading system. In any event, the dust-related licence conditions in this case aim to prevent or minimise and manage the emission of fugitive dust from the premises. On this basis, no changes to condition 4 are recommended.

Moisture content monitoring

This element of the appeal relates to conditions 5, 6 and 7 of the licence.²²

Condition 5 requires the licence holder to take all practicable measures to ensure that:

... all bulk copper concentrate received at the Premises contains a Moisture Content at or above its corresponding DEM level.

Condition 6 states that in order to verify condition 5, the licence holder must:

- (a) maintain accurate records for the DEM levels for all bulk copper concentrate received from each Premises User determined by a Reputable Laboratory and representative of the bulk copper concentrate accepted at the Premises at all times; and
- (b) on a weekly basis obtain and maintain accurate records from each Premises User in relation to the representative Moisture Content for all bulk concentrate received at the Premises.

Condition 7 requires the licence holder to:

... upon immediately becoming aware, and no later than 7 days, of receiving bulk copper concentrate that has a Moisture Content below the corresponding DEM level for that material:

²¹ DWER response to Appeal 007/18, page 5; DWER response to Appeal 011/18, pages 4 and 5.

²² Note that 'bulk copper concentrate' in conditions 5 and 7 of Amendment 2 replaces references to 'bulk granular material' in Amendment 1.

- (a) cease accepting that bulk granular material from that Premises User for the following shipment until it can be verified that the next lot of that bulk granular material from that Premises User has a Moisture Content at or above the corresponding DEM level; and
- (b) implement mitigation measures to ensure no visible dust is generated from the loading of that bulk granular material.

'DEM Level' is defined in the licence to mean:

... the dust extinction moisture which is the moisture content expressed as a percentage of the product at which the Dust Number is 10 derived from the Australian Standard *AS4156.6-2000: Coal preparation, Part 6: Determination of Dust/moisture Relationship for Coal*.

The appellant requested changes to condition 6 to the effect that the requirements should:

- be independent of, and not verify, condition 5;
- require the DEM levels for all bulk copper concentrate received from each premises user to also be certified by a reputable laboratory; and
- require the records obtained from each premises user in relation to the moisture content for bulk material to be made using a sampling and testing methodology which at a minimum meets industry leading practice and a confidence level of at least 98 per cent probability that all bulk granular material received at the premises in any consecutive 24-hour period will be received at minimum DEM level.

The appellant also requested changes to condition 7 to the effect that the requirements should:

- not specify '*for the following shipment*' so that it is clear that product cannot be accepted at the premises before first being verified to be at or above the required DEM level;
- require that within 72 hours of visible dust or dust detected through LiDAR monitoring from the premises or during ship loading the correct DEM level is re-sampled, re-tested and certified, that the correct DEM level is re-sampled, re-tested and certified at least quarterly, and that records are updated accordingly;
- require that no dust is to be generated from the loading of the bulk material, as detected by LiDAR monitoring; and
- have each reference to 'bulk granular material' changed to 'copper concentrate material'.

In response to the appellant's concerns about conditions 5 and 6, DWER advised:

The inclusion of the phrase '*In order to verify Condition 5*' at the beginning of Condition 6 does not impose an interpretation that the requirements of Condition 6 will be met solely if the requirements of Condition 5 are met. The determination of '*all practicable measures*' during any assessment of compliance with this condition will take into account other conditions of the Licence as well as other existing published guidance and reasonable actions in response to events and circumstances.

The definition of 'Dust Extinction Moisture' [in the Licence] provides for the DEM content to be determined according to the Australian Standard AS4156.6-2000. It is not necessary to specify where or by whom the determination of DEM should be undertaken. Similarly, it is not necessary to require a sampling and testing methodology which is no less than industry leading practice, when there is an Australian Standard that describes the method.

The Appellant has requested the use of LiDAR or of observations of visible dust as a trigger to require re-testing of DEM. DWER's assessment of the range of products handled, and the validity of the DEM testing method for iron ore products, is that frequent re-testing is not required. Should ongoing monitoring and reporting, including investigations to trigger events, indicate that dust is being generated at unacceptable levels even when the DEM is apparently being met, then DWER will reassess the requirement for validation of DEM testing.

The Licence Holder is required by Condition 6(a) to maintain accurate records for the DEM levels. The determination of this will occur during Premises inspections conducted annually.²³

In response to the appellant's concerns about condition 7, DWER advised:

The phrase "for the following shipment" was included to acknowledge the operational constraints of ceasing shiploading part way through a shipment of copper concentrate. ...

Low concentrations of dust that are not visibly detectable are expected to be generated from the activity of shiploading under normal circumstances. Therefore it is impractical to require that no dust is generated from the prescribed activity.²⁴

There is no need to re-emphasise that the bulk material in question is copper concentrate because this condition falls under the heading in the Licence of 'Copper concentrate acceptance and handling'.

DWER does not consider that condition 7(a) requires change as it is clear that the Licence Holder must cease accepting that bulk granular material until it can be verified that the next lot of that bulk granular material meets the DEM level. There is no room for misinterpretation as it is written.

The interpretation that product may continue to be received at the Premises after the Licence Holder has become aware of product not having moisture content greater than the DEM level is correct, but only for the current shipment. Product may continue to be received for a shipment after loading of that shipment has commenced. It is unreasonable to require that a shipment cease loading without evidence of dust emissions or impacts to sensitive receptors. To address the risk associated with dust during these events, condition 7(b) requires the Licence Holder to implement additional mitigation measures to ensure no visible dust is generated from loading activities.²⁵

In effect, the appellant has requested that condition 7 is changed so that it does not facilitate the acceptance of material with low moisture content, including during shiploading. DWER responded that condition 7 allows for a current shipment to continue loading in the event that material with low moisture content is identified, subject to the licence holder implementing additional mitigation measures to prevent visible dust. In any event, the dust-related licence conditions aim to prevent or minimise and manage the emission of fugitive dust from the premises.

LiDAR monitoring is considered separately above.

Taking into account the foregoing, it is considered that DWER's advice adequately clarifies the intention of conditions 5, 6 and 7 in relation to the determination of DEM levels and the minimum moisture content requirement for bulk copper concentrate handled through the premises, and expectations where product with low moisture content is identified during shiploading. It is also considered that in the absence of a suitable Australian Standard for DEM in copper concentrate, it was appropriate for DWER to use the standard applicable to coal, noting however the ability for the CEO to apply a different standard if a suitable replacement is developed. It is expected in this regard that DWER will regularly review the standard applied under the licence, and ensure the most appropriate measure is applied.

Having regard for the above, it is considered that DWER reasonably required that a corresponding DEM level is determined for bulk copper concentrate accepted or out-loaded at the premises, and applied the requirement for bulk copper concentrate to have a moisture content above the corresponding DEM level, subject to the specified mitigation actions where this requirement is not met in order to more stringently control dust emissions at the premises. On this basis, no changes to conditions 5, 6 or 7 are recommended.

²³ DWER response to Appeal 007/18, pages 5-6; DWER response to Appeal 011/18, page 5.

²⁴ DWER response to Appeal 007/18, pages 6-7.

²⁵ DWER response to Appeal 011/18, pages 5-6.

Dust monitoring

By this element of the appeal, the appellant requested that changes be made to the licence conditions relating to the following aspects of dust monitoring:

- point source dust monitoring;
- boundary air quality monitoring;
- ambient air quality monitoring;
- reportable events relating to dust monitoring; and
- record keeping relating to dust monitoring.

Point source dust monitoring

This element of the appeal relates to condition 8 (Amendment 1) / condition 13 (Amendment 2) of the licence, which requires the licence holder to undertake point source dust emission monitoring of volumetric flow rate and particles at dust bag house stacks when in operation based on one minute averages over 30 minutes on a quarterly basis until 31 December 2019.

The appellant requested changes to condition 8/13 to the effect that:

- the limitation on the frequency and duration of point source dust emission monitoring specified in Table 2 should be removed in order to require monitoring to continue for the duration of the licence; and
- the requirements should include monitoring during dust-generating activities including '*Quarterly, when in operation where product is entering and being unloaded for storage within the building*'.

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

DWER has considered the requirement to monitor the emissions from dust baghouse stacks when the Licence Holder is handling bulk concentrates within the stockpile sheds. The term "when in operation" is intended to indicate that monitoring is required during times of bulk concentrate handling and the exhaust system is operational. Further information regarding the sampling methodology applied during stack testing can be provided to DWER outside of Licence conditions.

This monitoring is intended to identify the significance of emissions from the baghouse and does not represent an emission control. DWER has the ability to require further testing through a DWER-initiated Licence amendment should insufficient or inaccurate data be presented through this monitoring campaign.²⁶

DWER does not anticipate dust baghouses to be significant sources of dust if they are operating effectively. ...

Further actions, which may include the possible extension of point source dust monitoring, will be determined based on the results of the first 12-month period.²⁷

Having regard for the above, it is considered that the requirement to monitor dust bag house stack point source emissions on a quarterly basis when in operation until 31 December 2019 in order to determine whether the equipment is operating effectively, subject to maintenance and operation of the equipment in accordance with condition 2, is reasonable. In any event, the dust-related licence conditions, including moisture content monitoring throughout the handling process, aim to prevent or minimise and manage the emission of fugitive dust from the premises. On this basis, no changes to condition 8/13 are recommended.

²⁶ DWER response to Appeal 007/18, page 7.

²⁷ DWER response to Appeal 011/18, page 6.

Boundary air quality monitoring

This element of the appeal relates to condition 9 (Amendment 1) / condition 14 (Amendment 2) of the licence, which requires the licence holder to undertake dust monitoring of copper, lithium and particles as PM₁₀ at two boundary air quality monitors (indicated as 'M10' and 'M11' in Figure 2), based on hourly averages.

The appellant requested changes to condition 9/14 to the effect that the requirements should include LiDAR monitoring for particles as PM₁₀ at the top of the Town Centre / Integrated Marine Operations Tower and at Port Hedland Industries Council (PHIC) monitoring locations.

LiDAR monitoring is considered separately above. In relation to PHIC monitors, DWER advised:

DWER has reviewed the air quality boundary monitoring network in relation to the prescribed activities and receptors and has determined that the monitoring network is sufficient.²⁸ ...

With regard to the addition of PHIC monitoring network to the Licence, the Department maintains oversight of monitoring data from the PHIC network. Current recommendations of the Taskforce Report are for the continuation of this oversight, meaning that there is no benefit to requiring these monitors through licence conditions. DWER will implement any future recommendations of the Taskforce Report if endorsed by Government, which may include the acquisition of control over the PHIC monitoring network.²⁹

Relevant to DWER's advice, it is noted that the State Government's recent announcement on the management of dust in Port Hedland supported the Dust Management Taskforce recommendation for the implementation of a coordinated risk-based review and assessment approach to managing dust in Port Hedland, subject to (among other things):

The Government support the full transfer of the operation and maintenance of the Port Hedland Industries Council (PHIC) air quality monitoring network to the Department of Water and Environmental Regulation (DWER), with appropriate cost recovery arrangements to be made through PHIC.³⁰

It is also noted that 'real time' live feed data from the PHIC monitoring network is available online³¹.

Noting the above, it is considered that the boundary air quality monitoring requirements relating to the premises are reasonable, and form an appropriate basis for the reportable event criteria specified under condition 11 (Amendment 1) / condition 16 (Amendment 2). On this basis, no changes to condition 9/14 are recommended.

Ambient air quality monitoring

This element of the appeal relates to condition 10 (Amendment 1) / condition 15 (Amendment 2), which requires the licence holder to obtain ambient air quality monitoring data of particles as PM₁₀ at the Taplin Street monitor for 24-hour and annual averaging periods on a continuous basis.

The appellant requested that, as a consequence of its requested changes to condition 9/14, condition 10/15 should be deleted.

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

The existing requirements of this condition are consistent with the current regulatory approach for all port licence holders and meet the requirements of the HRA.³²

²⁸ DWER response to Appeal 007/18, page 8.

²⁹ DWER response to Appeal 011/18, pages 3 and 6-7.

³⁰ Port Hedland Dust Management Taskforce Report – Government Response

³¹ Available at: <http://www.phicmonitoring.com.au/>

³² DWER response to Appeal 011/18, pages 6-7.

As no changes are recommended in relation to condition 9/14, it follows that no changes to condition 10/15 are recommended.

Reportable events relating to dust monitoring

This element of the appeal relates to condition 11 (Amendment 1) / condition 16 (Amendment 2), which requires the licence holder to investigate, undertake actions and report to DWER in accordance with Schedule 4 when:

- boundary air quality monitoring required under condition 8/13 indicates a 24-hour average for copper as PM₁₀ of greater than 1 µg/m³ and/or for particles as PM₁₀ of greater than 145 µg/m³; and/or
- ambient air quality monitoring required under condition 9/14 indicates the Interim Guideline has been reached at Taplin Street.

Schedule 4 specifies the location of boundary and ambient air quality monitors relevant to the premises, information to be contained in dust monitoring reports, and frequency of reporting.

The appellant requested that, as a consequence of its requested changes to condition 9/14, condition 11/16 should be changed to delete the reference to ambient air quality monitoring and that Schedule 4 should be changed to replace references to the Taplin Street monitor with references to the LiDAR monitor, and to add a requirement for reporting on the possible and probable contributing causes of reportable events attributed to the premises.

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

The DoH, through the HRA, recommended the application of the interim guideline of 24-hour PM₁₀ of 70 µg/m³ (+10 exceedances to accommodate natural events) continue to apply at Taplin Street. DWER has determined that the monitoring of this interim guideline and its correlation with prescribed activities is appropriately managed through the Part V Licence. Schedule 4 of the Licence requires the Licence Holder to undertake a review of Premises activities to identify any possible sources that may have contributed to the Reportable Event and the corrective and mitigation measures undertaken.³³

LiDAR monitoring is considered separately above.

As no changes are recommended in relation to condition 9/14, it follows that no changes to condition 11/16 or Schedule 4 are recommended.

Record keeping relating to dust monitoring

This element of the appeal relates to condition 14 (Amendment 1) / condition 19 (Amendment 2), which requires the licence holder to provide to DWER by 30 September each year a report containing (among other things) the results of monitoring as required by:

- condition 8/13 in relation to point source dust emission monitoring;
- condition 9/14 in relation to boundary dust emission monitoring; and
- condition 10/15 in relation to ambient air quality monitoring, with a comparison against the Interim Guideline and 30 µg/m³ annual average.

The appellant requested that, as a consequence of its requested changes to condition 9/14, condition 14/19 should be changed to delete the reference to results of ambient air quality monitoring.

As no changes are recommended in relation to condition 9/14, it follows that no changes to condition 14/19 are recommended.

³³ DWER response to Appeal 007/18, page 9.

Recommendation

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

CONCLUSION AND RECOMMENDATIONS

In reviewing the matters raised by the appellant in the context of DWER's decision to amend the licence to revise the premises boundary and add spodumene as a bulk material, and taking into account the information available in relation to the grounds of appeal, it is considered that DWER's risk assessment was appropriate and the conditions applied to the proposal are commensurate for addressing the identified level of risk, and that there are a range of regulatory controls available through the licence conditions to manage and control dust emissions at the premises.

It is therefore considered that the licence conditions are adequate to monitor and control dust generated by the premises at this time.

It is therefore recommended that the appeals be dismissed.

Emma Gaunt
APPEALS CONVENOR

Investigating Officer:
Emma Bramwell, Senior Environmental Officer

APPENDIX 1: AMENDMENTS TO LICENCE

In respect to the appellant's requests for changes to licence conditions, the table below summarises the key material changes (but not typographical amendments or consequential re-numbering of licence conditions that do not otherwise change the intent) since the previous version of the licence in relation to those conditions. Items in bold are considered to be within the scope of the appeal right relating to a licence amendment. Please note that the table below does not provide a complete list of the amendments to the licence.

Previous version of the licence (18/08/16)	Amendment 1 (07/03/18)	Amendment 2 (12/04/18)	Requested changes on appeal (summary)
Fugitive dust as a 'Specified Emission'			
Condition 15: Limitation on emissions other than the 'Specified Emissions' and 'General Emissions', including (among other things) fugitive dust.	Condition 1: Limitation on emissions other than the 'Specified Emissions' and 'General Emissions', including (among other things) fugitive dust.	Condition 1: No material change since Amendment 1.	The appellant considered that fugitive dust should not be included in the 'Specified Emissions' list.
Bulk material specifications			
Condition 7: Requirements relating to (among other things) the acceptance of the bulk granular material detailed in Table 4 of Schedule 2. <ul style="list-style-type: none">Schedule 2 refers to an open materials handling system.	Condition 4: Requirement that the bulk materials specified in Schedule 2 must only be loaded by an open materials handling system.	Condition 4: No material change since Amendment 1.	The appellant considered that it should be clear that the operation of an 'open materials handling system' does not preclude the licence holder from considering closed systems.
Bulk material moisture content monitoring			
Condition 7: Requirements relating to (among other things) the acceptance of bulk granular materials containing a moisture content at or above the DEM level derived from application on AS4156.6-2000.	Condition 5: Removal of reference to AS4156.6-2000 , otherwise no material change since previous version of licence. <ul style="list-style-type: none">Definition of 'DEM' refers to AS4156.6-2000.	Condition 5: Specification of 'copper concentrate', however no material change since Amendment 1.	Relevant to the appellant's appeal ground in relation to Condition 6.
Dust emission monitoring			
Condition 8: Requirement to maintain accurate and auditable records from each premises user in relation to the moisture content for all bulk granular materials sampled at the mine site by the premises user and received at the premises on a weekly basis, and documentation of the DEM level for all bulk	Condition 6: Addition of specification that DEM levels and moisture content are 'representative' and that records are to be auditable; and removal of reference to sampling at the mine site.	Condition 6: Specification of 'copper concentrate', however no material change since Amendment 1.	The appellant considered that there should be a requirement for certification of DEM levels for bulk copper concentrates handled at the premises; re-sampling, re-testing and re-certification of DEM levels within 72 hours of dust from the premises or during ship loading that is visible or detected through LiDAR

<p>granular material of each premises user determined by a laboratory on at least an annual basis.</p>			<p>monitoring and on quarterly basis, with records updated accordingly; and for records on moisture content of bulk granular material handled at the premises to be based on a sampling and testing methodology which at a minimum meets industry leading practice and has a 98 per cent confidence level.</p>
<p>No corresponding condition</p> <ul style="list-style-type: none"> Condition 17 requires (among other things) investigation of emissions (including reportable events relating to fugitive dust) and the taking of all reasonable steps to prevent the emission from recurring. 	<p>Condition 7: Requirement that immediately on becoming aware of, and not later than seven days of receiving, bulk granular material that has a moisture content below the corresponding DEM level, cease accepting that bulk granular material from that premises user until the moisture content is resolved, and implement dust mitigation measures.</p>	<p>Condition 7: Specification of 'copper concentrate', however no material change since Amendment 1.</p>	<p>The appellant considered that the phrase '<i>for the following shipment</i>' should be removed from subsection 7(a) so that it is clear that product cannot be accepted at the premises before first being verified to be at or above the required DEM level, and that subsection 7(b) should include a requirement that no dust is detected by LiDAR to be generated from the loading of the bulk granular material.</p>
<p>No corresponding condition</p>	<p>Condition 8: Requirement for point source emission monitoring of the volumetric flow rate (m³/s) and particulates (mg/m³ and g/s) at the dust baghouse stack emission points for one minute averages over 30 minutes on a quarterly basis (when in operation) for twelve months until 31 December 2019.</p>	<p>Condition 13: No material change since Amendment 1.</p>	<p>The appellant considered that the frequency of monitoring should continue for the duration of the licence, and should be undertaken when activities generating dust are occurring, including '<i>Quarterly, when in operation where product is entering and being unloaded for storage within the building</i>'.</p>
<p>Condition 11: Requirement to undertake dust monitoring subject to (among other things) monitoring of copper as PM₁₀ (µg/m³), and particles as PM₁₀ (µg/m³), at two locations for a 24-hour averaging period at a frequency of 'One 24 hour sample every sixth day, plus at least on 24 hour sample during each ship loading event', in accordance with AS3580.1.1 and AS3580.9.6, with reportable event criteria being 1 µg/m³ for copper as PM₁₀ and >145 µg/m³ for particles as PM₁₀.</p>	<p>Condition 9: Reportable event criteria for copper as PM₁₀ changed from 1 µg/m³ to >1 µg/m³; M10 and M11 monitoring sites correspond with high volume air sampler (HVAS)-1 and HVAS-2 monitoring sites (respectively) in the previous version of the licence.</p>	<p>Condition 14: Requirement to also monitor lithium as PM₁₀, for an averaging period of 24 hours at a frequency of one 24-hour sample every sixth day plus at least one 24-hour sample during each ship loading (no reportable event criteria).</p>	<p>The appellant considered that LiDAR monitoring should be undertaken for particles as PM₁₀ (µg/m³):</p> <ul style="list-style-type: none"> at the top of the Town Centre viewing tower / the licence holder's Integrated Marine Operations Tower (when completed), for an averaging period of 10 minute cycles (same as specified in the LiDAR Report) at a frequency of 24-hour continuous data acquisition and at a minimum daily review of 12-hour bi-hourly LiDAR snapshots normally increasing to 10 minute intervals during product movement, using LiDAR units and in accordance with AS3580.9.1, with reportable event criteria being '<i>As soon as</i>

			<p><i>possible and in any event not later than by 1 May 2018 and then continuous onwards'; and</i></p> <ul style="list-style-type: none"> at all PHIC monitoring locations as at 7 March 2018 (and additional location in future), for an averaging period and at a frequency at least the same as being recorded by PHIC as at 7 March 2018, in accordance with AS3580.9.1 (with no reportable event criteria).
<p>Condition 11: Requirement to undertake dust monitoring subject to (among other things) monitoring of particles as PM₁₀ at the Taplin Street monitor for an hourly averaging period at a continuous frequency and in accordance with AS3580.9.11 (no reportable event criteria).</p>	<p>Condition 10: Requirement to undertake ambient air quality monitoring of particles as PM₁₀ at the Taplin Street monitor at a continuous frequency for 24-hour and annual averages and in accordance with AS3580.9.11, <u>against the Interim Guideline with reportable event criteria of 70 µg/m³, and against 30 µg/m³ averaged over one year with no reportable event criteria.</u></p>	<p>Condition 15: No material change since Amendment 1.</p>	<p>The appellant submitted that in the event that the appellant's recommendations in relation to LiDAR monitoring are adopted, the requirement for the Taplin Street monitor becomes redundant.</p>
<p>Condition 12: Requirement to provide a report to DWER of any reportable events which have occurred in relation to dust emissions monitoring, subject to the requirements outlined in Schedule 4.</p>	<p>Condition 11: Addition of requirement for reporting on point source emission reporting events subject to the requirements outlined in Schedule 4.</p>	<p>Condition 16: No material change since Amendment 1.</p>	<p>The appellant submitted that in the event that the appellant's recommendations in relation to LiDAR monitoring are adopted, the requirement to report on ambient air quality monitoring for the Taplin Street monitor becomes redundant.</p>
<p>Condition 13: Requirement for the provision of monitoring data to DWER for monitoring at Taplin Street on a bi-monthly basis on the last day of March, May, July, September, November and January.</p> <p>Condition 14: Requirement that monitoring data specified in Condition 13 is provided in the format specified by DWER.</p> <p>Condition 19: Requirement that a compliance report indicating the extent to which the licence conditions have been complied with is submitted to DWER within 90 days of 30 June each year.</p>	<p>Condition 14: Requirement for annual monitoring report.</p> <ul style="list-style-type: none"> Sub-section (b)(v): Requirement for the results of monitoring and any supporting records, information, reports and data as required by (among other things) Condition 10 for ambient air quality monitoring at Taplin Street including a comparison of monitoring results against the Interim Guideline to be included in the monitoring report. 	<p>Condition 19: Additional requirements relating to the inclusion of monitoring data for spodumene in annual monitoring report.</p> <ul style="list-style-type: none"> Sub-section (b)(vii): No material change since Amendment 1. 	<p>The appellant submitted that in the event that the appellant's recommendations in relation to LiDAR monitoring are adopted, the requirement to provide a monitoring report for the Taplin Street monitor becomes redundant.</p>

<p>Schedule 2: Specification of bulk granular material as copper concentrate (560,000 tonnes exported per annum).</p>	<p>Schedule 2: Addition of static conveyor BC02A, addition of supplementary Sandfire copper container storage area.</p>	<p>Schedule 2: Addition of spodumene concentrate (610,000 tonnes exported per annum).</p>	<p>Relevant to Condition 4. The addition of spodumene was not appealed.</p>
<p>Schedule 4: Requirement to report on dust monitoring on a quarterly basis at the end of July, October, January and April, and specifies the content to be included in dust monitoring reports in relation to reportable events (including mitigation measures undertaken to address exceedances).</p>	<p>Schedule 4: Addition of requirement for reporting on review of operational activities in determining exceedances and reportable events at Taplin Street monitor including a comparison with results at boundary monitors for same period, and removal of redundant requirements.</p>	<p>Schedule 4: No material change since Amendment 1.</p>	<p>The appellant submitted that in the event that the appellant's recommendations in relation to LiDAR monitoring are adopted are adopted, requirements relating to LiDAR monitoring and to report in relation to the possible and probable contributing causes of reportable events attributed to the premises should be inserted, and the requirement to provide a monitoring report for the Taplin Street monitor becomes redundant. Relevant to Amendment 1 Condition 11 / Amendment 2 Condition 16.</p>