



Government of Western Australia
Office of the **Appeals Convenor**
Environmental Protection Act 1986

Appeals Convenor's Report to the Minister for Environment

Appeals objecting to a licence amendment: L8937/2015/1
Utah Point Multi-User Bulk Handling Facility

May 2021

Appeals 029.001–002 of 2020



Appellants

- Anderson UT Holdings Pty Ltd ATF Anderson Unit Trust, Hain FT Pty Ltd ATF Hain No. 2 Family Trust and Michael Hain
- Pilbara Ports Authority

Licence holder

Pilbara Ports Authority
L8937/2015/1

Authority

Department of Water and Environmental Regulation (DWER)

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Cover image – Pilbara Ports Authority

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Acknowledgement of Country

The Office of the Appeals Convenor acknowledges the traditional custodians throughout Western Australia and their continuing connection to the land, waters and community.

We pay our respects to all members of the Aboriginal communities and their cultures, and to Elders both past and present.

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1 Executive summary

1.1 Decision under appeal

The Pilbara Ports Authority holds licence L8937/2015/1 for the Utah Point Multi-User Bulk Handling Facility in the port of Port Hedland. The Department of Water and Environmental Regulation (DWER) amended the licence under Part V of the *Environmental Protection Act 1986* (EP Act) on 11 May 2020. The amendment authorised:

- an increase in the annual throughput for bulk material loading or unloading from 21.35 million tonnes per annum (Mtpa) to 24.10 Mtpa (an increase of 2.75 Mtpa)
- including up to 3 Mtpa of spodumene ore as an approved bulk material.

Please see Section 3.1 for a summary of the licence history and the current amendment. A map of the site is provided in Appendix 1.

1.2 Grounds of appeal and appellant concerns

Pilbara Ports Authority appealed against the removal of the 'Material Change conditions' and associated provisions from the licence.

Anderson UT Holdings Pty Ltd ATF Anderson Unit Trust, Hain FT Pty Ltd ATF Hain No. 2 Family Trust and Michael Hain also appealed against the amendment. The third-party appellant appealed on 2 grounds:

- the conditions relating to dust monitoring and management are inadequate
- DWER's risk assessment for dust emissions is inadequate.

We summarise the appellants' concerns in Section 3.2.

The appellants also raised other issues relating to the loss of property value and property buyback, and consideration of economic surrounds which are beyond the scope of appeal. These issues are briefly discussed at Section 3.7.

1.3 Key issues and conclusions

From the appellants' concerns, we have identified the 3 issues at the heart of the appeals. We summarise our conclusions for these issues below. Section 2 of this report details our reasoning and Section 3 provides supporting information.

Are the regulatory controls for dust emissions adequate?

DWER applied a risk-based approach to its decision-making with respect to the amendment of licence L8937/2015/1. Based on the outcome of its assessment, DWER applied additional regulatory controls on the licence, which are proportionate to the level of risk (likelihood and consequence) that the increase in throughput at the premises poses to public health.

We find the regulatory controls relating to the management and monitoring of dust emissions are generally appropriate and commensurate with achieving DWER's objective of ensuring dust emissions from the premises are not increased in the short term ('no net increase') and the current risk level is not exceeded as a result of throughput increases.

We agree with DWER that additional conditions are not required through the licence amendment to include additional parameters to be monitored, alternative monitoring methods and reporting.

This ground of appeal should be dismissed.

Is removal of the ‘Material Change conditions’ reasonable and justified?

We understand that, given the existing elevated ambient PM₁₀¹ concentrations in Port Hedland have resulted in a ‘High’ risk rating being applied to all risk assessments of existing bulk material loading and unloading operators in Port Hedland, DWER has determined that ‘Material Change conditions’ have the potential to result in significantly increased and therefore unacceptable risk.

We find that DWER’s decision to remove the ‘Material Change conditions’ is consistent with the State Government’s response to the Port Hedland Dust Management Taskforce Report and DWER’s regulatory approach for Port Hedland.

This ground of appeal should be dismissed.

Was DWER’s risk assessment for dust emissions adequate?

We find that DWER’s determination that the overall rating for the risk of cumulative dust emissions as ‘High’, when taking into consideration the total throughputs at the premises, is justified. We consider that DWER’s risk assessment is consistent with its Guidance Statement: Risk Assessments and took into account the conclusions in the Port Hedland Air Quality Health Risk Assessment for Particulate Matter, as well as other relevant information.

This ground of appeal should be dismissed.

1.4 Recommendation to the Minister

Dismiss the appeals.

¹ Particulate matter with an equivalent aerodynamic diameter of 10 micrometres or less.

2 Reasons for recommendation

2.1 Are the regulatory controls for dust emissions adequate?

Our conclusion is that the regulatory controls for dust management and monitoring are adequate. We explain our reasoning below.

Regulatory controls for dust emissions generally adequate

The third-party appellant is seeking additional conditions be applied to the licence so that there is reasonable protection from the risks and consequences associated with the fugitive dust emissions to neighbouring residents, property owners and other stakeholders in Port Hedland, Wedgefield and South Hedland.

The focus of our investigation is on whether the conditions applied to the amended licence are appropriate and adequate for the purpose of “prevention, control, abatement or mitigation of pollution or environmental harm” associated with the increase in throughput and the handling of spodumene ore at the premises. The results from our review are presented in Section 3.3.

Based on our review of the conditions applied to the amended licence, we find the regulatory controls for dust management and monitoring are generally appropriate and commensurate with achieving DWER’s objective of ensuring that dust emissions from the premises are not increased in the short term (‘no net increase’) and the current risk level is not exceeded as a result of throughput increases.

In reaching this conclusion, we note that:

- DWER can review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the licence under the EP Act.
- Changes to operations will be subject to the best practice Dust Management Guideline for bulk handling facilities at Port Hedland when this is finalised and port operators may be required to retrospectively address any identified performance gaps.²

Requirement to undertake LiDAR monitoring not recommended at this time

The appellant submitted that the conditions should be amended to include a requirement for best practice and fit-for purpose LiDAR³ monitoring to reveal dust plumes emanating from the premises. The appellant also submitted that this should include live public reporting of results.

DWER advised that LiDAR’s main strength is that it provides good spatial representation of airborne particles. However it is limited in that it is not Australian Standard compliant and cannot measure the actual concentrations of particles in the air. In our discussions with the appellant, he acknowledged that LiDAR is not Australian Standard compliant. The appellant nevertheless considers there is sufficient evidence to support the use of LiDAR in the identification of the source of dust plume events when individual monitors in the ambient monitoring network are recording unacceptable levels.

² Interim regulatory approach, Managing dust in Port Hedland. Industry Regulation fact sheet (DWER and Department of Health, 2018).

³ Light Detection and Ranging.

The appellant noted that the subjective assessment of “visible dust” is not compliant with any standard but is currently applied on licences. We note that DWER acknowledges the determination of visible dust is subjective in nature and is therefore unenforceable.⁴

As part of our investigation we reviewed information from recent investigations and reviews of LiDAR and its applications and capabilities. A summary of the conclusions from these studies is provided in Section 3.4. In particular, we note that the technology transfer from atmospheric aerosols measurement using LiDAR, to measurement of industrial dust sources is not trivial and while the technology has great potential, it is essential that it be deployed and interpreted properly.

DWER advised that the development of the best practice Dust Management Guideline will include investigation of additional management tools and monitoring technologies, including use of LiDAR technology. In its response to the appeals, DWER advised that the introduction of new monitoring techniques are likely to enhance its ability to better identify risk and/or emissions sources. DWER also advised that as each technique has its limitations, a range of data types must be considered when determining the risk to public health and amenity from prescribed premises. Noting this and the findings from our investigation, we consider that it is not appropriate to amend the licence to include a requirement for LiDAR monitoring at this time.

In response to the appellant’s view that the use of LiDAR is consistent with the licence holder’s Dust Management Leading Practice Guidelines, the licence holder advised that these are no longer current. The licence holder’s guidelines have been superseded by the development of the Dust Management Guideline.

The issue of including a requirement for LiDAR monitoring as a condition on licences has been raised in previous appeals relating to licence amendments for prescribed premises in Port Hedland.⁵ The then Minister for Environment dismissed the appeals.⁶

We summarise similar recent appeals in Section 3.5.

Requirement to undertake dust speciation not recommended at this time

The appellant submitted that samples of product being moved at the premises should be made available to neighbouring stakeholders for dust speciation, chemical and physical composition analysis and comparison with dust collected in depositional monitors.

From our review of other licences for prescribed premises in the port of Port Hedland, we note:

- Theoretically, where it is known that specific ore types are handled at a particular premises, dust speciation results could help identify the source(s) of dust according to those premises.⁷ However, as most of the iron ore types handled at Port Hedland contain

⁴ Application for Licence Amendment L8937/2015/1. Decision Report (DWER, May 2020), Section 8.2.1.

⁵ Appeals Convenor (2019). Report to the Minister for Environment, Appeals in Objection to the Amendment of a Licence, Licence L4513/1969/18: Port Hedland Operations, Nelson Point and Finucane Island. Appeal Number 004 of 2018; Appeals Convenor (2019). Report to the Minister for Environment, Appeals in Objection to the Amendment of a Licence, Licence L4432/1989/14: Eastern Operations, Port Hedland. Appeal Numbers 007 and 011 of 2018.

⁶ Minister’s Appeal Determination (15 April 2019). Appeals against amendment of Licence L4513/1969/18, BHP Billiton Iron Ore Pty Ltd, Port Hedland Operations, Nelson Point and Finucane Island. Appeal Number 004 of 2018; Minister’s Appeal Determination (15 April 2019). Appeals against amendment of Licence L4432/1989/14, Pilbara Ports Authority, Eastern Operations, Port Hedland. Appeal Numbers 007 and 011 of 2018.

⁷ Application for Licence Amendment L8194/2007/3. Decision Report (DWER, September 2020), Sections 5.3.8 and 8.6.3.

similar elements, dust speciation as a method of dust attribution is unlikely to be successful under most scenarios.

- Where a distinctive material is only being handled at a specific premises, dust speciation has the potential to be used for source attribution as dust derived from this source can be distinguished from other dust sources.
- Currently, this is the case for magnetite ore at Port Hedland, which will only be handled at the Iron Bridge Concentrate Handling Facility and Fortescue Metals Group Ltd's Anderson Point Materials Handling Facility. Conditions on licence L8194/2007/3 for the Anderson Point Materials Handling Facility include the requirement to install dust deposition gauges and undertake dust deposition monitoring.

DWER advised that a level of dust speciation is included in the existing conditions on the licence, which require the monitoring of particulate and metal concentrations using air samplers along the boundary of the premises. Samples from these monitors are analysed for the presence and concentration of PM₁₀ and metals to describe emissions from the premises and to trigger Reportable Events in the event of elevated levels.

DWER also advised that the application of monitoring techniques and the analysis of dust samples are areas that require specialist scientific and regulatory expertise to produce meaningful results. Licence conditions relating to such monitoring and sample analysis are designed to ensure relevant scientific standards and regulatory protocols are met. The option for community stakeholders to undertake dust speciation analysis is therefore not appropriate to include as a licence condition.

The licence holder advised that the bulk material handled at the premises remains the property of the miners using the facility, and it is not entitled to obtain and provide samples without the agreement of each miner.

DWER advised that dust speciation is one of the potential monitoring tools being investigated through the development of the Dust Management Guideline. Noting this and the findings from our investigation, we consider that it is not appropriate to amend the licence to include a requirement for dust speciation at this time.

Monitoring of particulates is adequate and appropriate

The appellant submitted that the conditions should be amended to include a requirement for a best practice and fit-for-purpose monitoring network of PM₁₀, PM_{2.5},⁸ total suspended particulate matter (TSP),⁹ depositional and climate monitors around the premises. The appellant also submitted that this should include live public reporting of results.

DWER advised that particles as PM₁₀ are the basis of its risk assessment, as PM₁₀ remains the dominant particle size in Port Hedland's ambient air that presents a risk to human health. PM_{2.5} particles are a fraction of PM₁₀ particles and are expected to be present in the emission profile. DWER also advised that its assessment of risk did not assume that particulates as PM_{2.5} could not be generated from bulk ore handling activities.

DWER advised that controls have been placed on the licence to manage and monitor dust to satisfy its objective of not exceeding the current risk level. These controls will manage all types of dust, including PM₁₀, PM_{2.5} and TSP.

While we acknowledge the appellant's concerns, we accept DWER's position.

⁸ Particulate matter with an equivalent aerodynamic diameter of 2.5 micrometres or less.

⁹ The total amount of dust particles suspended in the air. TSP is used as a metric for determining impacts to amenity but is also comprised of finer particulates that would be classified as PM₁₀ and PM_{2.5}.

Monitoring of other potential contaminants

The appellant submitted that amphibole material must be monitored using fit-for-purpose best practice methods for residential applications, regulated and reported on by independent experts.

DWER advised that a number of hazards sometimes present in spodumene ores were considered in its assessment of the amendment application, including respirable crystalline silica, muscovite and asbestos. Concentrations of asbestos recorded during occupational hygiene monitoring conducted at hoppers, conveyors, stockpile areas and stackers at the premises identified that maximum recorded asbestos concentrations were below Safe Work Australia standards by a factor of 10. DWER also advised that concentrations of asbestos from the premises are expected to reduce with distance.

We note the Port Hedland Air Quality Health Risk Assessment for Particulate Matter concluded that risks associated with other potential contaminants, including metals, silica and asbestos are negligible.¹⁰

We accept DWER's position that the conditions in the licence are proportionate to the level of risk to public health, noting additional regulatory controls have been implemented for control of dust from the handling and movement of iron ore. If the composition of the dust or the current risk level changes in the future, DWER can review the appropriateness and adequacy of controls and initiate amendments to the licence under the EP Act.

Failure to demonstrate no net increase in dust emissions

The appellant submitted that in the event the licence holder fails to demonstrate that no net increase in dust emissions will arise from the premises due to any further increase in throughputs, a condition should be included requiring the licence holder to demonstrate that total dust emissions are progressively being reduced by a factor of not less than 10% annually as a result of the implementation of mitigation improvements.

To address the recommendations in the State Government's response to the Port Hedland Dust Management Taskforce Report for which the Department is responsible, DWER has established the Port Hedland Dust Program.¹¹ DWER is progressing with the development of a regulatory strategy for Port Hedland with short-term (5 years) and medium-term (5 to 10 years) regulatory horizons.

In the interim, DWER has stated it is taking a conservative approach to the assessment of any works approval, licence or amendment applications received for premises in the Port Hedland airshed.¹² Applicants are required to demonstrate that a proposed throughput increase will not result in an increase in dust emissions from the premises ('no net increase') and the current risk level is not increased. Where this is not demonstrated, DWER will consider further controls that may in part serve to reduce any increase in dust emissions.

Based on our review of the available information, we note:

- The licence holder submitted dust modelling in support of its application for increased throughputs to demonstrate that, based on the assumptions made in the model, dust emissions from the premises will not increase once its proposed controls are implemented.

¹⁰ Department of Health (2016). Port Hedland Air Quality Health Risk Assessment for Particulate Matter, page 34.

¹¹ DWER's regulatory role, Community Updates. Port Hedland (DWER, October 2020).

¹² Interim regulatory approach, Managing dust in Port Hedland. Industry Regulation fact sheet. (DWER and Department of Health, 2018).

- DWER considered there is significant uncertainty associated with the dust modelling, in particular with respect to the effectiveness of water cart and stockpile cannon availability reducing premises emissions by 25%.¹³ DWER also noted there are inherent limitations in air quality modelling and determined that modelling cannot be used on its own as a quantitative analysis or forecast tool for actual emissions from the premises.
- DWER applied additional regulatory controls on the amended licence for the monitoring and management of dust to address the uncertainty in the effectiveness of the licence holder's proposed controls and ensure the residual risk remains at an acceptable level.

Enforcement and compliance with the conditions of a licence is a matter for DWER as the regulator in accordance with its Compliance and Enforcement Policy.

Any future proposed increases in throughput will be assessed by DWER in accordance with its policies, guidelines and procedures.

2.2 Is removal of the 'Material Change conditions' reasonable?

Our conclusion is that the removal of the 'Material Change conditions' is reasonable and justified. We explain our reasoning below.

Removal of the 'Material Change conditions' is reasonable

The licence holder submitted that the removal of the 'Material Change conditions', in particular the provision for permitted increase of up to 10% of the volume of specified commodities without the need for notification of a Material Change or the need for further approval under the EP Act, is unreasonable.

Information on the 'Material Change conditions' is provided in Section 3.6, including a summary of DWER's response to this appeal ground.

We acknowledge the advice of the licence holder that:

- One of the functions of the Pilbara Ports Authority under the *Port Authorities Act 1999* is to facilitate trade within and through the port and in order to carry out this function, it must maintain a level of operational flexibility to meet its port users' trade needs. The 'Material Change conditions' provide that flexibility, subject to the limits of the conditions, which include a requirement for a risk analysis of the changes as well as proposed controls to mitigate risks to human health, amenity and the environment.
- The operational flexibility provided by the 'Material Change conditions' is particularly important given the extended timeframes required by DWER to complete licence amendment application assessments, which represents a significant barrier to facilitating trade in a timely manner as required under the *Port Authorities Act 1999*.

Based on our review of the available information and noting DWER's advice that 'Material Change conditions' have the potential to result in significantly increased risk, we find that DWER's decision to remove the 'Material Change conditions' is reasonable and justified.

We note that the licence holder can apply for a licence amendment to increase the total throughput at the premises.

Removal of conditions is consistent with State Government recommendation

We consider the decision to remove the 'Material Change conditions' is consistent with:

¹³ Application for Licence Amendment L8937/2015/1. Decision Report (DWER, May 2020), Sections 4.6 and 5.1.

- The State Government’s support for the Port Hedland Dust Management Taskforce’s recommendation for the implementation of a coordinated risk-based review and assessment approach to managing dust in Port Hedland. To give effect to this, DWER will complete reviews of all port premises licences, applying a consistent and risk-based approach to the regulation of dust for each premises.¹⁴
- DWER’s current regulatory approach for Port Hedland that has a primary focus on maintaining the current risk level (‘no net increase’ in dust from port-related activities) and the implementation of dust management controls for major industry dust sources.¹⁵

Removal of conditions consistent with amendments to other Port Hedland licences

From our review of other bulk material loading or unloading (category 58) licences in Port Hedland, we understand that the ‘Material Change conditions’ have been progressively removed from other licences due to the high dust risks associated with bulk ore handling in Port Hedland.

For example, the ‘Material Change conditions’ were removed from:

- Licence L8967/2016/1 (Roy Hill Infrastructure Pty Ltd’s Roy Hill Port Bulk Handling Facility and Screening Plant) in the December 2018 licence amendment¹⁶
- Licence L4432/1989/14 (Pilbara Ports Authority Eastern Operations) in the May 2019 licence amendment¹⁷
- Licence L8194/2007/3 (Fortescue Metals Group Ltd’s Anderson Point Materials Handling Facility) in the September 2020 licence amendment.¹⁸

In particular, we note that in the Decision Report for the amendment to Licence L8194/2007/3, DWER states:

The department has since reconsidered its approach to providing licence holders, in particular Category 58 operators, the flexibility to make changes to their premises that may result in an increased risk to public health, amenity or the environment. DWER has determined that these conditions may allow for significant changes to Premises operations that could alter the nature or volume of waste (which includes dust) or noise emissions ahead of any assessment of risk from DWER. In this scenario DWER would be unable to prevent the material change from being implemented even where the risk to public health, amenity or the environment was unacceptable.

Development of alternative conditions

We understand that DWER has engaged with the licence holder, other port authorities and the Department of Transport to develop an appropriate alternative to ‘Material Change conditions’. There is general agreement that a flexible, risk-based approach is appropriate.

In consultation with the port authorities, including the licence holder, ‘Trial Shipment conditions’ have been developed that relate to trialing the handling of new bulk granular materials not previously assessed and authorised under a licence. The ‘Trial Shipments conditions’ are intended to provide operational flexibility for ports and minimise impacts to economic growth where it can be demonstrated that any risk to public health, amenity and

¹⁴ Port Hedland Dust Management Taskforce Report. Government response (Department of Jobs, Tourism, Science and Innovation, October 2018).

¹⁵ Interim regulatory approach, Managing dust in Port Hedland. Industry Regulation fact sheet (DWER and Department of Health, 2018).

¹⁶ Application for Licence Amendment L8967/2016/1. Decision Report (DWER, December 2018), Section 8.7.5.

¹⁷ Application for Licence Amendment L4432/1989/14. Decision Report (DWER, May 2019), Section 7.6.2.

¹⁸ Application for Licence Amendment L8194/2007/3. Decision Report (DWER, September 2020), Section 5.1.4.

the environment is minimised to an acceptable level.¹⁹ The conditions also provide for the collection of monitoring data and optimisation of handling processes to support an application for amendment.

DWER has applied the 'Trial Shipment conditions' in the amended licence. DWER determined that the addition of the 'Trial Shipment conditions' was appropriate and necessary to allow for sufficient data collection for a detailed risk assessment of new products proposed for handling through the port in the future. The licence holder confirmed that the inclusion of the 'Trial Shipment conditions' in the amended licence is acceptable as it provides a suitable mechanism for dealing with new bulk granular material.

The licence holder noted, however, that the 'Trial Shipment conditions' only address one element of the 'Material Change conditions' — that relating to the shipment of new commodities. The other elements relating to volume increases of commodities and changes to infrastructure and equipment, were not addressed. Both of these are considered necessary to enable the Pilbara Ports Authority to maintain a level of operational flexibility required to meet the trade needs of its port users.

From our discussions with the licence holder, we understand that DWER is continuing to consult with the port authorities to develop appropriate alternative conditions.

2.3 Was DWER's risk assessment for dust emissions adequate?

Our conclusion is that DWER's risk assessment for dust emissions was adequate. We explain our reasoning below.

DWER's risk assessment consistent with guidelines

The appellant submitted that DWER mis-identified the risk levels in its risk assessment for dust emissions and the risk of mortality (as opposed to just requiring medical treatment) should be included. The appellant suggested that when mortality is included as a relevant risk factor, the potential consequences of health impacts from dust emissions is 'Severe' not 'Major'. The appellant submitted that it is therefore essential that a condition requiring LiDAR monitoring is included (refer to Section 2.2).

DWER determined the overall rating for the risk of cumulative fugitive dust emissions is 'High' when taking into consideration the total throughputs (all ores) handled at the premises.²⁰ This is based on DWER's assessment that the consequence of impacts of dust emissions to public health and amenity is 'Major' and the likelihood of the risk event is 'Likely' in the West End and 'Possible' in South Hedland. DWER advised that it took into consideration the conclusions of the Port Hedland Air Quality Health Risk Assessment for Particulate Matter in determining consequence and likelihood.

DWER determined that the overall rating for the risk of fugitive dust emissions associated with the handling of spodumene ore is 'Medium'. This is based on DWER's assessment that the consequence of impacts of dust from spodumene ore is likely to be 'Minor' and the likelihood of the risk event is 'Possible'. The increase in overall throughput amounts does not substantially change the risk determined in previous risk assessments due to the lower risk rating associated with spodumene.

An overall risk rating of 'High' is the second highest risk category in DWER's risk assessment matrix. DWER's Guidance Statement: Risk Assessments states that this risk rating may be

¹⁹ Guideline: Port Authority bulk handling trials. Category 58 and 58A (DWER, 2018).

²⁰ Application for Licence Amendment L8937/2015/1. Decision Report (DWER, May 2020), Section 7.3.

acceptable subject to multiple regulatory controls. DWER applied additional regulatory controls on the amended licence for the monitoring and management of dust.

We note that DWER assesses 'dust' as an emission, which includes the impacts of PM₁₀ and PM_{2.5}, as well as other impacts raised by the appellant.

Based on the available information, we find that DWER's risk assessment is consistent with its Guidance Statement: Risk Assessments and included identification of the sources, potential emissions, receptors, pathways and impact to receptors.

Risk assessment for loss of life

In its response to the appeal, DWER advised:

- Cumulative concentrations of PM₁₀ in Port Hedland may result in adverse health effects to the community requiring mid-level or frequent medical treatment, which DWER considers to be an accurate reflection of the health risk to the community. This gives rise to a 'Major' consequence rating and a 'Likely' likelihood resulting in an overall 'High' risk.
- When considered against the specific consequence criteria (70 µg/m³ for PM₁₀, 25 µg/m³ for PM_{2.5}), it can be considered that the criteria would be exceeded ('Major') with a likelihood of 'Possible', resulting in a similar overall 'High' risk.
- Alternatively, a risk assessment for loss of life would result in the determination of 'Severe' consequence. Based on the conclusions of the Port Hedland Air Quality Health Risk Assessment for Particulate Matter, the loss of life may occur in exceptional circumstances and the likelihood of this consequence would be deemed as 'Rare'. Therefore, the risk determination of 'High' would not increase to 'Extreme' if the dust risks resulting in loss of life (mortality) were assessed. The same overall 'High' risk determination would be concluded if the likelihood were more conservatively assessed to be 'Unlikely'.

DWER also advised that the following key finding in the Port Hedland Air Quality Health Risk Assessment for Particulate Matter was central to its determination that consequence should be assessed against chronic health impacts associated with the inhalation of PM₁₀ and not on the possibility of mortality occurring:

The modelling assumes the entire population of Port Hedland is exposed to the PM level being modelled. This is done so that small changes in risk can be detected. It does not mean that there was or will be an extra death in the West End. It means that the level of PM₁₀ in the West End is conducive to an extra death occurring, and therefore to guard against that possibility — the PM₁₀ level should be reduced or exposure reduced in some other way.²¹

We find that DWER's determination that the overall rating for the risk of cumulative dust emissions is 'High' when taking into consideration the total throughputs at the premises, is reasonable. We consider that DWER's risk assessment is consistent with its Guidance Statement: Risk Assessments and took into account the conclusions in the Port Hedland Air Quality Health Risk Assessment for Particulate Matter, as well as other relevant information.

Application of the National Environment Protection (Ambient Air Quality) Measure

The appellant submitted that the National Environment Protection (Ambient Air Quality) Measure (NEPM) should be applied, not any other guideline.

²¹ Department of Health (2016). Port Hedland Air Quality Health Risk Assessment for Particulate Matter, page 31.

In October 2018, the State Government endorsed the continued application of an air guideline value for Port Hedland of 24-hour PM₁₀ of 70 µg/m³ (excluding natural events) in all residential areas.²² The air guideline value was derived using established human health risk assessment techniques and assumptions, and is considered to be protective of the health of a 'general population' within the defined area, provided the composition of dust does not change and the population does not increase.²³

We therefore find it appropriate that DWER risk assessed the licence amendment against the Port Hedland air guideline value.

The issue of application of the NEPM rather than the Port Hedland air guideline value has been raised in previous appeals relating to licence amendments for prescribed premises in Port Hedland.²⁴ The then Minister for Environment dismissed the appeals.²⁵

We summarise similar recent appeals in Section 3.5.

²² Port Hedland Dust Management Taskforce Report. Government response (Department of Jobs, Tourism, Science and Innovation, October 2018).

²³ Application for Licence Amendment L8967/2016/1. Decision Report (DWER, December 2020), Section 5.15.

²⁴ Appeals Convenor (2019). Report to the Minister for Environment, Appeals in Objection to the Amendment of a Licence, Licence L4513/1969/18: Port Hedland Operations, Nelson Point and Finucane Island. Appeal Number 004 of 2018; Appeals Convenor (2019). Report to the Minister for Environment, Appeals in Objection to the Amendment of a Licence, Licence L4432/1989/14: Eastern Operations, Port Hedland. Appeal Numbers 007 and 011 of 2018.

²⁵ Minister's Appeal Determination (15 April 2019). Appeals against amendment of Licence L4513/1969/18, BHP Billiton Iron Ore Pty Ltd, Port Hedland Operations, Nelson Point and Finucane Island. Appeal Number 004 of 2018; Minister's Appeal Determination (15 April 2019). Appeals against amendment of Licence L4432/1989/14, Pilbara Ports Authority, Eastern Operations, Port Hedland. Appeal Numbers 007 and 011 of 2018.

3 Supporting information

3.1 Summary of the licence history and the current amendment

The prescribed premises is a multi-user bulk commodity berth and storage facility located on the eastern shore of Finucane Island. The licence holder coordinates operations at the premises. Through a Common User Agreement and direct lease arrangements a number of entities own and/or operate infrastructure at the premises.

The licence holder previously held a single licence for the operation of 2 ship loading facilities: the Utah Point Multi-User Bulk Handling Facility at Finucane Island on the western side of the port of Port Hedland and Eastern Operations on the eastern side of the port, adjacent to the Port Hedland townsite (Appendix 1, Figure 1). As part of the State Government's consideration of port asset divestment, a licence amendment application was submitted for Eastern Operations and a new licence application was submitted for the Utah Point Multi-User Facility to create 2 separate licensed premises. The former Department of Environment Regulation (now DWER) conducted a full risk-based review and assessment of all category 58 activities at both facilities in accordance with its regulatory framework. Following this assessment, licence L8937/2015/1 was issued for the premises on 18 August 2016.

On 17 March 2017, the licence holder submitted an application to amend licence L8937/2015/1 to:

- increase the annual throughput for bulk material loading or unloading (prescribed premises Category 58) from 21.35 Mtpa to 24.10 Mtpa (an increase of 2.75 Mtpa)
- include up to 3 Mtpa of spodumene ore as an approved bulk material.

The licence holder noted in the licence amendment application that conditions on the licence provided for a volume increase of commodities of up to 10% of the permitted total volume without further approval, which would provide for a throughput of up to 26.51 Mtpa.

The increase in total export throughput and the introduction of spodumene ore at the premises will be achieved through existing infrastructure and no changes to infrastructure or equipment are proposed.

In considering the licence amendment, DWER assessed the potential risks of dust emissions to the environment, public health and amenity from the activities proposed in the amendment application. The risk assessment undertaken for the licence issued on 18 August 2016 was also updated to reflect current operations at the premises. DWER's assessment is documented in the Decision Report (May 2020).

The licence was amended on 11 May 2020. Further controls were placed on the amended licence for the management of potential increased dust emissions associated with the throughput increases. Additional amendments were made to replace the 'Material Change conditions' with 'Trial Shipment conditions'. Administrative amendments were also made to the licence.

In its response to the appeals, DWER advised it considers that the conditions on the amended licence are proportionate to the level of risk to public health, noting additional regulatory controls have been imposed for control of dust from the handling and movement of ore.

The Department recommended that the appeals should be dismissed.

3.2 Grounds of appeal and appellant concerns

Mr Hain raised a number of concerns in his appeal. We have summarised these under 3 key issues in Table 1.

Table 1 Summary of concerns raised in the appeal

| Issue | Concerns raised in the appeal |
|---|---|
| Conditions on amended licence relating to dust monitoring and management are inadequate | <ul style="list-style-type: none"> • Conditions on the amended licence are insufficient to provide reasonable protection from the risks and consequences associated with fugitive emissions [including PM₁₀, PM_{2.5} and total suspended particulate matter (TSP)] to neighbouring residents, property owners and stakeholders in Port Hedland, Wedgefield and South Hedland. • The conditions should be amended and supplemented to include requirements for: <ul style="list-style-type: none"> ○ best practice and fit-for-purpose LiDAR monitoring, including live public reporting of results ○ best practice and fit-for-purpose PM₁₀, PM_{2.5}, TSP, depositional and climate monitoring around the premises, including live public reporting of results ○ samples of product moved at the premises to be made available on request to neighbouring stakeholders for dust speciation (to identify sources), chemical and physical composition analysis and comparison with dust collected in depositional monitors ○ if the licence holder fails to demonstrate no net increase in dust emissions from any further increase in throughputs, an annual independent report to demonstrate that total dust emissions (measured by PM₁₀, PM_{2.5} and TSP) from the premises are being progressively reduced by not less than 10% annually as a result of mitigation improvements progressively implemented by the licence holder. • In addition, the conditions should: <ul style="list-style-type: none"> ○ make it clear that PM_{2.5} and amphibole material are of greater concern than PM₁₀ and these parameters must be monitored, controlled and reported on using best practice and fit-for-purpose methodology ○ be removed or revised when they are reliant on the incorrect assumption that PM_{2.5} is not generally associated with iron ore operations. |
| Risk assessment for dust emissions inadequate | <ul style="list-style-type: none"> • DWER mis-identified the risk levels in its risk assessment for dust emissions and the risk of mortality (as opposed to requiring medical treatment) should be included in the risk assessment. When mortality is included as a relevant risk factor, the potential consequence of health impacts from dust emissions is 'Severe' not 'Major'. • The inclusion of a LiDAR monitoring condition is therefore imperative. • The National Environment Protection (Ambient Air Quality) Measure (NEPM) must be applied, as it is inappropriate to consider a risk factor that is not acceptable to a larger population is acceptable to a smaller population (such as the West End residents). |
| Loss of property value and property buy-back | <ul style="list-style-type: none"> • A condition should be added requiring the licence holder to, if an owner so chooses, purchase at market value unaffected by past, current and reasonably anticipated future dust emissions, residential properties in the West End of Port Hedland and compensate the owner for incurred costs, in the event any fugitive dust attributable to the premises results in the exceedance of the NEPM for PM₁₀ and/or PM_{2.5} at the residence. • Any condition that relies on the assumption that the 'Port Hedland Buy Back Scheme' will reduce the existing Port Hedland population should be removed or amended. |

Pilbara Ports Authority raised a number of concerns in its appeal. We have summarised these under 2 key issues in Table 2.

Table 2 Summary of concerns raised in the appeal

| Issue | Concerns raised in the appeal |
|---|---|
| Removal of the 'Material Change conditions' is unreasonable and not supported by the evidence | <ul style="list-style-type: none"> • The removal of the 'Material Change conditions', in particular the provision for permitted increases of up to 10% of the volume of specified commodities without the need for any notification of a Material Change or the need for further approval under the EP Act, is unreasonable and not supported by the evidence provided in support of the licence amendment application. • The Decision Report does not accurately reflect the information provided, is misleading and does not properly justify the basis for the licence amendment. • The number of notifications²⁶ under the 'Material Change conditions', 11 of which were issued to facilitate the export of spodumene ore which did not present an unacceptable risk to the environment and which was approved under the licence amendment, should not be used to justify the decision to remove the conditions. The notifications would not have been necessary had the licence amendment been progressed in a timely manner. There is no evidence to support an inference the conditions were being used inappropriately or otherwise than to authorise operational flexibility for matters that are likely to result in insignificant environmental risk. • Irrelevant considerations were taken into account, specifically the perceived administrative burden in monitoring the 'Material Change conditions'. • The removal of the 'Material Change conditions' was the result of the inflexible application of policy, rather than consideration of the amendment application on its merits. • The deletion of the 'Material Change conditions' was pre-determined by a broader policy directive. The licence holder therefore questioned the value in providing further information and consequently was denied procedural fairness. This is not consistent with DWER's regulatory best practice principles, in particular that DWER will apply an evidence-based approach based on the best available information, including sound science, to inform regulatory decision-making. |
| Consideration of economic surrounds | In removing the 'Material Change conditions', DWER did not consider the economic surroundings with respect to the licence holder, other port operators and the State generally, and the determination of the licence amendment was not, therefore, consistent with the EP Act. |

3.3 Review of conditions on the amended licence

The focus of our investigation is on whether the conditions applied to the amended licence are appropriate and adequate for the purpose of “prevention, control, abatement or mitigation of pollution or environmental harm” associated with the increase in throughput. The findings from our review are in Table 3.

²⁶ The licence holder made 13 Material Change notifications during the period between 17 March 2017 (when the licence amendment application was submitted) and 11 May 2020 (when the licence was amended).

Table 3 Review of dust management and monitoring conditions on amended licence L8937/2015/1

| Condition | Description | Consideration |
|---|--|---|
| Throughput Limits Condition 17 (New condition) | Requires investigation and reporting in the event that more than 120,000 wet tonnes is out-loaded in any 24-hour period. | <ul style="list-style-type: none"> DWER acknowledged that throughput may not always directly correlate to emissions, but based on the level of risk, in particular as product is double handled at the premises (unloaded, stacked, reclaimed and loaded), considered it appropriate to include 24 hour and annual throughput limits on the amended licence. Schedule 4 sets out the investigation and reporting requirements triggered by an exceedance of the 24-hour period throughput limit. |
| Infrastructure and Equipment Conditions 8 to 11 (New and amended conditions) | Require: <ul style="list-style-type: none"> specified infrastructure and equipment to be maintained in good working order and operated in accordance with the specifications Dust Control Equipment Inventory to be maintained and removal of dust control equipment from the inventory is prohibited unless equipment is replaced with equipment that provides same or greater level of dust mitigation an average monthly availability rate of 90% or more for specified dust control infrastructure when handling ore. | <ul style="list-style-type: none"> Infrastructure and equipment controls applied to the amended licence include: <ul style="list-style-type: none"> bunker sprays operated whenever visible dust is being generated while tipping ore into hoppers stacker sprays operated at all times when ore is being stacked radial stacker lowered as low as practicable when stacking commences and drop height minimised to as low as reasonably practicable at all other times water cannons operated when a truck is side tipping cannons routinely operated to prevent lift off from stockpiles dust forecast tool utilised in planning of additional cannon operation belt scrapers automatically operate when the conveyor is running operation of under-belt sprays to minimise carry back of ore water carts operated for dust suppression on stockyard floors to supplement dust suppression from water cannons when dust is observed from reclaiming activities road sweeper used to minimise material build up on roads and wharf. Placing these controls on the licence requires the continued use of dust abatement infrastructure and equipment and ensures regulatory oversight. |
| Infrastructure and Equipment Conditions 12 to 14 (New conditions) | Require improvements to the monitoring network. | <ul style="list-style-type: none"> Improvements to the particulate monitoring network, including: <ul style="list-style-type: none"> installation of a rain gauge at the north-westerly monitoring location and operate in accordance with the Australian Standard modification of meteorological equipment at the north-westerly monitoring location so that it is compliant with the Australian Standard |

| Condition | Description | Consideration |
|---|---|--|
| <p>Moisture Content Monitoring and Reporting</p> <p>Conditions 18 to 22</p> <p>(Minor amendments to existing conditions)</p> | <p>Require ongoing moisture content monitoring and management of iron ore in-loaded and out-loaded at the premises.</p> | <ul style="list-style-type: none"> ○ installation of a BAM²⁷ monitor at a new location ‘downwind’ of the premises when wind is in the direction of sensitive receptors so that it is compliant with the Australian Standard. The new monitor will replace an existing monitor, which will be removed 12 months after installation of the BAM. Licence holder required to review and report on data from both boundary monitors to investigate impacts to data associated with the relocation of the ‘downwind’ monitoring location. ● The purpose of the improvements is to ensure that PM₁₀ and meteorological data better reflect the meteorological and dust conditions in the immediate vicinity of primary activities at the premises. <hr/> <ul style="list-style-type: none"> ● Bulk granular material accepted and handled at the premises must have a moisture content at or above the DEM (dust extinction moisture) level from point of receipt at premises to time of out loading to a ship, to reduce the potential for generation of fugitive dust during storage, loading, unloading and transportation activities. ● Licence holder required to undertake sampling of moisture content to confirm that the material is adequately conditioned. ● DWER considers that maintaining the moisture content of ore above the DEM level from the point of receipt through to out-loading to a ship as the primary control to reduce dust generation potential. |
| <p>Boundary Air Quality Monitoring</p> <p>Condition 23</p> <p>(New and amended conditions)</p> | <p>Requires ongoing monitoring of air quality at the premises.</p> | <ul style="list-style-type: none"> ● Monitoring of PM₁₀ concentrations is required at ‘real time’ boundary monitors located on the north-west corner and southerly boundaries. ● In its response to the appeals, DWER advised that boundary monitoring functions as a dust management tool by triggering reportable events and requiring dust management actions. By recording dust levels at the premises’ boundary, the monitors provide data that can show the effectiveness of dust management through trends over time, supporting an evidence-based approach to the regulatory objective of achieving no net increase in dust emissions. |

²⁷ Beta Attenuation Monitor.

| Condition | Description | Consideration |
|--|--|---|
| | | <ul style="list-style-type: none"> Information provided following Reportable Events at boundary monitor and at Taplin Street will assist DWER to identify the potential source(s) of dust, which will assist with compliance and future risk-based decision-making. Lithium included as a parameter to be monitored on the amended licence, consistent with the application to load spodumene ore. |
| Boundary Monitoring Review Report Conditions 25 and 26 (New conditions) | Require a review of boundary and ambient monitoring data for a period of 12 months from the date of installation of the new BAM. | <ul style="list-style-type: none"> Schedule 5 sets out the requirements for the 'Boundary Monitoring Review Report', including: <ul style="list-style-type: none"> review and analysis of PM₁₀ data from the boundary monitors analysis of PM₁₀ boundary monitoring data with associated weather data and spatial data (location of monitor and locations of dust sources) analysis of PM₁₀ boundary monitoring data in comparison with concentrations at Richardson, Kingsmill and Taplin Street where there are exceedances of the Port Hedland air guideline value at these monitors or Reportable Events. The report will demonstrate whether the objectives of boundary monitoring relating to PM₁₀ emissions are being met and enable verification of the setup and location of the new monitor with regard to its effectiveness in providing data capturing the premises' dust source emissions, capturing the effects of dust control actions following elevated dust concentration readings and its usefulness for evaluating the premises' dust contributions to ambient levels. The review of the monitoring data will also support the evaluation of appropriate Management Trigger criteria and Reportable Event criteria. |
| Reportable Events Condition 27 | Requires reporting of Reportable Events as specified in the licence. | Schedule 4 sets out the requirements for Reportable Events, including a determination of the licence holder's overall contribution to the event based on an assessment of upwind boundary monitoring data. |
| Management Triggers Conditions 28 to 30 (New conditions) | Conditions to trigger management actions for dust control in response to elevated short-term PM ₁₀ concentrations at Taplin Street where the premises may be a contributing source. | <ul style="list-style-type: none"> Management triggers have been included on the amended licence to justify increased throughputs and offset any potential increase in the frequency of high dust emissions that may result. Management actions are triggered when wind direction places the premises upwind of the Taplin Street monitor for the majority of the recording period and where lower PM₁₀ concentrations are recorded at 'upwind' boundary monitors than at the new 'downwind' monitoring location and elevated PM₁₀ concentrations are not recorded at the background monitors for the same period. |

| Condition | Description | Consideration |
|--|--|---|
| Static Stockpile Management Conditions 31 and 32 (New conditions) | Require management of stockpiles that have been stacked and not reclaimed for 6 weeks or more. | <ul style="list-style-type: none"> Management actions that are responsive to high dust concentrations at the receptor, serve to reduce the likelihood of longer-term (24-hour) exposure to PM₁₀ concentrations that exceed the Port Hedland air guideline value. DWER considers these conditions have been successful in reducing the number of exceedances at Taplin Street since first being implemented on other port operator licences in 2018. We note that, with the exception of Pilbara Ports Authority's Eastern Operations, dust Management Trigger criteria have been applied to all operating licences in Port Hedland for the purpose of instigating immediate investigation of site activities to identify and, if appropriate, address the source of high dust concentrations. <hr/> <ul style="list-style-type: none"> Specified actions relating to the management of static stockpiles to avoid an increase in ambient PM₁₀ concentrations in the West End where there is greater likelihood of health criteria being exceeded due to proximity to Category 58 activities. Condition requires the application of a physical barrier or chemical stabilizer to stabilise the surface of the stockpile to minimise potential emissions. This replaces the standard operating procedure of applying water to stockpiles using water cannons. The condition does not apply when the moisture content of the stockpiled material is at or above the DEM level; or for stockpiles less than 5,000 m³, which have a lower profile and sit below the level of the ring road which offers a barrier to wind. Smaller stockpiles will continue to have water applied to them by water cannons. |

3.4 Review of recent LiDAR investigations and reviews

We note there have been a number of recent investigations and reviews of LiDAR and its applications and capabilities (for example, Roddis et al. (2017)²⁸; Pickett (2018)²⁹; Holdsworth and Pickett (2019)³⁰). Conclusions from these studies include:

- All LiDAR units have inherent limitations and assumptions associated with their operation and it is challenging for a LiDAR unit to easily determine the mass concentration of a particular sized particle in the atmosphere. A LiDAR system can, however, visualise the plume dispersal from a source in real-time. The relative signal strength is related to the number of particles within a given volume of air, which can provide indicative information on particulate matter concentration. (Roddis et al. 2017)
- For plume mapping, LiDAR data can be used to visualise plume presence proportional to attenuated backscatter. However due to the inhomogeneous atmosphere, higher optical depths and multiple scattering affecting the LiDAR returns, this remains qualitative. (Pickett, 2018)
- Because of variability in particle shape, composition and size distribution along the optical path, simple LiDARs cannot be used to retrieve range profiles of PM₁₀ or PM_{2.5} (or any other particle mass concentration) or a particle number concentration, unless the particle size distribution at each range is already known. (Pickett, 2018; Holdsworth and Pickett, 2019).
- While good correlations between some in situ results for PM₁₀ and LiDAR results for backscatter are observed, it is incorrect to equate the LiDAR return with measurement of PM₁₀. (Holdsworth and Pickett, 2019).

The investigation by Roddis et al. (2017) found that LiDAR technology is suitable for use on an open-cut coal mine to identify sources of dust emissions, indicative concentrations and particulate matter movement under different meteorological conditions across critical site boundaries. However, the technology transfer from atmospheric aerosols measurement using LiDAR to measurement of industrial dust sources is not trivial and while the technology has great potential, it is essential that it be deployed and interpreted properly.

3.5 Summary of current and recent similar appeals in Port Hedland

Current appeals

There are currently 2 other appeals in objection to the amendment of licences for prescribed premises in Port Hedland being investigated on behalf of the Minister for Environment:

- amendment of licence L8194/2007/3, Anderson Point Materials Handling Facility, Fortescue Metals Group Ltd (Appeal Number 046 of 2020)
- amendment of licence L8967/2016/1, Roy Hill Port Bulk Handling Facility and Screening Plant, Roy Hill Infrastructure Pty Ltd (Appeal Numbers 063.001–002 of 2020).

²⁸ Roddis D., McDonough, L., Martin, A. and Zheng, Y. (2017). An investigation into the use of Light Detection and Ranging (LiDAR) for operational dust control at open-cut coal mining operations. CASANZ2017 Conference, Brisbane, October 2017.

²⁹ Pickett, M. (2018). Review of LIDAR for Air Quality Studies. *Air Quality and Climate Change*, Volume 52, pp. 11–12.

³⁰ Holdsworth, J. and Pickett, M. (2019). Laser Detection and Ranging: Where are we now? *Australian Physics*, Volume 56, pp. 17–22.

Recent previous appeals

There have been 2 recent appeals in objection to amendments of licences for prescribed premises in Port Hedland:

- amendment of licence L4513/1969/18, Port Hedland Operations, Nelson Point and Finucane Island, BHP Billiton Iron Ore Pty Ltd (Appeal Number 004 of 2018)
- amendment of licence L4432/1989/14, Eastern Operations, Port Hedland, Pilbara Ports Authority (Appeal Numbers 007 and 011 of 2018).

The main concerns raised in the previous appeals included:

- The adequacy of DWER's assessment of the risks posed by dust emissions and whether the licence should have been amended if there were public health concerns. Specific issues included inadequate consideration of the findings from DWER's Port Hedland LiDAR campaign; application of the interim air guideline value and insufficient consideration of the NEPM; and concerns about PM_{2.5} and asbestos.
- DWER did not apply adequate conditions to the licence in relation to the management and monitoring of dust emissions. Specific issues included the application of LiDAR monitoring; authorised emissions; bulk material specifications; dust control equipment; moisture content requirements; and dust monitoring.

'Other matters' raised in the appeals included: requirements for the licence holder to compensate cleaning costs; residential planning constraints; property purchases in the West End; enforcement of licence conditions and penalties for non-compliance; and differences between licences recently granted for similar operations.

The then Minister for Environment dismissed the appeals.

See www.appealsconvenor.wa.gov.au for the appeal reports and the Minister's appeal determinations.

3.6 'Material Change conditions'

Licence L8937/2015/1 issued on 18 August 2016 included conditions requiring notification to the Chief Executive Officer (CEO) of DWER of material changes that occur at the premises:

Notification of Material Change

2. The **Licensee** must notify the **CEO** of any **Material Change** no later than 14 days of a **Material Change** occurring and such notification (which the **CEO** will make publicly available) must:
 - (a) be in writing;
 - (b) include details of the changes, including duration, infrastructure details (if any); and
 - (c) include risk analysis of the changes, including proposed controls to mitigate risks.Nothing in this **Condition** constitutes a defence to offences under the **EP Act**.
3. The **Licensee** must provide to the **CEO** any additional information the **CEO** may reasonably require to assess the **Material Change** under **Condition 4** and in order for the **CEO** to determine if an amendment is required under the **EP Act**.
4. The **Licensee** must cease carrying out, or modify, a **Material Change** in the manner and at the time required by the **CEO** if:
 - (a) the **CEO** forms the view, acting reasonably, that the **Material Change** has or may have an unacceptable impact on public health, amenity or the environment; and
 - (b) the **CEO** has provided written notice (which the **CEO** will make publicly available) to the **Licensee** specifying the grounds for the **CEO's** views.Nothing in this **Condition** prevents the **Licensee** subsequently submitting an amendment in relation to the **Material Change**.

'Material Change' is defined in the licence as a change to the activities carried out at the premises as described in the general description set out in Schedule 2 that:

- may result in an increased risk to public health, amenity or the environment; and
- includes the types of changes specified in Schedule 2; and
- does not include the Non-Material Change specified in Schedule 2.

Schedule 2 provides examples of Material Change, including:

- new commodities
- volume increases of commodities exceeding 10% of permitted total volume (in aggregate), or volume increases of manganese ore or chromite ore exceeding 10% of their respective permitted volumes
- changes (other than Non-Material Changes) to the infrastructure or equipment within the premises
- changes to the specified site layout of infrastructure and equipment.

Schedule 2 also identifies that Non-Material Changes are improvements or additions to, or replacement of, or other changes to infrastructure and equipment within the premises that do not increase the risk of emissions and discharges.

In its response to the appeals, DWER advised:

- The purpose of the throughput exceedances under 'Material Change conditions' was to provide a level of operational flexibility for port authorities by allowing for scenarios of marginal increases in production on an ad hoc basis, with ongoing premises expansions more appropriately dealt with through the licence amendment process to assess the risk and requirement for controls.
- At the time the 'Material Change conditions' were placed on licences in 2016, DWER considered that the risk of increased emissions due to the limited authorised scope of change would be insignificant. DWER has since identified that the continued and regular application of the conditions by all port authorities presented the unintended potential for environmental risk. In practice, the 'Material Change conditions' enabled port authorities to exceed authorised throughputs by any amount, providing DWER was notified within 14 days if the exceedance was greater than 10% of authorised throughput, or in their annual report if the amount was less than 10%.
- Given the existing elevated ambient PM₁₀ concentrations in Port Hedland have resulted in a 'High' risk rating being applied to all risk assessments of existing Category 58 operators, DWER determined that 'Material Change conditions' had the potential to result in significantly increased and therefore unacceptable risk.
- Due to the open materials handling practices employed at the premises, every tonne of ore shipped above assessed amounts is expected to result in additional dust emissions. Consequently, without additional mitigating controls for dust, the resulting emissions from the increased throughput are likely to increase the risk to beyond existing levels.
- The 'Material change conditions' are inconsistent with DWER's Guidance Statement: Risk Assessments and Guidance Statement: Setting Conditions.

DWER also advised that, in accordance with section 59B(3) of the EP Act, the licence holder was notified of the proposed changes to the licence and provided with opportunities to comment on drafts of the amended licence and Decision Report on 9 August 2019 and 6 February 2020. The licence holder did not comment on the removal of the 'Material Change conditions' or authorisation of 24.1 Mtpa (instead of 26.5 Mtpa) in either response.

3.7 Other issues

The appellants' remaining concerns are beyond the appeal scope

The appellants' also identified a number of other concerns. We have outlined the appellants' concerns and DWER's response here. We acknowledge the appellants' concerns, however we have not considered them further because these matters are beyond the scope of appeal.

Loss of property value and property buyback

The third-party appellant submitted that a condition should be added requiring the licence holder to, if an affected owner so chooses, purchase at the greater of the market value unaffected by the licence holder's past, present and reasonable future dust emissions, residential properties in the West End of Port Hedland and compensate the owner for incurred costs, in the event any fugitive dust attributable to the premises results in the exceedance of the NEPM for PM₁₀ and/or PM_{2.5} at the residence. The appellant considers that such compensation is provided for under the EP Act.

DWER advised that 'material environmental harm' and 'serious environmental harm' as defined in the EP Act, refer to harm that "results in actual or potential loss, property damage or damage costs". Within the context of 'damage costs', defined as 'the reasonable costs and expenses that are or would be incurred in taking all reasonable and practicable measures to prevent, control or abate the environmental harm and to make good resulting environmental damage' DWER considers this definition does not include impacts to property value.

The appellant also submitted that any condition that relies on the assumption that the 'Port Hedland Buy Back Scheme' will reduce the existing Port Hedland population should be removed or amended.

DWER advised that the Port Hedland Voluntary Buyback Scheme is not managed by the Department and is separate to the assessment and determination of Part V licence and works approval applications.

Consideration of economic surroundings

The licence holder submitted that in removing the 'Material Change conditions', DWER did not consider the economic surroundings with respect to the licence holder, other port operators and the State generally, and the determination of the licence amendment was not, therefore, consistent with the EP Act.

DWER advised that it does not agree with the licence holder's interpretation that the definition of 'environment', including 'economic surroundings', includes its own operation and the economic value it may bring. DWER understands the 'environment', with 'economic surroundings' representing an aspect of it, to be that potentially impacted by the operation's emissions and discharges, and that the scope of 'economic surroundings' in the EP Act does not include the effects of the inability of an applicant to obtain an approval because of the impact to the environment.³¹

³¹ Coastal Waters Alliance of Western Australia Incorporated v Environmental Protection Authority; Ex parte Coastal Waters Alliance Inc (1996) 90 LGERA 136; Quinlan, P.D. et al. (2016). Independent Legal and Governance Review into Policies and Guidelines for Environmental Impact Assessments under the Environmental Protection Act 1986 (WA), page 40.

Appendix 1 Site map

This appendix shows the following map:

| Fig | Details | Source |
|-----|--|------------------|
| 1 | Location of category 58 licensed premises in Port Hedland. | Google Maps 2021 |

Figure 1 Site location



Appendix 2 Appeal process

The Minister assesses the merits of a decision

Environmental appeals follow a merits-based process. This means the Minister can consider all the relevant facts, legislation and policy aspects of the decision and decide whether it was correct and preferable.

However, for appeals relating to a licence amendment, the Minister can only consider matters directly linked to the amendment. Appeal rights do not extend to parts of the licence that were not amended.

A merits review cannot overturn the original decision to grant a licence. But if the appeal is upheld, the licence conditions might change or an amendment might not go ahead.

We report to the Minister, as does the decision-making authority

To decide an appeal's outcome, the Minister for Environment must have a report from both:

- the Appeals Convenor [see section 109(3) of the EP Act], and
- the authority that originally made the decision under appeal [see section 107(1)].

To properly advise the Minister, our investigation included:

- reviewing DWER's report and responses from the licence holder
- meetings with representatives from the Pilbara Ports Authority on 3 December 2020 and with Mr Hain on 14 December 2020
- reviewing other information, policy and guidance as needed.

See Table 4 for the documents we considered.

Table 4 Documents we reviewed in the appeals investigation

| Document | Date |
|---|----------------|
| DWER. Guidance Statement: Setting Conditions. Part V, Division 3, <i>Environmental Protection Act 1986</i> | October 2015 |
| Department of Health. Port Hedland Air Quality Health Risk Assessment for Particulate Matter | January 2016 |
| Australian Government, National Environment Protection (Ambient Air Quality) Measure and Explanatory Notes | February 2016 |
| Department of State Development. Port Hedland Dust Management Taskforce Report to Government | August 2016 |
| DWER. Guidance Statement: Risk Assessments. Part V, Division 3, <i>Environmental Protection Act 1986</i> | February 2017 |
| Pilbara Ports Authority. License Amendment Application | March 2017 |
| DWER. Regulatory best practice principles | September 2018 |
| Department of Jobs, Tourism, Science and Innovation. Port Hedland Dust Management Taskforce Report. Government response | October 2018 |

| Document | Date |
|---|---|
| Department of Jobs, Tourism, Science and Innovation. Port Hedland Dust Management Taskforce Report. Government response. Frequently Asked Questions | October 2018 |
| DWER. Guideline: Port Authority bulk handling trials. Category 58 and 58A | November 2018 |
| DWER and Department of Health. Managing dust in Port Hedland. Industry Regulation fact sheet | 2018 |
| DWER. Guideline: Industry Regulation Guide to Licensing. Activities regulated under the <i>Environmental Protection Act 1986</i> and Environmental Protection Regulations 1987 | June 2019 |
| DWER. Application for Licence Amendment L8937/2015/1. Decision Report | May 2020 |
| Pilbara Ports Authority. Response to appeal 029/20 | July 2020 |
| DWER. Response to appeals 029/20 | August 2020 |
| DWER. Community updates. Port Hedland [https://www.der.wa.gov.au/our-work/community-updates/435-port-hedland] | October 2020 |
| DWER. Compliance and Enforcement Policy | November 2020 |
| DWER. Guideline: Regulatory principles. Activities regulated under the <i>Environmental Protection Act 1986</i> , Part V: effective and efficient regulation | December 2020 |
| DWER. Guideline: Risk assessments. Part V, Division 3, <i>Environmental Protection Act 1986</i> | December 2020 |
| DWER. Guideline: Environmental siting. Part V, Division 3, <i>Environmental Protection Act 1986</i> | December 2020 |
| DWER. Guideline: Decision making. Activities regulated under Part V, Division 3, <i>Environmental Protection Act 1986</i> | December 2020 |
| Recent DWER Decision Reports for other bulk handling premises in the port of Port Hedland | Various. Details provided in footnotes. |
| Previous Appeals Convenor's reports to the Minister for Environment and the Minister for Environment's Appeal Determinations | Various. Details provided in footnotes. |