



<b>Licence Number</b>	L8937/2015/1	
<b>Licence Holder</b>	Pilbara Ports Authority	(ABN 94 987 448 870)
<b>Registered business address</b>	The Esplanade PORT HEDLAND WA 6721	
<b>Duration</b>	22/08/2016 to	21/08/2036
<b>Prescribed Premises</b>	<p>Category 58: 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.</p> <p>Category 58A: Bulk material loading or unloading: premises on which salt is loaded onto or unloaded from vessels by an open materials loading system.</p>	
<b>Premises</b>	<p>Utah Point Multi-User Bulk Handling Facility Utah Point, Finucane Island, WA, 6721, PORT HEDLAND</p> <p>Portion of LOT 370 on Plan 35619</p>	
<b>Amendment</b>	11 May 2020	

This Licence is granted to the Licence Holder, subject to the following conditions, on 11/05/2020, by:

Christine Hass  
Manager, Licensing (Resource Industries)  
Regulatory Services  
*an officer delegated under section 20 of the Environmental Protection Act 1986 (WA)*

## Explanatory notes

These explanatory notes do not form part of this Licence.

### Defined terms

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Definition of terms used in this Licence can be found at the start of this Licence. Terms which are defined have the first letter of each word capitalised throughout this Licence.

### Department of Water and Environmental Regulation

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The Department of Water and Environmental Regulation (DWER) is established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the *Environmental Protection Act 1986* (WA) (EP Act). The Department also monitors and audits compliance with licences, takes enforcement action and develops and implements licensing and industry regulation policy.

### Licence

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Section 56 of the EP Act provides that an occupier of Prescribed Premises commits an offence if Emissions are caused or increased, or permitted to be caused or increased, or Waste, noise, odour or electromagnetic radiation is altered, or permitted to be altered, from Prescribed Premises, except in accordance with a works approval or licence.

Categories of Prescribed Premises are defined in Schedule 1 of the *Environment Protection Regulations 1987* (WA) (EP Regulations).

This Licence does not authorise any activity which may be a breach of the requirements of another statutory authority including, but not limited to the following:

- conditions imposed by the Minister for Environment under Part IV of the EP Act;
- conditions imposed by DWER for the clearing of native vegetation under Part V, Division 2 of the EP Act;
- any requirements under the *Waste Avoidance and Resource Recovery Act 2007*;
- any requirements under the *Environmental Protection (Controlled Waste) Regulations 2004*; and
- any other requirements specified through State legislation.

It is the responsibility of the Licence Holder to ensure that any action or activity referred to in this Licence is permitted by, and is carried out in compliance with, other statutory requirements.

The Licence Holder must comply with the Licence. Contravening a Licence Condition is an offence under s.58 of the EP Act.

### Responsibilities of a Licence Holder

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Separate to the requirements of this Licence, general obligations of Licence Holders are set out in the EP Act and the regulations made under the EP Act. For example, the Licence Holder must comply with the following provisions of the EP Act:

- the duties of an occupier under section 61; and
- restrictions on making certain changes to Prescribed Premises unless the changes are in accordance with a works approval, Licence, closure notice or environmental protection notice (s.53).

Strict penalties apply for offences under the EP Act.

## Reporting of incidents

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The Licence Holder has a duty to report to DWER all discharges of waste that have caused or are likely to cause Pollution, Material Environmental Harm or Serious Environmental Harm, in accordance with s.72 of the EP Act.

## Offences and defences

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The EP Act and its regulations set out a number of offences, including:

- Offence of emitting an Unreasonable Emission from any Premises under s.49.
- Offence of causing Pollution under s.49.
- Offence of dumping Waste under s.49A.
- Offence of discharging Waste in circumstances likely to cause Pollution under s.50.
- Offence of causing Serious Environmental Harm (s.50A) or Material Environmental Harm (s.50B).
- Offence of causing Emissions which do not comply with Prescribed Standards (s.51).
- Offences relating to Emissions or Discharges under regulations prescribed under the EP Act, including materials discharged under the *Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)*.
- Offences relating to noise under the *Environmental Protection (Noise) Regulations 1997 (WA)*.

Section 53 of the EP Act provides that a Licence Holder commits an offence if Emissions are caused, or altered from a Prescribed Premises unless done in accordance with a Works Approval, Licence or the requirements of a Closure Notice or an Environmental Protection Notice.

Defences to certain offences may be available to a Licence Holder and these are set out in the EP Act. Section 74A(b)(iv) provides that it is a defence to an offence for causing Pollution, in respect of an Emission, or for causing Serious Environmental Harm or Material Environmental Harm, or for discharging or abandoning Waste in water to which the public has access, if the Licence Holder can prove that an Emission or Discharge occurred in accordance with a Licence.

This Licence specifies the Emissions and Discharges, and the limits and Conditions which must be satisfied in respect of Specified Emissions and Discharges, in order for the defence to offence provision to be available.

## Authorised emissions and discharges

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The Specified and General Emissions and Discharges from Primary Activities conducted on the Prescribed Premises are authorised to be conducted in accordance with the Conditions of this Licence.

Emissions and Discharges caused from other activities not related to the Primary Activities at the Premises have not been Conditioned in this Licence. Emissions and Discharges from other activities at the Premises are subject to the general provisions of the EP Act.

## Amendment of licence

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The Licence Holder can apply to amend the Conditions of this Licence under s.59 of the EP Act. An application form for this purpose is available from DWER.

The CEO may also amend the Conditions of this Licence at any time on the initiative of the CEO without an application being made.

Amendment Notices constitute written notice of the amendment in accordance with s.59B(9)

of the EP Act.

#### Duration of licence

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The Licence will remain in force for the duration set out on the first page of this Licence or until it is surrendered, suspended or revoked in accordance with s.59A of the EP Act.

#### Suspension or revocation

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The CEO may suspend or revoke this Licence in accordance with s.59A of the EP Act.

#### Fees

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The Licence Holder must pay an annual licence fee. Late payment of annual licence fees may result in the licence ceasing to have effect. A licence that has ceased to have effect due to non-payment of annual licence fees continues to exist; however, it ceases to provide a defence to an offence under s.74A of the EP Act.

Late fees are a component of annual licence fees and should a Licence Holder fail to pay late fees within the time specified the licence will similarly cease to have effect.

# Definitions and interpretation

## Definitions

In this Licence, the terms in Table 1 have the meanings defined.

**Table 1: Definitions**

Term	Definition
ACN	Australian Company Number
Air Guideline Value	means PM <sub>10</sub> concentrations greater than or equal to 70 µg/m <sup>3</sup> over 24 hour average (midnight to midnight).
Annual Period	means a 12 month period commencing from 1 July until 30 June in the following year.
Approved Policy	has the same meaning given to that term under the EP Act.
AS3580.1.1	means the Australian Standard AS3580.1.1 <i>Methods for sampling and analysis of ambient air - Guide to siting air monitoring equipment</i> .
AS3580.9.6	means the Australian Standard AS3580.9.6 <i>Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM<sub>10</sub> high volume sampler with size selective inlet – Gravimetric method</i> .
AS3580.9.11	means the Australian Standard AS3580.9.11 <i>Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM<sub>10</sub> beta attenuation monitors</i> .
AS3580.14-2014	means the Australian Standard AS3580.14-2014 <i>Methods for sampling and analysis of ambient air – Meteorological monitoring for ambient air quality monitoring applications</i> as amended from time to time.
AS4156.6-2000	means the Australian Standard AS4156.6-2000 <i>Coal preparation, Part 6: Determination of Dust/moisture Relationship for Coal</i> as amended from time to time.
AS5667.1-1998	means the Australian Standard AS 5667.1 <i>Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples</i> as amended from time to time.
AS5667.10-1998	means the Australian Standard AS 5667.10 <i>Water Quality – Sampling – Guidance on sampling of waste waters</i> as amended from time to time.
AS5621-2013	means Australian Technical Specification AS5621-2013 <i>Iron ores – rapid moisture determination</i> as amended from time to time.
Average Monthly Availability	means the combined average percentage availability of equipment, calculated for each calendar month by dividing the time that the equipment is operating, by the time the equipment is required to be operating.  Equipment is considered 'unavailable' when it is not operating, despite being required to operate in accordance with Conditions of this Licence.
BAM	means Beta Attenuation Monitor.
Books	has the same meaning given to that term under the EP Act.

CEO	<p>means Chief Executive Officer.</p> <p>CEO for the purposes of notification means either:</p> <p>Director General Department administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919</p> <p>or: <a href="mailto:info@dwer.wa.gov.au">info@dwer.wa.gov.au</a></p>
Chemically Treated Material	means a material that has changed in composition from its original state through chemical treatment that may include flocculation, leaching, cyanidation or other chemical reaction.
Clean fill	As defined by the Landfill Waste Classification and Waste Definitions 1996 (as amended April 2018).
Compliance Report	means a report in a format as presented by the Licence Holder or as specified by the CEO (guidelines and templates may be available on the Department's website).
Condition	means a condition to which this Licence is subject under s 62 of the EP Act.
Continuous	means a data recovery rate of at least 90% per financial year quarter.
DEM Level	means the dust extinction moisture number. It is the Moisture Content of the product at which the Dust Number is 10 derived from the Australian Standard AS4156.6-2000 or alternative standard as approved by the CEO.
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
Department Request	<p>means a request for Books or other sources of information to be produced, made by an Inspector or the CEO to the Licence Holder in writing and sent to the Licence Holder's address for notifications, as described at the front of this Licence, in relation to:</p> <ul style="list-style-type: none"> <li>(a) compliance with the EP Act or this Licence;</li> <li>(b) the Books or other sources of information maintained in accordance with this Licence; or</li> <li>(c) the Books or other sources of information relating to Emissions from the Premises.</li> </ul>
Discharge	has the same meaning given to that term under the EP Act.
Dust Control Equipment Inventory	means an itemised list for all dust control equipment used at the Premises including but not limited to the equipment described in Column 2 of Table 10 in Schedule 3.
DWER	Department of Water and Environmental Regulation.
Emission	has the same meaning given to that term under the EP Act.
Environmental Harm	has the same meaning given to that term under the EP Act.
EP Act	means the <i>Environmental Protection Act 1986</i> (WA).

EP Regulations	means the <i>Environmental Protection Regulations 1987</i> (WA).
Implementation Agreement or Decision	has the same meaning given to that term under the EP Act.
Inspector	means an inspector appointed by the CEO in accordance with s.88 of the EP Act.
ISO3087:2011	means International Standardization Organization ISO3087:2011 <i>Iron ores – Determination of the moisture content of a lot</i> .
ISO4299:1989	means International Standardization Organization ISO4299:1989 <i>Manganese ores – Determination of the moisture content of a lot</i> .
Licence	refers to this document, which evidences the grant of a Licence by the CEO under s.57 of the EP Act, subject to the Conditions.
Licence Holder	refers to the occupier of the premises being the person to whom this Licence has been granted, as specified at the front of this Licence.
Material Environmental Harm	has the same meaning given to that term under the EP Act.
Minor Spillage	Means a spillage of material or substances that: <ul style="list-style-type: none"> <li>a) can be reasonably expected to not contain chromite and/or hydrocarbons;</li> <li>b) does not enter the marine environment or native vegetation; and</li> <li>c) does not result in an Unreasonable Emission, Pollution, Material Environmental Harm or Serious Environmental Harm.</li> </ul>
Moisture Content	means the ratio of the mass of water in a sample to the mass of solids in the sample, expressed as a percentage.  In equation form: $w = \frac{m_1 - m_2}{m_1} \times 100$ Where: w = moisture content of sample; m <sub>1</sub> = initial mass, in grams, of the test portion; and m <sub>2</sub> = mass, in grams, of the test portion after drying.
PM <sub>10</sub>	refers to particulate matter with a diameter of 10 micrometres or less.
Pollution	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Licence applies, as specified at the front of this Licence and as shown on the map in Schedule 1 to this Licence.
Premises User	means the bulk granular material owner who uses the Utah facility for the export of their material.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Prescribed Standard	has the same meaning as applies for that term under s.51 of the EP Act.
Primary Activities	refers to the Prescribed Premises activities listed on the front of this Licence as described in Schedule 2, at the locations shown in Schedule 1.
Reportable Event	means an exceedance to a criteria specified requiring certain actions to be undertaken by the Licence Holder, including but not limited, to reporting to the CEO.
Routinely Operated	for the purposes of stockyard cannons, described in Schedule 2, means to be operated at a minimum frequency of at least: <ul style="list-style-type: none"> <li>(a) every 3 hours during the day;</li> </ul>

	<p>(b) every 6 hours during the night; or</p> <p>(c) until small puddles just start to form around each stockpile as a result of rainfall or use of water cannons.</p>
Serious Environmental Harm	has the same meaning given to that term under the EP Act.
Static Stockpile	refers to any ore stockpile greater than 5,000m <sup>3</sup> that has been stacked and not reclaimed for a period of six weeks or more.
Trial	means a test period during which the Licence Holder loads or unloads a new bulk granular material, not specified in Table 9 Schedule 2 of this Licence, at the Premises, in accordance with Conditions 2 to 7 inclusive.
Unreasonable Emission	has the same meaning given to that term under the EP Act.
US EPA IO-3.4	refers to US EPA IO [Inorganic] Compendium Method IO-3.4: Determination of Metals in Ambient Particulate Matter Using Inductively Coupled Plasma (ICP) Spectroscopy
Waste	has the same meaning given to that term under the EP Act.
Weighted Average DEM Level	<p>means the DEM Level derived through the following equation:</p> $\bar{X} = \frac{W_1X_1 + W_2X_2 + \dots + W_nX_n}{W_1 + W_2 + \dots + W_n};$ <p>with W representing tonnage of each of material and X representing DEM Level for that material.</p>

## Interpretation

In this Licence:

- (a) the words ‘including’, ‘includes’ and ‘include’ will be read as if followed by the words ‘without limitation’;
- (a) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
- (b) where tables are used in a Condition, each row in a table constitutes a separate Condition;
- (c) any reference to an Australian or other standard, guideline or code of practice in this Licence means the version of the standard, guideline or code of practice in force at the time of granting of this Licence and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the Licence; and
- (d) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act.



# Conditions

## Emissions

1. The Licence Holder must not cause any Emissions from the Primary Activities on the Premises except for Specified Emissions and General Emissions described in Column 1 of Table 2 subject to the exclusions, limitations or requirements specified in Column 2 of Table 2.

**Table 2: Authorised Emissions Table**

Column 1	Column 2
Emission Type	Exclusions/Limitations/Requirements
<b>Specified Emissions</b>	
Fugitive dust	Subject to compliance with: <ul style="list-style-type: none"> <li>• Rows 1 to 8 of Table 10 in Schedule 3; and</li> <li>• Conditions 2 to 32.</li> </ul>
Washwater Discharges and stormwater Discharges of material related to the Primary Activities on the Premises	Subject to: <ul style="list-style-type: none"> <li>• Discharge only from the Discharge Points specified in row 12 of Table 10 in Schedule 3;</li> <li>• Compliance with rows 9 to 12 of Table 10 in Schedule 3; and</li> <li>• Conditions 8 and 33 to 35.</li> </ul>
Minor Spillage related to the Primary Activities on the Premises.	Subject to compliance with Condition 35.
<b>General Emissions (excluding Specified Emissions)</b>	
Emissions which arise from the Primary Activities set out in Schedule 2.	Emissions excluded from General Emissions are: <ul style="list-style-type: none"> <li>• Unreasonable Emissions; or</li> <li>• Emissions that result in, or are likely to result in, Pollution, Material Environmental Harm or Serious Environmental Harm; or</li> <li>• Discharges of Waste in circumstances likely to cause Pollution; or</li> <li>• Emissions that result, or are likely to result in, the Discharge or abandonment of Waste in water to which the public has access; or</li> <li>• Emissions or Discharges which do not comply with an Approved Policy; or</li> </ul>

Column 1	Column 2
Emission Type	Exclusions/Limitations/Requirements
	<ul style="list-style-type: none"> <li>Emissions or Discharges which do not comply with a Prescribed Standard; or</li> <li>Emissions or Discharges which do not comply with the conditions in an Implementation Agreement or Decision; or</li> <li>Emissions or Discharges the subject of offences under regulations prescribed under the EP Act, including materials discharged under the <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i>.</li> </ul>

## Trial shipments

### Notification of a Trial shipment

2. The Licence Holder must notify the CEO of a Trial and such notification (which the CEO will make publicly available) must:
  - (a) be in writing;
  - (b) be made 30 calendar days or more prior to that Trial commencing;
  - (c) include details of the extent of the Trial, including:
    - (i) the duration and frequency of any loading or unloading activities;
    - (ii) method for materials storage and handling including any changes to infrastructure and equipment used at the Premises; and
    - (iii) all controls to be implemented for the management of emissions and discharges;
  - (d) include details of the nature of bulk granular material, including:
    - (i) all public health and ecosystem hazards;
    - (ii) the chemical and geochemical composition;
    - (iii) particle size distribution of bulk granular material including inhalable and respirable fractions;
    - (iv) the representative DEM level, where determination of DEM is possible for that material; and
    - (v) leachate testing conducted on materials that may present a toxicological or ecotoxicological risk;
  - (e) include an analysis of risks to the environment, public health and amenity from potential discharges, dust, odour and noise emissions associated with the Trial;
  - (f) include a monitoring plan that includes, but is not limited to:
    - (i) the indicator parameter/s to be monitored;
    - (ii) monitoring locations, equipment used and proximity to sensitive receptors;
    - (iii) monitoring frequencies;

- (iv) monitoring averaging periods; and
- (v) any meteorological monitoring to be undertaken; and
- (g) only when a CEO notification to cease a Trial has been issued in accordance with Condition 3, and in the event that the Licence Holder is submitting a Trial amendment notification, then the Licence Holder must:
  - (i) resubmit the requirements of Conditions 2(a) – (f);
  - (ii) address the issues that resulted in the notification to cease the Trial on the initial (or any subsequent) Trial for the same product; and
  - (iii) include a new Trial end date calculated 12 months from the commencement of the first shipment of the ceased Trial, not including time elapsed between the CEO notification to cease that Trial and the Trial amendment notification.

### CEO notification to cease a Trial (prior to commencement or during)

3. The Licence Holder must cease a Trial in the manner and at the time, when:
- (a) the CEO forms the view, acting reasonably:
    - (i) that following an assessment of the information provided as part of Condition 2, it is determined that the proposed Trial will result in unacceptable impact on public health, amenity or the environment; or
    - (ii) that following a review of any data received in accordance with Condition 6, it is determined that the Trial is having an unacceptable impact on public health, amenity or the environment; or
    - (iii) that the Trial being undertaken is different in any manner from that described in the notification provided by the Licence Holder through Condition 2, when that difference is resulting in, or is likely to result in, an unacceptable impact on public health, amenity or the environment; and
  - (b) the CEO has provided written notice to cease the Trial (which the CEO will make publicly available) to the Licence Holder specifying the grounds for the CEO's views.

Nothing in this Condition prevents the Licence Holder subsequently submitting an amendment in relation to the Trial. Any Trial amendment proposed by the Licence Holder must follow the notification requirements as per Condition 2(g).

### Trial restrictions

4. The duration of any Trial must cease:
- (a) 12 months from the date of the commencement of the first shipment; or
  - (b) immediately after the shipment where the cumulative throughput amounts of Trial material exceed 10% of total annual authorised throughputs, as specified in Condition 16; or
  - (c) immediately upon receipt of a CEO notification to cease a Trial in accordance with Condition 3.

whichever occurs first.

A Trial may only recommence upon notification of a Trial amendment, in accordance with Condition 2(g).

5. The Licence Holder must not Trial the bulk handling of materials that:
- (a) Contain asbestos in concentrations equal to or greater than 0.01% w/w for non-friable asbestos or 0.01% w/w for fibrous asbestos;
  - (b) Contain respirable silica equal to or greater than 1% w/w;

- (c) Exceed the radiation transport limit of 10 Bq/g for Uranium-238 and Thorium-232 combined;
- (d) Exceed Rubidium-87 concentrations of 30 Bq/g;
- (e) Are a waste or waste-derived byproduct (except Clean fill); or
- (f) Chemically Treated Materials that may present a toxicological or ecotoxicological risk.

## Reporting

- 6.** The Licence Holder must submit a report to the CEO which includes the results of monitoring required by Condition 2(f), and includes:
- (a) the 15-minute averaged, raw data in tabulated format;
  - (b) a graphical representation of the monitoring results for each Trial shipment with a comparison against 15-minute averaged meteorological (wind speed and direction) monitoring data;
  - (c) Moisture Content data averaged over each Trial shipment and showing a comparison against the representative DEM level, where the DEM level can be determined;
  - (d) a summary of the effectiveness of the controls implemented for the management of emissions and discharges,

within 30 days of the completion of the first Trial shipment; at four, seven and 10 months from the first Trial shipment; and a final closeout report within 30 days following the cessation of the Trial.

## Ongoing shipments

- 7.** In the event that approval for the ongoing shipments of the Trial material is sought, the Licence Holder must provide an application for Licence amendment, along with a report fulfilling the requirements of Condition 6, at least three months prior to the completion of the Trial period.

## Infrastructure and equipment

- 8.** The Licence Holder must ensure that the infrastructure and equipment specified in Column 1, and described in Column 2 of Table 10 in Schedule 3 is maintained in good working order and operated in accordance with the requirements specified in Column 3 of Table 10 in Schedule 3.
- 9.** The Licence Holder must maintain a Dust Control Equipment Inventory, which includes an itemised list for all dust control equipment used at the Premises and includes but is not limited to the equipment specified in Table of Schedule 3.
- 10.** The Licence Holder must not remove any dust control equipment from the Dust Control Equipment Inventory, without replacing that equipment with equipment that provides the same or greater level of dust mitigation.
- 11.** By 31 December 2020, the Licence Holder must be able to calculate and maintain an Average Monthly Availability rate of 90% or more for all:
- (a) water sprays on stackers;
  - (b) chute sprays at transfer stations and ship loader; and
  - (c) stockyard cannons when ore is stockpiled in that stockyard.
- 12.** The Licence Holder must install a rainfall gauge at monitoring location M5, as depicted in Figure 2, and operated in accordance with AS3580.14-2014, by 30

September 2020.

13. The Licence Holder must make modifications to meteorological equipment located at monitoring location M5, as depicted in Figure 2 of Schedule 1, such that it is compliant with AS3580.14-2014 by 30 September 2020.
14. The Licence Holder must install a BAM at monitoring location M10, as depicted in Figure 2 of Schedule 1, such that it is compliant with AS3580.14-2014 by 31 December 2020.

### **Bulk granular material specifications**

15. The Licence Holder must only load or unload bulk granular material specified in Column 1 of Table 9 in Schedule 2 at the Premises unless doing so in accordance with the requirements of Conditions 2 to 7.
16. The Licence Holder must only load to vessels a maximum total volume of 24,100,000 tonnes of bulk granular material and/or salt per annual period.
17. In the event that greater than 120,000 wet tonnes is out-loaded in any 24 hour period from 0600 to 0600, then the Licence Holder must investigate and report in accordance with Schedule 4 for both calendar days in which each 24 hour period spans.

### **Moisture Content monitoring and reporting**

18. The Licence Holder shall only accept bulk granular material specified in Table 9 of Schedule 2, to the Premises, if it contains a Moisture Content at or above the DEM Level.
19. The Licence Holder must receive and maintain accurate and auditable records from each Premises User in relation to:
  - (a) 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
  - (b) documentation of the DEM Level for all bulk granular materials of each Premises User determined by a laboratory on at least an annual basis.
20. The Licence Holder must ensure monitoring of bulk granular material is undertaken:
  - (a) for the parameter specified in Column 1,
  - (b) from the material specified in Column 2,
  - (c) at the sample frequency specified in Column 3 and calculated as an average per 10,000 tonnes of bulk granular material,
  - (d) be at or above the limit specified in Column 4, and
  - (e) be undertaken in accordance with the method specified in Column 5, in Table 3.

**Table 3: Moisture Content monitoring**

Column 1	Column 2	Column 3	Column 4	Column 5
Parameter	Bulk granular material	Sample frequency	Limit	Method
Moisture Content	Bulk granular material listed in Table 9 of Schedule 2, out-loaded and sampled at Sample Station* during out-loading	At least one sample per cargo hold, or at least one sample per 10,000 tonnes of material, obtained through automated Sample Station* or manual sampling at the same or greater frequency.	Weighted Average DEM Level based on DEM Level for each material required through Condition 19	ISO3087: 2011; or AS5621-2013; or ISO4299: 1989; or alternative method approved by the CEO.

\*The Sample Station, as depicted in Schedule 1: Premises Map, takes regular cuts of material for composite sample during out-loading.

21. The Licence Holder must provide a report to the CEO specifying the data provided through Condition 19 and from the monitoring undertaken in Condition 20 on a quarterly basis, on the last day of:
  - April (for January to March),
  - July (for April to June),
  - October (for July to September); and
  - January (for October to December) in any year.
22. The Licence Holder must provide the report referred to in Condition 21 in the format approved by the CEO as presented by the Licence Holder or as specified by the CEO from time to time.

## Air quality monitoring and Reportable Events

### Boundary air quality monitoring

23. The Licence Holder must undertake boundary air quality monitoring:
  - (a) at the locations specified in Column 1 and shown in Schedule 1,
  - (b) for the parameters specified in Column 2,
  - (c) calculated as an average over the period specified in Column 3,
  - (d) at the frequency specified in Column 5,
  - (e) in accordance with the method specified in Column 6,
 of Table 4.

**Table 4: Boundary air quality monitoring**

Column 1	Column 2	Column 3	Column 4	Column 5
Monitoring Station (refer Figure 2, Schedule 1)	Parameter	Reportable Event Criteria	Frequency (averaging interval)	Method <sup>1</sup>
M5 and M7	Particles as PM <sub>10</sub> (µg/m <sup>3</sup> )	≥145 µg/m <sup>3</sup> over a 24 hour average	Continuous (10 min)	AS3580.9.11
M6	Particles as PM <sub>10</sub> (µg/m <sup>3</sup> )	≥145 µg/m <sup>3</sup> over a 24 hour average	Continuous (10 min) <sup>2</sup>	N/A <sup>3</sup>
M10	Particles as PM <sub>10</sub> (µg/m <sup>3</sup> )	≥145 µg/m <sup>3</sup> over a 24 hour average	Continuous (10 min) once installed in accordance with Condition 14	AS3580.9.11 once installed in accordance with Condition 14
M8 and M9	Particles as PM <sub>10</sub> (µg/m <sup>3</sup> )	≥145 µg/m <sup>3</sup> over a 24 hour average	24 hours	AS3580.9.6
M8 and M9	Chromium (III and VI) as PM <sub>10</sub> (µg/m <sup>3</sup> )	≥3.5 µg/m <sup>3</sup> as an annual average	One 24 hour sample every sixth day from the date of chromite being received at the Premises, plus at least one 24 hour sample during the ship loading of chromite.	AS3580.9.6 USEPA IO-3.4
	Manganese as PM <sub>10</sub> (µg/m <sup>3</sup> )	≥10 µg/m <sup>3</sup> as a 24 hour average	One 24 hour sample every sixth day, plus at least one 24 hour sample during the ship loading of manganese/spodumene.	
		≥3 µg/m <sup>3</sup> as an annual average		
	Lithium as PM <sub>10</sub> (µg/m <sup>3</sup> )	N/A		
M5	Wind direction (°) Wind speed (m/s)	N/A	Continuous as a 10 minute average	AS3580.14-2014 by 30 September 2020 in accordance with Condition 13
M7				N/A
M6			Continuous as a 10 minute average <sup>3</sup>	N/A
M10	Wind direction (°) Wind speed (m/s)	N/A	Continuous as a 10 minute average <sup>3</sup>	N/A
M5	Rainfall (mm)	N/A	Hourly once installed in accordance with Condition 12	AS3580.14-2014

Note 1: The Licence Holder must take into consideration AS3580.1.1 for all monitoring equipment when actively working around the Premises.

Note 2: Monitoring at location M6 must continue for a period not less than 12 months from the date of

installation of the monitor at location M10, in accordance with Condition 14.

Note 3: M6 is an E-sampler and there are no Australian Standards relevant to the operation of this equipment.

## Ambient air quality monitoring

**24.** The Licence Holder must obtain and present monitoring data:

- (a) at the monitoring location specified in column 1;
  - (b) for the parameter specified in column 2;
  - (c) for the frequency specified in column 5; and
  - (d) in accordance with the method specified in column 6,
- specified in Table 5.

**Table 5: Ambient air quality monitoring**

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Monitoring Station Name	Parameter	Reportable Event Criteria	Management trigger criteria	Frequency (averaging interval)	Method
Taplin Street <sup>1</sup>	Particles as PM <sub>10</sub> (µg/m <sup>3</sup> )	≥70 µg/m <sup>3</sup> over 24 hour average (midnight to midnight)	<p>≥100 µg/m<sup>3</sup> PM<sub>10</sub> (rolling 1 hour average) when:</p> <p>(i) wind direction is between 247 and 267° for three or more ten minute periods during the hour, as measured at Taplin Street; and</p> <p>(ii) PM<sub>10</sub> as measured at M10 is greater than PM<sub>10</sub> as measured at M5 and M7<sup>2</sup></p> <p>Unless where, BOM or Yule River monitoring stations<sup>1</sup> have recorded ≥100 µg/m<sup>3</sup> PM<sub>10</sub> (rolling 1 hour average) within 3 hours prior to the trigger event.</p>	Continuous as 10 minute average	AS3580.9.11
	Wind direction (°) Wind speed (m/s)	N/A	N/A	Continuous as a 10 minute average <sup>1</sup>	AS3580.14-2014

Note 1: Provision of this data to Pilbara Ports Authority is via the Port Hedland Industries Council (Pilbara Ports Authority is a member of Port Hedland Industries Council)

Note 2: Part (ii) only applies after the date of installation of the BAM at monitoring location M10.

**25.** The Licence Holder must undertake a review of boundary and ambient monitoring data required by Conditions 23 and 24, in accordance with Schedule 5, for a period of 12 months from the date of installation of the BAM at monitoring location M10, as specified in Condition 14.

**26.** The Licence Holder must submit the review described in Condition 25 and Schedule 5 to the CEO within 15 months from the installation of the BAM at monitoring location M10, as specified in Condition 14.



## Reportable Events

- 27.** The Licence Holder must provide a report to the CEO containing the information, in the format, and for the periods, specified in Schedule 4 for Reportable Events which have occurred:
- (a) as specified in Column 3 of Table 4, only where the wind vector is between 247 and 267 degrees, as shown in Figure 3 of Schedule 4 and measured from the Taplin Street monitor, for a minimum cumulative time of 25% of the Reportable Event averaging period specified in Column 3 of Table 4; and
  - (b) as specified in Column 3 of Table 5.

## Specified actions

### Management triggers

- 28.** Immediately upon being notified of management trigger criteria specified in Condition 24 being exceeded, the Licence Holder must:
- (a) conduct a site investigation to identify any visible dust generation at the Premises; and
  - (b) upon identification of visible dust generation during the site investigation conducted in accordance with part (a) of this Condition, immediately control visible dust emissions.
- 29.** In the event that no visible dust can be identified within 20 minutes of the management trigger criteria and/or Reportable Event criteria exceedance notification, the Licence Holder must undertake the following management actions:
- (i) operate all stockyard water cannons on Deluge Cycle;
  - (ii) apply water to all unsealed trafficable areas where vehicle movement has occurred in the previous hour; and
  - (iii) operate transfer station and conveyor dust suppression sprays on all operating equipment.
- 30.** The Licence Holder must continue actions specified in Conditions 28 and 29 for the duration of management trigger criteria being exceeded.

### Static Stockpile management

- 31.** The Licence Holder must undertake the following actions in the event that an ore stockpile has become a Static Stockpile:
- (a) ensure, and be able to demonstrate using the method outlined in ISO3087:2011 or alternative method as approved by the CEO, that the stockpile contains a moisture content at or above the corresponding DEM Level for that stockpile; or
  - (b) apply a physical barrier or chemical stabiliser to stabilise the surface of the stockpile to minimise potential dust emissions.
- 32.** The Licence Holder must not re-stockpile a Static Stockpile for the purpose of avoiding requirements of Condition 31.

### Stormwater and industrial wash water management

- 33.** The Licence Holder must capture all stormwater and wash water on the berth during chromite ore loading operations and wash down events for removal by a

licensed controlled waste carrier.

34. Within 24 hours of chromite ore loading operations the Licence Holder must wash down the berth for the purpose of removing residual chromite ore.

## Stormwater and industrial wash water monitoring

35. The Licence Holder must undertake stormwater and industrial wash water monitoring:

- (a) at the locations specified in Column 1;
- (b) the parameters specified in Column 2;
- (c) for the averaging period specified in Column 3;
- (d) at the frequencies specified in Column 4; and
- (e) in accordance with the methods specified in Column 5

in Table 6.

**Table 6: Stormwater and wash water discharge monitoring table**

Column 1	Column 2	Column 3	Column 4	Column 5
Locations	Parameters	Averaging Period	Frequency	Method
Stormwater Recirculation Pond depicted in Figure 1	pH <sup>1</sup> TRH (mg/L) TSS (mg/L) Chromium (III) (mg/L) Chromium (VI) (mg/L) Iron (mg/L) Lithium (mg/L) Manganese (mg/L) Volume (m <sup>3</sup> ) <sup>2</sup>	Spot sample	Monthly when water levels are within 300mm of the overflow sump at W13 and/or W14.	AS 5667.1-1998 and AS 5667.10-1998 Spot sample to be taken from the top layer of the water column.

Note 1: In-field testing is permitted.

Note 2: As determined based on rainfall amount and Stormwater Recirculation Pond surface area at the time of discharge.

## Record-keeping

36. The Licence Holder must maintain accurate and auditable Books including the following records, information, reports and data required by this Licence:

- (a) the calculation of fees payable in respect of this Licence;
- (b) Minor Spillages;
- (c) dust control equipment inventory as required by Condition 9 of this Licence;
- (d) any changes to the equipment detailed in the dust control equipment inventory including the rationale for the change and estimated reduction in emissions in accordance with Condition 10 of this Licence;

- (e) the amount and types of bulk granular material (in wet tonnes) out-loaded from the Premises to verify compliance with Condition 16 of this Licence;
- (f) records of Moisture Content and DEM Level data obtained as required by Conditions 19 and 20 of this Licence;
- (g) dates where chromite ore is loaded into vessels, dates of chromite ore washdown events and volumes and dates of chromite ore washwater removal in accordance with Conditions 33 and 34;
- (h) monitoring undertaken in accordance with Conditions 20, 23, 24 and 35 of this Licence;
- (i) Reportable Events reported in accordance with Condition 27 of this Licence;
- (j) Management trigger events undertaken in accordance with Conditions 28, 29 and 30;
- (k) Moisture Content of Static Stockpiles that have not had a physical barrier or chemical stabiliser applied in accordance with Condition 31;
- (l) complaints received under Condition 37 of this Licence; and

In addition, the Books must:

- (a) be legible;
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible and are capable of retrieval;
- (c) be retained for at least 3 years from the date the Books were made; and
- (d) be available to be produced to an Inspector or the CEO.

**37.** The Licence Holder must record the number and details of any complaints received by the Licence Holder relating to its obligations under this Licence and its compliance with Part V of the EP Act at the Premises, and any action taken by the Licence Holder in response to the complaint. Details of complaints must include:

- (a) an accurate record of the concerns or issues raised, for example a copy of any written complaint or a written note of any verbal complaints made;
- (b) the name and contact details of the complainant, if provided by the complainant;
- (c) the date of the complaint; and
- (d) the details and dates of the actions taken by the Licence Holder in response to the complaints.

**38.** The Licence Holder must submit to the CEO, no later than 30 September,

- (a) a Compliance Report indicating the extent to which the Licence Holder has complied with the Conditions in this Licence for the preceding Annual Period; and
- (b) a monitoring report presenting the results of monitoring and any supporting records, information, reports and data as required by:
  - (i) Condition 19 and 20 for Moisture Content and DEM Level monitoring undertaken;
  - (ii) Condition 23 for boundary air quality monitoring undertaken at all operating BAM monitors depicted in Schedule 1, Figure 2, in the format specified in Schedule 6;

- (iii) Condition 24 for ambient air quality monitoring including a comparison of monitoring results against the Reportable Event Criteria as specified in Column 4 of Table 5; and
  - (iv) Condition 35 for stormwater and wash water discharges, where applicable.
- 39.** The Licence Holder must comply with a Department Request, within 7 days from the date of the Department Request or such other period as agreed to by the Inspector or the CEO.

Schedule 1: Maps

Premises Map

The Premises are shown in the map below. The pink/red line depicts the boundary to the Premises.

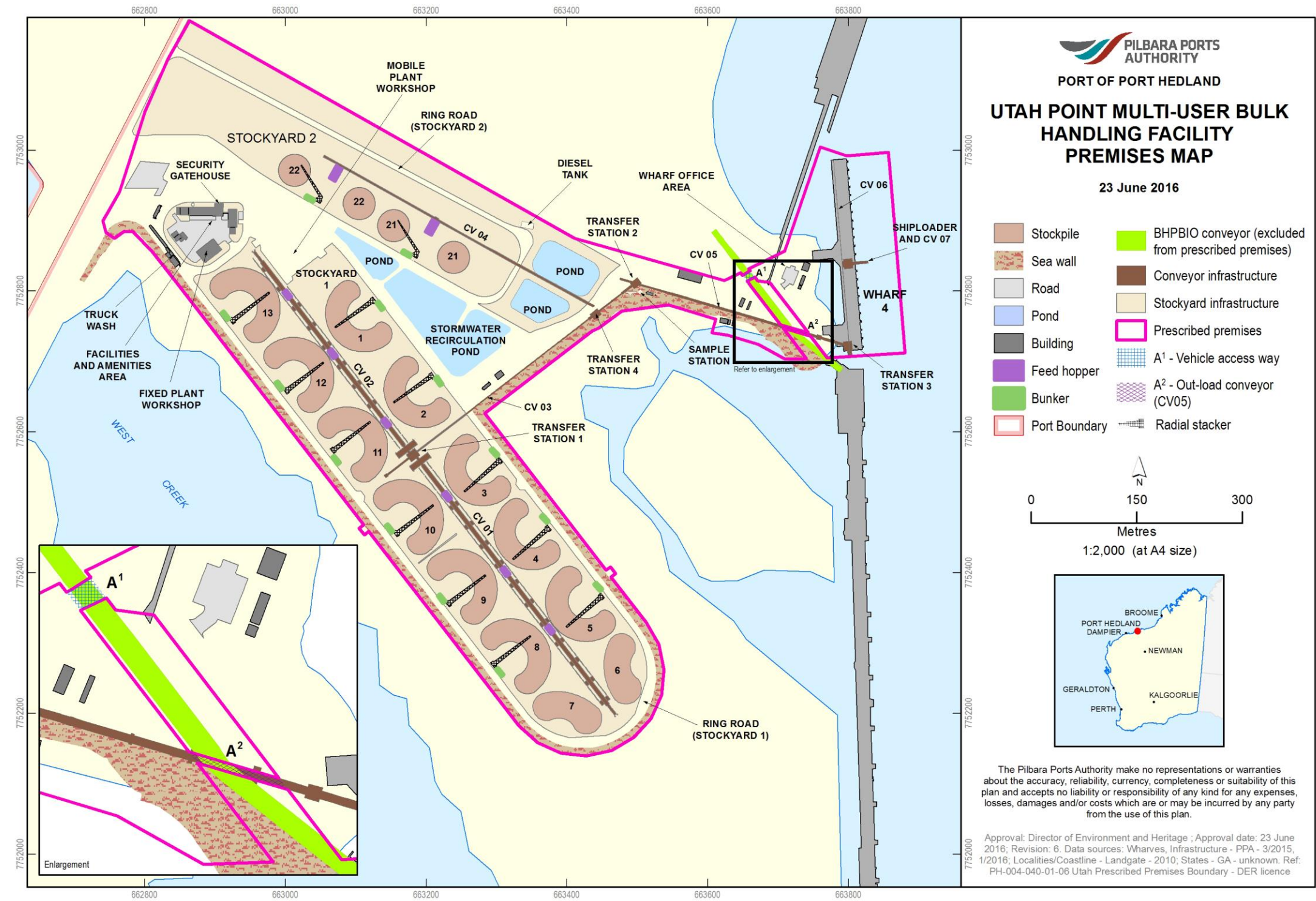


Figure 1. Premises map





**Figure 2: Monitoring Locations and Stormwater Discharge Map**

## Schedule 2: Primary Activities

At the time of assessment, Emissions and Discharges from the following Primary Activities were considered in the determination of the risk and related Conditions for the Premises. The Primary Activities are listed in Table 7.

**Table 7: Primary Activities**

Primary Activity	Premises production or design capacity
Category 58 – 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.	24.1 Million tonnes per annum (Mtpa) combined
Category 58A – Bulk material loading or unloading: premises on which salt is loaded onto or unloaded from vessels by an open materials loading system.	

## Infrastructure and equipment

The Primary Activity infrastructure and equipment situated on the Premises is listed in Table 8.

**Table 8: Infrastructure and equipment**

No.	Infrastructure	Schedule 1: Maps, Premises Map
1.	Sealed ring road stockyard 1 and stockyard 2 (elevated for ring road to stockyard 1)	Ring road (Stockyard 1) Ring Road (Stockyard 2).
2.	Bunkers	Bunker 1-13, 21, 22
3.	Radial stackers	Radial stacker 1-5, 8-13, 21, 22
4.	Stockpiles	Stockpile 1-13, 21 and 22
5.	Feed hoppers	Stockyard 1 – 6 mobile feed hopper trains. Stockyard 2 – 2 fixed feed hoppers
6.	Conveyor system	CV 01, CV 02, CV 03, CV 04, CV 05, CV 06, CV 07
7.	Transfer stations	Transfer Station 1, Transfer Station 2, Transfer Station 3, Transfer Station 4
8.	Shiploader	Shiploader
9.	Wharf 4	Wharf 4 (272 metre to accommodate Panamax and small Cape Size vessels, including Cavotec system (vacuum-based mooring system) and other associated facilities and services.)
10.	Stockyard 1 truck wash	SY1 truck wash
11.	Stockyard 2 dry sweep	SY2 dry sweep area
12.	Stormwater containment ponds	Stormwater recirculation pond, SY2 north pond, SY2 south pond.
13.	Water cart	N/A (mobile)
14.	Sample station	Sample station

## Site layout

The infrastructure and equipment are set out on the Premises in accordance with the site layout specified on the Premises Map in Schedule 1.

## Bulk materials loaded and unloaded

Bulk materials (listed in Table 9) arrive at the facility via quad road trains. The material is side tipped over bunker walls along the ring roads. Material is then stacked via radial stacker at bunkers 1-5, 8-13, 21 and 22, at bunkers 6 and 7 material is built into a stockpile via front end loader. Material is then reclaimed via a front end loader and placed via a feed hopper onto a conveyor. The conveyors and transfer stations move material along the outload circuit to the ship loader, where it is loaded into a ships hold via dribbler chute for export.

**Table 9: Annual bulk material tonnages assessed**

<b>Column 1</b>	<b>Column 2</b>
<b>Bulk material</b>	<b>Tonnages (annual)</b>
Iron ore	up to 24,100,000 tonnes (exported)
Manganese ore	up to 2,000,000 tonnes (exported)
Chromite ore	up to 350,000 tonnes (exported)
Spodumene ore	up to 3,000,000 tonnes (exported)
<b>Total tonnes (aggregate of all ores)</b>	<b>24,100,000 tonnes</b>



## Schedule 3: Infrastructure and equipment

**Table 10: Infrastructure and equipment controls**

	Column 1	Column 2	Column 3	Column 4
	Site Infrastructure	Description	Operation requirements	Reference to Map
<b>Controls for dust</b>				
1.	Stockyard	Sealed ring roads around stockyard 1 and 2	Vehicular travel speed not to exceed 20 km per hour.	Schedule 1: Premises Map
		Sprays on all radial stackers and at bunkers (excluding bunker 6 and 7)	<p>Bunker sprays operated whenever visible dust is being generated while tipping ore into hoppers.</p> <p>Stacker sprays operated at all times when ore is being stacked.</p> <p>The radial stacker is lowered as low as possible when stacking commences and the drop height is minimised to as low as reasonably practicable at all other times.</p> <p>Chevron or cone pattern used for stacking.</p>	Schedule 1: Premises Map
		In-loading at Bunker 6 and 7	Water cannons operated at Bunker 6 and 7 when a truck is side tipping.	Schedule 1: Premises Map
		Four water cannons per stockpile	<p>Cannons Routinely Operated to prevent dust lift off.</p> <p>Additional operation of cannons during in-loading.</p> <p>Additional operation of cannons for pre-vessel wet down of material that has a Moisture Content below the DEM level for that ore, prior to it being out-loaded and as measured from the automated Sample Station, or manual sampling at the same or greater frequency.</p> <p>Dust forecast tool is utilised for planning of additional cannon operation.</p>	Schedule 1: Premises Map
2.	Conveyors	<p>Under-belt sprays and belt scrapers.</p> <p>Wind barrier on raised</p>	Belt scrapers automatically operate when the conveyor is running.	Schedule 1: Premises Map

	Column 1	Column 2	Column 3	Column 4
	Site Infrastructure	Description	Operation requirements	Reference to Map
		CV06 (above wharf 4). Under-belt sprays and belt scrapers clean material carry back.	Operation of the under-belt sprays at all times when manganese is being transported.  Operation of the under-belt sprays to minimise the carry back of ore for the purpose of reducing dust.	
3.	Transfer Stations	Partially enclosed with chute spray	Transfer stations partially enclosed (within shed).  Chute sprays operated at all times when: <ul style="list-style-type: none"> <li>a) manganese is being transported;</li> <li>b) iron ore that has a Moisture Content below the DEM level for that ore is being transported; and/or</li> <li>c) visible dust is being generated through use.</li> </ul>	Schedule 1: Premises Map, TS1, TS2, TS3, TS4
4.	Shiploader	Shiploader and transfer chute	Enclosed dribbler chute.	Schedule 1: Premises Map, CV07/Shiploader
5.	Dust Management Tool	Dust Management Tool that incorporates a forecast of local weather conditions and operational plans for each 12 hour shift	Dust management ongoing, records of dust management tool kept for each 12 hour shift.	N/A
6.	Truck wash/ dry sweep	Truck wash/dry sweep located at the exit points of the Premises to remove built up material from undercarriage and wheel guards	Fully contained truck wash facility (including sumps) at Stockyard 1 exit.  Manual dry sweep area at Stockyard 2 exit.  Every truck exiting the premises pass through truck wash/dry sweep	Schedule 1: Premises Map
7.	Water carts	Used for dust suppression on stockyard floors 1 and 2	Operated at Stockyard 1 and Stockyard 2 areas, depicted in Figure 2 of Schedule 1, to supplement dust suppression from water cannons when dust	Schedule 1: Premises Map

	Column 1	Column 2	Column 3	Column 4
	Site Infrastructure	Description	Operation requirements	Reference to Map
			<p>is observed from reclaiming activities.</p> <p>Operated to achieve compliance with Condition 29(ii).</p> <p>Operated proactively subject to Dust Management Tool, referred to in Row 5, over a 24 hour forecasting period.</p>	
8.	Road sweeper	<p>Operate on sealed areas including ring roads and wharf.</p> <p>Used to minimise material build-up on roads and wharf.</p>	<p>Used regularly with a minimum frequency of at least five (5) hours per day during periods where:</p> <p>(a) no more than 2 mm of rain measured at the Port Hedland Bureau of Meteorology site, or M(5) once a rainfall gauge is installed in the preceding 12 hour period; and/or</p> <p>(b) wind speed is above 6 m/s.</p>	Schedule 1: Premises Map
<b>Controls for stormwater</b>				
9.	Stormwater infrastructure for Stockyard 1	Stormwater from Stockyard 1 to be captured on land directed to a stormwater recirculation pond.	High density polyethylene lined stormwater recirculated pond with 50,000m <sup>3</sup> capacity.	Schedule 1: Premises Map
10.	Stormwater infrastructure for Stockyard 2	Stormwater from Stockyard 2 captured on land directed to stormwater settlement sump and ponds.	<p>The stormwater settlement pond designed to contain 1 in 10 year 24 hour rainfall event.</p> <p>Stormwater pond connects to the recirculation pond.</p>	Schedule 1: Premises Map
11.	Stormwater infrastructure for berth	The wharf is designed to prevent direct drainage of stormwater into the marine environment. The wharf deck is sloped from the front fender line to the back, which is bunded and connected to a contained drainage system.	<p>All stormwater is pumped to the recirculation pond except where chromite ore has been handled at the berth.</p> <p>Where chromite ore has been handled at the berth, the Licence Holder must manage wash water and stormwater in accordance with Conditions 33 and 34.</p>	Schedule 1: Premises Map

	Column 1	Column 2	Column 3	Column 4
	Site Infrastructure	Description	Operation requirements	Reference to Map
12.	Stormwater discharge	<p>Stormwater discharge points:</p> <ul style="list-style-type: none"> <li>• W12 – Stormwater outlet</li> <li>• W13 – Emergency overflow discharge point from recirculation pond</li> <li>• W14 – Controlled discharge point from recirculation pond, activated in the event of rainfall greater than the ponds capacity</li> </ul>	Stormwater and washwater discharge points to be maintained in good repair.	Schedule 4: Monitoring Locations and Stormwater Discharge Map

## Schedule 4: Quarterly Reporting

The following schedule outlines the investigation and reporting requirements triggered as a result of Conditions 16, 23, 24 and 27.

### Reporting Frequency

Reports for the above mentioned must be submitted to the CEO on a quarterly basis, by the last day of the following months in each year:

- April (for January to March),
- July (for April to June),
- October (for July to September); and
- January (for October to December) in any year.

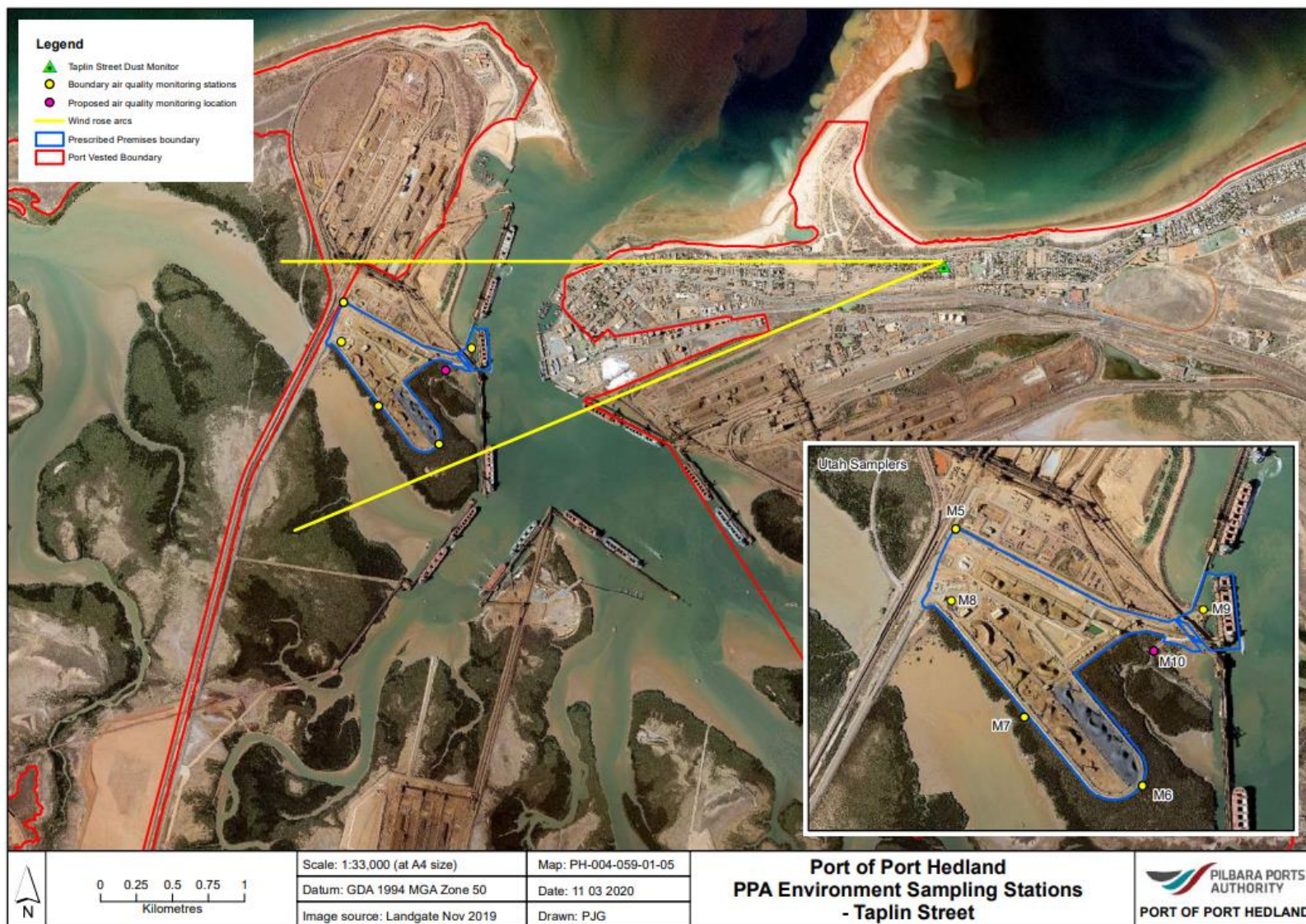
### Contents of Report

The quarterly report must contain:

- ore moisture monitoring data as a comparison against the DEM Level for each respective ore, in accordance with Condition 20; and
- the following details for the period(s) in which total throughputs exceed the amounts specified in Condition 16 and Reportable Events occurred, as specified in Conditions 23 and 24:
  - date(s), time and duration of event;
  - type(s) and total amount (in wet tonnes) of bulk material in-loaded and out-loaded at the Premises for the 24-hour periods before, during and after the Reportable Event;
  - the raw monitoring data, in tabulated form, recorded at those Monitoring Stations, listed in Column 1 of Table 4 as specified in Condition 23, in the format specified in Schedule 6;
  - time series graphical plots for the Monitoring Stations referred to above on the day/s on which the event occurred (excluding M8 and M9);
  - a summary of how each monitor is, or is not compliant with Australian Standard AS3580.1.1;
  - details and findings of an investigation into the throughput exceedance and/or Reportable Event including, but not limited to the following:
    - (a) confirmation that data received is correct (no instrument fault);
    - (b) determination of the source of the Reportable Event through:
      - review of PM<sub>10</sub> concentrations at the Yule and BoM background monitors;
      - review of meteorological data (including temperature, wind speed, rainfall and direction);
      - review of the dust scatter plots to determine dust concentrations recorded as coming from the offsite sector;
      - review of background dust levels recorded at an upwind boundary monitor;
      - Moisture Content of materials received at the time of the exceedance with a comparison against the DEM Level;

- comparison of boundary dust levels against dust levels recorded at Taplin Street ambient dust monitoring station (24 hour average);
- availability rates for all dust control equipment.
- (c) a description of all Ore Handling Activities which had occurred at the Premises during the Reportable Event and the 24 hours preceding the Reportable Event;
- (d) a description of actions taken by site personnel as a response to the any high level alarms;
- for Reportable Events at the Taplin Street monitor, a comparison of PM<sub>10</sub> concentrations against boundary monitor peaks (including peak times) and 24-hour averaged levels recorded during the 24-hour period; and
- all corrective and management actions undertaken for Reportable Events.





**Figure 3: Premises wind vector to Taplin Street**

L8937/2015/1  
 IR-T06 Licence Template v2.0 (July 2017)

## Schedule 5: Boundary monitoring review report

The following schedule specifies the contents for the boundary monitoring review report required by Conditions 25 and 26.

### Contents of Report

The report must contain at a minimum, but not be limited to:

- a review and analysis of PM<sub>10</sub> data from the boundary monitors M5, M6, M7, M8, M9 and M10. It is noted that monitoring data from high volume samplers will only provide particulate data averaged over 24 hours;
- an analysis of PM<sub>10</sub> boundary monitoring data with associated weather data and spatial data (location of monitor and locations of dust sources); and
- an analysis of PM<sub>10</sub> boundary monitoring data in comparison with concentrations at Richardson, Kingsmill and Taplin Street where there are:
  - exceedances of the Air Guideline Value at Richardson, Kingsmill and Taplin Street monitors; and
  - Reportable Events as specified in column 3 of Tables 4 and 5, using suitable timeframes to account for plume travel from the Premises to the sensitive receptors;
- meaningful graphs, such as line graphs, polar plots and radial graphs to visualise the analysis findings;
- all raw data used for the report are to be provided as part of the report with the monitoring data meeting the specified format outlined in Schedule 6,

for the purpose analysing how dust concentrations at the Premises are reflected by the boundary monitoring network. Specifically to assess the:

- extent to which the network is capturing dust emissions from premises' sources;
- effects of dust control interventions;
- connection between elevated dust levels at boundary monitors and at the receptor sites of Kingsmill, Richardson and Taplin Street; and
- difference between background dust and premises' emissions.

For monitors M6 and M10, the report must also detail the:

- number of Reportable Event triggers;
- PM<sub>10</sub> concentrations averaged over the 12 month monitoring period;
- statistical correlation between Reportable Events specified in Column 3 of Table 4 and those specified in Column 3 of Table 5;
- Licence Holder's approximate contribution during each Reportable Event specified in Column 3 of Table 4, based on monitoring data from locations M6 and M10 when compared against M5 and M7;
- frequency and duration of management trigger criteria specified in Column 4 of Table 5.



## Schedule 6: Boundary monitoring data format

The Licence Holder must ensure that validated (particle, gas and meteorological instrument data) results of ambient air monitoring are provided as a comma delimited time series listing on a suitable computer readable medium in the following format:

```
SITE NAME:XXXXXXXXX
column description
ddmmyyyy HHMM,x,x,x,...
ddmmyyyy HHMM,x,x,x,...
↓
↓
↓
ddmmyyyy HHMM,x,x,x,...
```

where: **dd** is the two digit day of the month i.e. 01, 02,...,31  
**mm** is the two digit month of the year i.e. 01, 02,...,12  
**yyyy** is the four digit year i.e. 2009, 2010, ...  
**HH** is the two digit hour code i.e. 00, 01,...,23  
**MM** is the two digit minute code i.e. 00, 10, 15,...,55  
**x,x,x** is the comma delimited decimal data.

The time period for comma delimited time series listing must represent the end of the data period. Hence the first time stamp for any day must be 0005 hours and the data associated with this time stamp must be the averaged data for the period up to this time i.e. from midnight to 0005 hours. The last time for any day must be 2400 and the data associated with this time stamp must be the averaged data for the period up to this time i.e. from 2355 hours to midnight.

If the above method of timestamping is not achievable by your system, then the time series listing can be timestamped at the **start** of the period with the first timestamp of each day being 0000 hours which represents data from midnight to 00:05 and ends at 2355 hours which represents data from 23:55 to midnight on the same day.

Erroneous or invalid data must be denoted as a blank (**not** a space) or a numeric error code such as -99.0 within the data set. There should be no spaces in the data lines other than that between the date and time.

The covering documentation will indicate if the data timestamp is at the start of the data averaging period or the end of the data averaging period.

An example five minute averaged data set comprising eight parameters is provided below.

SITE NAME:- GENERIC AQMS

Date\_Time,CO\_ppm,NO\_ppb,NO2\_ppb,NOx\_ppb,SO2\_ppb,O3\_ppb,PM10\_ug\_m3,PM2.5\_ug\_m3

26/04/2013 2325,0.2,31.4,11.4,42.8,,0.2,10.0,5.3

26/04/2013 2330,0.2,26.6,12.6,39.3,,0.1,8.6,4.7

26/04/2013 2335,0.1,14.8,14.6,29.4,,0.1,8.2,5.1

26/04/2013 2340,,,,,,,,,

26/04/2013 2345,,,,,,,,,

26/04/2013 2350,0.2,25.7,16.2,42,,0.5,14.6,13.4

26/04/2013 2355,0.2,,15.8,36,,0.6,14.2,11.3

26/04/2013 2400,0.2,,15.1,35,,0.5,14.3,9.7

27/04/2013 0005,0.2,24.8,15.3,40.1,,0.5,12.8,9

27/04/2013 0010,0.3,27.1,14.6,41.8,,0.4,12.7,9.2

27/04/2013 0015,0.4,33.2,14.5,47.7,,0.4,13.0,8.9

27/04/2013 0020,0.5,26.5,12.6,39.1,,0.2,12.0,7.9

The following units must be used for ambient data submitted as a comma delimited time series listing:

Pollutant	Units	Minimum precision
Carbon monoxide	parts per million	X.X (tenth of a ppm)
all other gases	parts per billion	X (tenth of a ppb)
particles	micrograms per cubic metre	X.X (tenth of a µg/m <sup>3</sup> )
wind speed	metres per second	X.X (tenth of a m/s)
wind direction	degrees from north	X.X (tenth of a degree)
sigma	degrees	X.X (tenth of a degree)
air temperature	degrees Celsius	X.X (tenth of a degree)
relative humidity	%	X.X (tenth of a %)
pressure	hectopascals	X.X (tenth of a hPa)
solar radiation	watts per square metre	X.X (tenth of a watt/m <sup>2</sup> )

These units must be used unless approval has been obtained from the Senior Manager, Air Quality Services to use alternative units.

The Licence Holder must provide:

- Data as five or 10 minute averages. If these are not available, then at shortest available averaging period;
- Site name, instrument manufacturer and model number;
- Site location (Latitude/Longitude GPS coordinates);
- Data validation procedure used to validate data; and
- all reported data must be time-stamped with the actual time to which the measurement refers. This means that the 1 hour offset inherent in BAMs must be corrected so that both the 1-hour and 10-minute data presented in reports represent the conditions existing at the time of the measurement.