Government of Western Australia
Department of Environment Regulation

Licence

Environmental Protection Act 1986, Part V

Licensee: Roy Hill Infrastructure Pty Ltd

Licence: L8903/2015/1

Registered office: Hancock Prospecting Pty Ltd House
28-42 Ventnor Avenue
WEST PERTH WA 6005

ACN: 130 249 633

Premises address: Roy Hill Infrastructure
Part of Lot 372 on Deposited Plan 35620
Reserve 50892
BOODARIE WA 6722
as depicted in Schedule 1

Issue date: Thursday, 17 September 2015

Commencement date: Monday, 21 September 2015

Expiry date: Sunday, 20 September 2020

Prescribed premises category
Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
52	Electric power generation: premises (other than premises within category 53 or an emergency or standby power generating plant) on which electrical power is generated using a fuel	10 MW or more in aggregate (using a fuel other than natural gas)	35 MW

Conditions
This Licence is subject to the conditions set out in the attached pages.

.....
Jonathan Bailes
Manager Licensing (Process Industries)
Officer delegated under section 20
of the *Environmental Protection Act 1986*

Contents

Introduction

This Introduction is not part of the Licence conditions.

DER's industry licensing role
The Department of Environment Regulation (DER) is a government department for the state of Western Australia in the portfolio of the Minister for Environment. DER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process DER regulates to prevent, control and abate pollution and environmental harm to conserve and protect the environment. DER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

Licence requirements
This Licence is issued under Part V of the Act. Conditions contained within the Licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licensee the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link:
http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.
- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.
- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply.

Licence holders are also reminded of the requirements of section 53 of the Act which places 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.

Licence fees
If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

Ministerial conditions
If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

Premises description and Licence summary
Roy Hill Infrastructure Pty Ltd (Roy Hill) has completed construction and commissioning of a new 35 megawatt (MW) peak generation temporary Port Power Station to support the Roy Hill Port Infrastructure Project (RHPIP). The RHPIP consists of a port stockyard and two-berth export facility located approximately 6km southwest of Port Hedland. The Power Station has been constructed to support the port stockyard operations due to current constraints in the local power supply grid.

Primary activities occurring at the port include train unloading, screening, stacking and reclaiming of iron ore, and shiploading. The Power Station comprises 30 diesel generators with a maximum design capacity of 35 MW and expected average power demand of 22MW. The Power Station will be located within the rail loop at the north east end of the port stockyard area.

A diesel fuel farm is located within the Power Station footprint containing three 100,000 litre (L) double skinned, self bunded, modular storage diesel tanks, compliant with Australian Standard 1692-2006 *Steel tanks for flammable and combustible liquids*. Sufficient fuel will be stored onsite at the diesel fuel farm to provide three days of average generation of 22MW over a 24 hour period.

The generators installed are Caterpillar model 3516B diesel generators, each housed in a self bunded module. The Caterpillar generator is a 16-cyclinder four stroke engine. Two of the 30 generator modules are installed with exhausts that are discharged into a vertical radiator cooling air flow (from a large horizontal fan). Exhaust gases are emitted through a 2.3m by 2.3m opening in the container roof (approximately 2.9m above the ground). The remaining 28 generator modules are installed with exhaust points from each of the two banks of eight cylinders which exhaust individually through the top of the container through two 300mm diameter outlets, 570mm above the top of the shipping container. These exhaust points have a cover installed to prevent rain entering the exhaust when not in operation. The Power Station has 14 transformers also housed within self bunded modules.

Emissions of significance during operation will be point source emissions to air, the emission of most concern being oxides of nitrogen (NOx) due to the use of diesel generators.

Roy Hill intends to operate the Power Station as a temporary solution for its power requirements, and has indicated to DER it will be engaging in a further procurement process with electricity suppliers established in the Port Hedland region for its long term electricity requirements. Should this procurement process not deliver a commercially acceptable solution for Roy Hill by the end of 2016, Roy Hill has committed converting the Temporary Power Station to dual fuel (natural gas and diesel) to ensure that NOx emissions from the Power Station are reduced.

This Licence is for the operation of a new facility established under works approval W5629/2014/1. The licences and works approvals issued for the Premises are:

Instrument log		
Instrument	**Issued**	**Description**
W5629/2014/1	05/09/2014	New works approval application to construct category 52 prescribed premises
L8903/2015/1	17/09/2015	New licence application to operate category 52 prescribed premises

Severance

It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

END OF INTRODUCTION

Licence conditions

1 General

1.1 Interpretation

1.1.1 In the Licence, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

'Act' means the *Environmental Protection Act 1986;*

'annual period' means the inclusive period from 1 January to 31 December in that year;

'AS 3580.1.1' means the Australian Standard AS 3580.1.1 *Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment;*

'AS 3580.5.1' means the Australian Standard AS 3580.5.1 *Methods for sampling and analysis of ambient air - Determination of oxides of nitrogen – Chemiluminescence method;*

'AS 3580.14' means the Australian Standard AS *3580.14* Methods for sampling and analysis of ambient air - Meteorological monitoring for ambient air quality monitoring applications;

'AS/NZS 5667.1' means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples;*

'AS/NZS 5667.10' means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters;*

'averaging period' means the time over which a limit is measured or a monitoring result is obtained;

'CEO' means Chief Executive Officer of the Department of Environment Regulation;

'CEO' for the purpose of correspondence means;

Chief Executive Officer
Department Administering the Environment Protection Act 1986
Locked Bag 33
CLOISTERS SQUARE WA 6850
Email: info@der.wa.gov.au;

'Licence' means this Licence numbered L8903/2015/1 and issued under the Act;

'Licensee' means the person or organisation named as Licensee on page 1 of the Licence;

'NATA' means the National Association of Testing Authorities, Australia;

'NATA accredited' means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

'normal operating conditions' means any operation of a particular process (including abatement equipment) excluding start-up, shut-down and upset conditions, in relation to stack sampling or monitoring;

'NOx' means oxides of nitrogen, calculated as the sum of nitric oxide and nitrogen dioxide and expressed as nitrogen dioxide;

'Premises' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

'quarterly' means the 4 inclusive periods from 1 January to 31 March, 1 April to 30 June, 1 July to 30 September, 1 October to 31 December;

'Schedule 1' means Schedule 1 of this Licence unless otherwise stated;

'Schedule 2' means Schedule 2 of this Licence unless otherwise stated;

'spot sample' means a discrete sample representative at the time and place at which the sample is taken; and

'usual working day' means 0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the standard in force from time to time during the term of this Licence.

1.1.4 Any reference to a guideline or code of practice in the Licence means the version of that guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

1.1.5 Nothing in the Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to:
(a) pollution;
(b) unreasonable emission;
(c) discharge of waste in circumstances likely to cause pollution; or
(d) being contrary to any written law.

1.2 General conditions

1.2.1 The Licensee shall operate and maintain all pollution control and monitoring equipment to the manufacturer's specification or any relevant and effective internal management system.

1.2.2 The Licensee shall immediately recover, or remove and dispose of spills of environmentally hazardous materials outside an engineered containment system.

1.2.3 The Licensee shall:
(a) implement all practical measures to prevent stormwater run-off becoming contaminated by the activities on the Premises; and
(b) treat contaminated or potentially contaminated stormwater as necessary prior to being discharged from the Premises.[1]

Note1: *The Environmental Protection (Unauthorised Discharges) Regulations 2004* make it an offence to discharge certain materials into the environment.

1.3 Premises operation

1.3.1 The Licensee must ensure that point source emissions to air are managed in accordance with the documents specified in Table 1.3.1.

Table 1.3.1: Management Plans

Management Plan Reference	Parts	Date of Document
Air Emissions Management Plan - Roy Hill Port Temporary Power Station (OP-PLN-00041)	All	Version 4 dated 17 September 2015

2 Emissions

2.1 General

2.1.1 The Licensee shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of section 2 of this Licence.

2.2 Point source emissions to air

2.2.1 The Licensee shall ensure that where waste is emitted to air from the emission points in Table 2.2.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 2.2.1: Emission points to air

Emission point reference and location on Map of emission points	Emission Point and source	Emission point height (m)	Source, including any abatement
A1 – A30	Caterpillar Model 3516B diesel generator	3.4m (28 units) 2.9m (2 units)	30 x diesel generators providing a peak power generation of 35 MW

2.3 Emissions to land

2.3.1 The Licensee shall ensure that where waste is emitted to land from the emission points in Table 2.3.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 2.3.1: Emissions to land

Emission point reference	Description	Source including abatement
L1	Potentially contaminated stormwater from the Fuel unloading area	Stormwater that has been treated by an oily water separator
L2	Potentially contaminated stormwater from the power station area	Stormwater that has been treated by an oily water separator

2.3.2 The Licensee shall not cause or allow emissions to land greater than the limits listed in Table 2.3.2.

Table 2.3.2: Emission limits to land			
Emission point reference	**Parameter**	**Limit (including units)**	**Averaging period**
L1 & L2	Total Recoverable Hydrocarbons	15 mg/L	Spot sample

3 Monitoring

3.1 General monitoring

3.1.1 The licensee shall ensure that:
(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10; and
(c) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured.

3.1.2 The Licensee shall ensure that quarterly monitoring is undertaken at least 45 days apart;

3.1.3 The Licensee shall ensure that all monitoring equipment used on the Premises to comply with the conditions of this Licence is calibrated in accordance with the manufacturer's specifications.

3.1.4 The Licensee shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

3.2 Monitoring of emissions to land

3.2.1 The Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.

Table 3.2.1: Monitoring of emissions to land			
Emission point reference	**Parameter**	**Units**	**Frequency**
L1 & L2	Total Recoverable Hydrocarbons	mg/L	Quarterly unless there is no discharge from the oily water separator during the quarter.

3.3 Process monitoring

3.3.1 The Licensee shall undertake the monitoring in Table 3.3.1 according to the specifications in that table.

Table 3.3.1 Process monitoring			
Emission point reference	**Parameter**	**Units**	**Frequency**
A1 - A30	Generator run time	Hours	Continuous
	Fuel flow rate	Litres/hour	
	Electricity generated	MWh	
	Percentage load	%	

3.4 Ambient environmental quality monitoring

3.4.1 The Licensee shall undertake the monitoring in Table 3.4.1 according to the specifications in that table.

Table 3.4.1: Ambient air quality monitoring

Monitoring point reference & location on Map of monitoring locations	Parameter	Averaging period	Frequency	Method
Monitor 2 and 3 Monitor 1 (Taplin St)	Nitrogen dioxide	1 hour	Continuous	None specified
PHIC Taplin St Monitor	Nitrogen dioxide	1 hour	Continuous	AS 3580.5.1 sited in accordance with AS 3580.1.1

3.5 Meteorological monitoring

3.5.1 The licensee shall undertake the meteorological monitoring in Table 3.5.1 according to the specifications in that table.

Table 3.5.1: Meteorological monitoring

Monitoring station & location on Map of monitoring locations	Parameter	Units	Method
Port AWS - Roy Hill Port Meteorological Station	Wind speed	m/s	AS 3580.14
	Wind direction	Degrees	
	Air temperature	°C	
	Barometric pressure	hPA	
	Relative humidity	%	

4 Information

4.1 Records

4.1.1 All information and records required by the Licence shall:
- (a) be legible;
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
- (c) except for records listed in 4.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
- (d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
  - (i) off-site environmental effects; or
  - (ii) matters which affect the condition of the land or waters.

4.1.2 The Licensee shall ensure that:
- (a) any person left in charge of the Premises is aware of the conditions of the Licence and has access at all times to the Licence or copies thereof; and
- (b) any person who performs tasks on the Premises is informed of all of the conditions of the Licence that relate to the tasks which that person is performing.

4.1.3 The Licensee shall complete an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions of the Licence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.

4.1.4 The Licensee shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

4.2 Reporting

4.2.1 The Licensee shall submit to the CEO an Annual Environmental Report within 90 calendar days after the end of the annual period. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table.

Table 4.2.1: Annual Environmental Report

Condition or table (if relevant)	Parameter	Format or form[1]
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
Table 3.2.1	Total Recoverable Hydrocarbons	None specified
Table 2.3.2	Limit exceedances	None specified
4.1.3	Compliance	Annual Audit Compliance Report (AACR)
4.1.4	Complaints summary	None specified
4.2.2	Summary of non annual reporting requirements over annual period	Time series graphs

Note 1: Forms are in Schedule 2

4.2.2 The Licensee shall ensure that the Annual Environmental Report also contains an assessment of the monitoring results contained within the report against the previous monitoring periods and Licence limits.

4.2.3 The Licensee shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

Table 4.2.2: Non-annual reporting requirements

Condition or table (if relevant)	Parameter	Averaging period	Reporting period	Reporting date (after end of the reporting period)	Format or form
Table 3.2.1	Generator run time, fuel flow rate, electricity generated, percentage load	Hourly	Quarterly	30 calendar days	Tabulated data (electronic)
Table 3.3.1	Nitrogen dioxide	Hourly			
Table 3.4.1	Wind speed, wind direction, air temperature, barometric pressure, relative humidity	Hourly			
-	Copies of original monitoring reports submitted to the Licensee by third parties	Not Applicable	Not Applicable	Within 30 days of the CEO's request	As received by the Licensee from third parties
-	Maintenance records for power generating equipment used on the Premises				None specified

4.3 Notification

4.3.1 The Licensee shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 4.3.1: Notification requirements

Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
Tables 2.3.2	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next usual working day. Part B: As soon as practicable	N1
3.1.5	Calibration report	As soon as practicable.	None specified

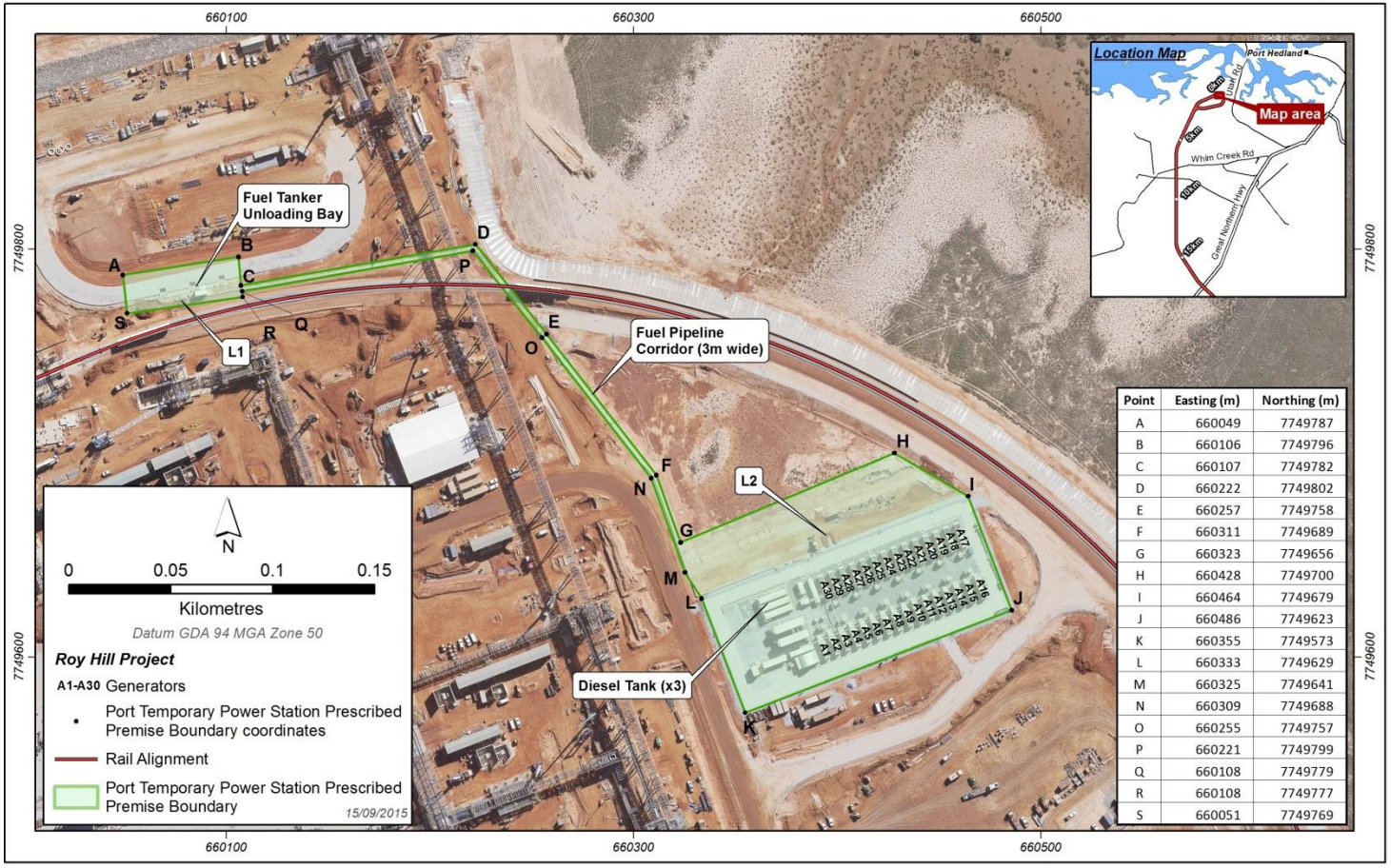
Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act

Note 2: Forms are in Schedule 2

Schedule 1: Maps

Premises map

The Premises is shown in the map below. The green line depicts the Premises boundary. The locations of the emission points defined in Tables 2.2.1 and 2.3.1 are shown below.



Point	Easting (m)	Northing (m)
A	660049	7749787
B	660106	7749796
C	660107	7749782
D	660222	7749802
E	660257	7749758
F	660311	7749689
G	660323	7749656
H	660428	7749700
I	660464	7749679
J	660486	7749623
K	660355	7749573
L	660333	7749629
M	660325	7749641
N	660309	7749688
O	660255	7749757
P	660221	7749799
Q	660108	7749779
R	660108	7749777
S	660051	7749769

Map of monitoring locations

The locations of the monitoring points defined in Tables 3.4.1 and 3.5.1 are shown below.

Schedule 2: Reporting & notification forms

These forms are provided for the proponent to report monitoring and other data required by the Licence. They can be requested in an electronic format.

ANNUAL AUDIT COMPLIANCE REPORT PROFORMA

SECTION A

LICENCE DETAILS

Licence Number:	Licence File Number:
Company Name: Trading as:	ABN:
Reporting period: _____ to _____	

STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

1. Were all conditions of the Licence complied with within the reporting period? (please tick the appropriate box)

Yes ☐ Please proceed to Section C

No ☐ Please proceed to Section B

Each page must be initialled by the person(s) who signs Section C of this Annual Audit Compliance Report (AACR).

Initial:

SECTION B

DETAILS OF NON-COMPLIANCE WITH LICENCE CONDITION.

Please use a separate page for each Licence condition that was not complied with.

a) Licence condition not complied with:	
b) Date(s) when the non compliance occurred, if applicable:	
c) Was this non compliance reported to DER?:	
☐ Yes ☐ Reported to DER verbally Date _____ ☐ Reported to DER in writing Date _____	☐ No
d) Has DER taken, or finalised any action in relation to the non compliance?:	
e) Summary of particulars of the non compliance, and what was the environmental impact:	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram):	
g) Cause of non compliance:	
h) Action taken, or that will be taken to mitigate any adverse effects of the non compliance:	
i) Action taken or that will be taken to prevent recurrence of the non compliance:	

Each page must be initialled by the person(s) who signs Section C of this AACR

Initial:

SECTION C

SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report (AACR) may only be signed by a person(s) with legal authority to sign it. The ways in which the AACR must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this AACR is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is		The Annual Audit Compliance Report must be signed and certified:
An individual	□	by the individual licence holder, or
	□	by a person approved in writing by the Chief Executive Officer of the Department of Environment Regulation to sign on the licensee's behalf.
A firm or other unincorporated company	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A corporation	□	by affixing the common seal of the licensee in accordance with the *Corporations Act 2001*; or
	□	by two directors of the licensee; or
	□	by a director and a company secretary of the licensee, or
	□	if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or
	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A public authority (other than a local government)	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
a local government	□	by the chief executive officer of the licensee; or
	□	by affixing the seal of the local government.

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of $50,000 for an individual or body corporate.

I/We declare that the information in this annual audit compliance report is correct and not false or misleading in a material particular.

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SEAL (if signing under seal)

Licence: L8903/2015/1 Licensee: Roy Hill Infrastructure Pty Ltd
Form: N1 Date of breach:

Notification of detection of the breach of a limit.

These pages outline the information that the operator must provide. Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

Licence Number	
Name of operator	
Location of Premises	
Time and date of the detection	

Notification requirements for the breach of a limit	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission.	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Post	
Signature on behalf of Roy Hill Infrastructure Pty Ltd	
Date	

Government of Western Australia
Department of Environment Regulation

Decision Document

Environmental Protection Act 1986, Part V

Proponent: Roy Hill Infrastructure Pty Ltd

Licence: L8903/2015/1

Registered office:	Hancock Prospecting Pty Ltd House 28-42 Ventnor Avenue WEST PERTH WA 6005
ACN:	130 249 633
Premises address:	Roy Hill Infrastructure Part of Lot 372 on Deposited Plan 35620 Reserve 50892 BOODARIE WA 6722
Issue date:	Thursday, 17 September 2015
Commencement date:	Monday, 21 September 2015
Expiry date:	Sunday, 20 September 2020

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER) has decided to issue a licence. DER considers that in reaching this decision it has taken into account all relevant considerations and legal requirements and that the Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document prepared by:	Carmen Standring Licensing Officer
Decision Document authorised by:	Jonathan Bailes Delegated Officer

Contents

1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986*. Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

2 Administrative summary

Administrative details		
Application type	Works Approval ☐ New Licence ☒ Licence amendment ☐ Works Approval amendment ☐	
Activities that cause the premises to become prescribed premises	**Category number(s)**	**Assessed design capacity**
	52	35MW
Application verified Application fee paid	Date: 16/07/2015 Date: 22/07/2015	
Works Approval has been complied with Compliance Certificate received	Yes☒ No☐ N/A☐ Yes☒ No☐ N/A☐	
Commercial-in-confidence claim	Yes☐ No☒	
Commercial-in-confidence claim outcome	N/A	
Is the proposal a Major Resource Project?	Yes☒ No☐	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?	Yes☒ No☐	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☒
Is the proposal subject to Ministerial Conditions?	Yes☒ No☐	Ministerial statement No: 858 EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)?	Yes☐ No☒ Department of Water consulted Yes ☐ No ☒	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes☐ No☒		
Is the Premises subject to any EPP requirements? Yes☐ No☒		

3 Executive summary of proposal and assessment

Roy Hill Infrastructure Pty Ltd (Roy Hill) has completed construction and commissioning of a new 35 megawatt (MW) peak generation temporary Port Power Station to support the Roy Hill Port Infrastructure Project (RHPIP). The RHPIP consists of a port stockyard and two-berth export facility located approximately 6km southwest of Port Hedland. The temporary Power Station has been constructed to support the port stockyard operations due to current constraints in the local power supply grid.

Primary activities occurring at the port include train unloading, screening, stacking and reclaiming of iron ore, and ship loading. The Power Station comprises 30 diesel generators with a maximum design capacity of 35MW and expected average power demand of 22MW. The Power Station will be located within the rail loop at the north east end of the port stockyard area.

A diesel fuel farm is located within the Power Station footprint containing three 100,000 litre (L) double skinned, self bunded, modular storage diesel tanks, compliant with Australian Standards 1692-2006 *Steel tanks for flammable and combustible liquids*. Sufficient fuel will be stored onsite at the diesel fuel farm to provide three days of average generation of 22MW over a 24 hour period.

Generators installed are the Caterpillar model 3516B diesel generator, each housed in a self bunded module. The Caterpillar generator is a 16-cyclinder four stroke engine. Two of the 30 generator modules are installed with exhausts that are discharged into a vertical radiator cooling air flow (from a large horizontal fan). Exhaust gases are emitted through a 2.3m by 2.3m opening in the container roof (approximately 2.9m above the ground). The remaining 28 generator modules are installed with exhaust points from each of the two banks of eight cylinders which exhaust individually through the top of the container through two 300mm diameter outlets, 570mm above the top of the shipping container. These exhaust points have a cover installed to prevent rain entering the exhaust when not in operation. The Power Station has 14 transformers also housed within self bunded modules.

Emissions of significance during operation will be point source emissions to air, the emission of most concern being oxides of nitrogen (NOx) due to the use of diesel generators.

Roy Hill intends to operate the Power Station as a temporary solution for its power requirements, and has indicated to DER it will be engaging in a further procurement process with electricity suppliers established in the Port Hedland region for its long term electricity requirements. Should this procurement process not deliver a commercially acceptable solution for Roy Hill by the end of 2016, Roy Hill has committed to converting the Temporary Power Station to dual fuel (natural gas and diesel) to ensure that NOx emissions from the Power Station are reduced for the long term.

4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
General conditions	L1.2.1 – L1.2.3	Refer to risk assessment under section - Emissions to land including monitoring.	
Premises operation	L1.3.1	Condition 1.3.1 has been included requiring the Licensee to operate the temporary Power Station in accordance with the Air Emissions Management Plan (AEMP) that has been implemented by Roy Hill. The AEMP will be used as a tool for the protection of receptors from potential NOx impacts during operations. It contains triggers and management procedures to be implemented should NOx emissions from operations reach certain levels. Further information on point source air emissions and ambient environmental quality monitoring is discussed in Appendix A.	*Roy Hill Air Emissions Management Plan – Roy Hill Port Temporary Power Station Version 4'*, dated 17/9/2015
Emissions general	L2.1.1	A numerical limit has been set through condition 2.3.2 of the licence and therefore condition 2.1.1 regarding recording and investigation of exceedances of limits has been included.	
Point source emissions to air including monitoring	L2.2.1	DER's assessment and decision making are detailed in Appendix A.	
Point source emissions to surface water including monitoring	N/A	There will be no point source emissions to surface water during operation of the temporary Power Station. No specific conditions regarding point source emissions to surface water including monitoring have been added to the licence.	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Point source emissions to groundwater including monitoring	N/A	There will be no point source emissions to groundwater during operation of the temporary Power Station. No specified conditions relating to point source emissions to groundwater including monitoring are required to be added to the licence.	
Emissions to land including monitoring	L1.2.1-L1.2.3 L2.3.1 and L2.3.2 L3.2.1	<u>Emission Description</u> *Emission:* There is the potential for spills / leaks of hydrocarbons (fuels and oils) or transformer fluids and other chemicals stored onsite. Spills may occur at storage areas, from pipelines or at tanker unloading areas. These may be discharged to soils, or become mobilised in stormwater during rainfall and flooding events. Stormwater may also carry large volumes of sediment, causing erosion and smothering of nearby vegetation. The Power Station diesel storage facility includes: • 3 x 100,000 litre double skinned storage tanks; • 30 x Generator diesel double skinned storage tanks; and • 14 x Transformer self bunded modules. *Impact:* Contamination of surrounding land and surface water drainage systems. Potential impacts on ecology of surface water and vegetated areas from the addition of sediment and hydrocarbons / other chemicals. *Controls:* The rail loop is raised upon an embankment designed to provide protection from a 1 in a 100 year flood event. The northern and eastern rail loop embankment walls consist of a seawall revetment which is designed to protect the wall from erosion due to storm surge and wave action. Civil earthworks have been designed around plant and infrastructure at the temporary Power Station to divert drainage away and to ensure no ponding / flooding of plant or infrastructure occurs. Stormwater not considered to be contaminated will be diverted to drainage channels and passed through settling ponds prior to discharging to the environment. Stormwater that has the potential to be contaminated with hydrocarbons will be directed to two dedicated oil	General Provisions of the *Environmental Protection Act 1986* *Environmental Protection (Unauthorised Discharges) Regulations 2004* Application supporting documentation

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		water separators which will reduce the Total Recoverable Hydrocarbon (TRH) concentration to less than 5mg/L (design specification) prior to discharging to the environment. Hydrocarbon storage facilities will be designed and constructed in accordance with the *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007* and AS1940 Storage and Handling of Flammable and Combustible Liquids. Roy Hill will employ a range of management measures to ensure discharges to land are mitigated, including but not limited to: • daily inspections of fuel transfer stations and pipelines; • spill and emergency response kits will be placed strategically within the facility; • waste hydrocarbons / oils will be removed from site if in-situ remediation is not available; and • transformer oil will be FR3 oil which is soy-based and fire resistant. <u>Risk Assessment</u> *Consequence*: Minor *Likelihood:* Possible *Risk Rating:* Moderate <u>Regulatory Controls</u> Conditions 1.2.1 and 1.2.2 have been included on the licence to require effective maintenance of pollution control and monitoring equipment on the premises and immediate clean-up of any spills or leaks of environmentally hazardous materials. Condition 1.2.3 has been added to the operating licence to require appropriate management of contaminated stormwater on-site. Conditions 2.3.1 and 2.3.2 have been included on the licence approving the discharge point for treated stormwater from the temporary Power Station and setting a discharge limit of 15mg/L Total Recoverable Hydrocarbons for potentially contaminated stormwater discharges. Condition 3.2.1 has been included requiring the Licensee to monitor TRH in the discharges from the oily water separators on a quarterly basis to check their performance.	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Residual Risk *Consequence:* Minor *Likelihood:* Unlikely *Risk Rating:* Moderate	
Fugitive emissions	N/A	There will be no fugitive dust emissions expected during operation of the temporary Power Station. No specified conditions relating to dust are required to be added to the licence. Roy Hill has a Dust Management Plan for the Roy Hill Port Operations, in accordance with Condition 6 of Ministerial Statement 858.	Ministerial Statement 858
Odour	N/A	There will be no odour emissions during operation of the temporary Power Station. No specified conditions relating to odour are required to be added to the licence.	
Noise	N/A	Noise emissions are regulated under the *Environmental Protection (Noise) Regulations 1997*. These Regulations specify maximum assigned noise levels that can be received at sensitive, commercial and industrial premises. Noise levels from the Roy Hill Port Facility were assessed in 2010 for full operations (including the power station) and were modelled to be below the assigned noise levels at the nearest sensitive receptors. No conditions are required to be included on the licence for management of noise emissions during the operation of the temporary Power Station.	*Environmental Protection (Noise) Regulations 1997*.
Monitoring general	L3.1.1 – L3.1.4	Roy Hill is required to carry out ambient air quality monitoring and monitoring of discharges to land under conditions of this Licence. Conditions 3.1.1 to 3.1.4 have been imposed on the Licence to specify the general monitoring requirements that need to be implemented with regard to monitoring programs. These conditions cover required standards, timeframes when sampling and analysing discharges, and recording and calibration requirements.	General provisions of the *Environmental Protection Act 1986* Application supporting documentation

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Monitoring of inputs and outputs	N/A	There will be no monitoring of inputs and outputs required during operation of the temporary Power Station.	
Process monitoring	L3.3.1	Process Monitoring will be required during the operation of the temporary Power Station including generator run times, fuel flow rate, and electrical energy generated. This data will allow DER to determine if the Power Station is running in accordance with approved design capacity and allow assessment of ambient air quality data against the operational status of the power plant (refer to Appendix A).	General provisions of the *Environmental Protection Act 1986*
Ambient quality monitoring	L3.4.1	DER's assessment and decision making are detailed in Appendix A.	
Meteorological monitoring	L3.5.1	Meteorological monitoring is required under licence conditions to ensure risks associated with potential exceedance of ambient air quality limits and standards is appropriately monitored (refer to Appendix A).	General provisions of the *Environmental Protection Act 1986* Application supporting documentation *Roy Hill Air Emissions Management Plan – Roy Hill Port Temporary Power Station Version 3'*, dated 26/6/2015

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Information	L4.1.1 – L4.1.4 L4.2.1 – L4.2.3 L4.3.1	Conditions 4.1.1 - 4.1.4 have been included on the licence requiring appropriate management of records. This includes completion of an Annual Audit Compliance Report (AACR) and the implementation of a complaints management system. Conditions 4.2.1 and 4.2.2 require the submission of an Annual Environmental Report (AER). The AER requires submission of a summary of monitoring data collected throughout the reporting period, including air quality monitoring data, process monitoring, meteorological monitoring and any exceedances of limits. Condition 4.2.3 requires quarterly submission of air quality monitoring data, plant performance data and meteorological data (refer to Appendix A).	General provisions of the *Environmental Protection Act 1986* Application supporting documentation
Licence Duration	5 years	The power station has been constructed on a temporary basis pending construction and operation of a permanent facility or procurement of a power supply service. Therefore on the basis of the moderate risk posed by the site and the potentially high contribution of NOx to the Port Hedland airshed this Licence has been issued for a period of five years.	W5629/2014/1

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
27/07/2015	Application advertised in West Australian	No comments received	N/A
24/07/2015	Application referred to interested parties listed:		
	Department of State Development (DSD)	DSD is supportive of a DER licence for a temporary power station as a maximum 5 year solution to Roy Hill Infrastructure's (RHI) port power requirements. In the interests of future State significant proposals within the Port Hedland region, Roy Hill's development of a permanent solution for cleaner power requirements prior to the 5 year licence limit is highly preferable by DSD.	Comments were considered in DER's decision making process.
	Department of Transport (DoT)	DoT is supportive of a DER licence for a temporary power station as a maximum 5 year solution to Roy Hill Infrastructure's (RHI) port power requirements. Roy Hill's application is consistent with its responsibility to manage potential environmental impacts during the operation of the facility.	Comments were considered in DER's decision making process.
	Pilbara Ports Authority (PPA)	PPA notes that the temporary operation of the facility will contribute to the level of NOx within the Port Hedland airshed, noting however that it is not predicted to significantly increase ambient NOx levels. PPA also noted that the NOx levels are predicted to remain below National Environmental Protection Measure criteria for all scenarios modelled and that Roy Hill proposes to implement an Air Emissions Management Plan, including NOx monitoring, for the period the facility is operational. Accordingly PPA considers the increase in cumulative NOx levels as a result of temporary operation of the facility is unlikely to pose a significant risk to the environment. PPA notes that the proposed temporary operation of the facility is consistent with PPA's development approval for the site.	Comments were considered in DER's decision making process.
	Town of Port Hedland	No comments received	N/A
14/09/2015	Proponent sent a copy of draft instrument	Minor administrative comments received.	Licence and decision document updated to include comments made.

6 Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

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

Appendix A

Point source emissions to air including monitoring

Modelling of emissions to air (point source and ambient air quality)
For operation of a diesel fired power station, the principle emissions of concern are emissions to air. DER has reviewed the proponent's impact assessment for emissions to air from the premises. To assess the likely ambient air quality during operation of the Power Station, modelled parameters were compared to the relevant National Environment Protection (Ambient Air Quality) Measure (NEPM) air quality standards. The expected point source emission values used for the modelling are based on the Caterpillar engine model 3516B specifications as presented in Table 1 below.

Table 1 Point source air emissions from the Power Station

Pollutant	Expected emission (mg/m^3)
Nitrogen Dioxide (NO_2)	4,549
Sulfur Dioxide (SO_2)	1.4
Carbon monoxide (CO)	234
Volatile organic compounds	58
Particulates as PM_{10}	22

The proponent conducted an Air Quality Assessment (AQA) to assess the potential impacts from emissions generated during operation of the Power Station. Two models, CALPUFF and AERMOD, were used in the AQA, which assessed potential effects on ambient air quality. The models incorporated meteorological data from a representative year (2013), emission estimates for the Power Station, other emission sources, and the existing background air quality. The modelling assessment compared the modelled results to the ambient air quality assessment criteria applicable. A conservative approach was applied to the emission estimation process - the model was run using the full load output (35MW), which is only expected for 3% of the time. The average load requirement is expected to be 22MW.

Both models were run based on the following scenarios:

1. Scenario 1 - Assessment of the proposed temporary power station in isolation of other sources.
2. Scenario 2 – Cumulative assessment of the proposed power station and background sources as represented by ambient background concentrations.
3. Scenario 3 – Cumulative assessment of the Power Station and background sources as represented by ambient background concentrations and future sources.

The results of the ambient air modelling is presented in Table 2 below and provides a summary of the predicted air emission concentrations at the nearest sensitive receptor for each scenario. The nearest sensitive receptor to the Power Station is 5.5km north east at Port Hedland.

As can be seen in Table 2, the modelled results show that the temporary Power Station will potentially increase ambient NOx concentrations in Port Hedland from approximately 4% to 50% of the NEPM, meaning the temporary Power Station may contribute up to 46% of NOx emissions in the air shed when running at maximum capacity. This is considered significant given the relatively small output from the Power Station.

The modelled results for PM_{10}, SO_2 and CO show that the temporary Power Station will contribute only a small proportion of the respective total concentrations in Port Hedland. PM_{10}, SO_2 and CO emissions from the temporary Power Station are therefore unlikely to present a risk of impacts to the Port Hedland air shed.

Table 2 maximum predicted impacts of the Power Station

			Scenario 1		Scenario 2		Scenario 3	
			Predicted concentrations ($\mu g/m^3$)	Predicted % of criteria	Predicted concentrations ($\mu g/m^3$)	Predicted % of criteria	Predicted concentrations ($\mu g/m^3$)	Predicted % of criteria*
Substance	Averaging time	Guideline criteria*	Port Hedland	Port Hedland	Port Hedland	Port Hedland	Port Hedland	Port Hedland
NO_2	1 hour	246	113	46%	124	50%	124	50%
	Annual	62	2.3	4%	11.8	19%	11.8	19%
PM_{10}	24 hour	50	0.5	1%	24.5	49%	24.5	49%
		70	0.5	0.8%	24.5	35%	24.5	35%
SO_2	1 hour	571	0.2	0.04%	0.7	0.1%	0.8	0.1%
	24 hour	228	0.0	0.02%	0.8	0.4%	0.8	0.4%
	Annual	57	0.0	0.002%	0.8	1.4%	0.8	1.4%
CO	8 hour	11,244	13.9	0.1%	13.9	0.1%	13.9	0.1%

*NEPM

Commissioning of the Power Station (post construction)

Roy Hill undertook commissioning of eleven of the 30 installed generators at the temporary Power Station in May 2015. Point source emissions (stack) testing was conducted to determine the concentrations of oxygen (O_2), carbon dioxide (CO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), sulphur dioxide (SO_2), water vapour and particulates (as PM_{10}).

Ambient monitoring of NO_2 concentration was also conducted at the three ambient Roy Hill monitors (Roy Hill Monitors 1 to 3) as well as the three ambient Port Hedland Industry Council (PHIC) monitors (Taplin St, Acacia Way and Bureau of Meteorology (BoM)). One Roy Hill monitor (Roy Hill Monitor 1) was located adjacent to the PHIC BoM monitor for calibration and comparison purposes.

Monitoring was also conducted on the performance of generators through the engine management system, including fuel consumption, operating hours, generator loading and instantaneous power output.

Measured emissions were compared to the Caterpillar generator specifications and the NEPM guidelines (for ambient air emissions). CO emissions from all the generators tested exceeded the CAT specifications, thought to be the result of running the generators for a very limited period prior to testing resulting in incomplete combustion. Roy Hill have committed to optimising generator performance during operations to reduce CO emissions. Given the modelled CO concentrations were 0.1% NEPM criteria, it is assumed the higher CO emissions will not result in a significant impact on the air shed of Port Hedland.

PM_{10} emissions from five of the eleven generators exceeded the Caterpillar specifications running at 1600kW specification but did not exceed the 1200kW specification. The average PM_{10} concentrations did not exceed the specifications.

NOx emissions from one of the eleven generators exceeded the Caterpillar 1200kW and 1600kW specifications, while a second generator exceeded the Caterpillar 1200kW specification. The average NOx concentration measured during source emissions testing were below both the 1200kW and 1600kW specification. Nine out of the 11 generators tested were below the Caterpillar 1200kW specification for NOx emissions, while 10 out of 11 generators tested were below the 1600kW specification. The highest NOx concentration measured during commissioning exceeded the Caterpillar 1600kW specification by 1.3% and the Caterpillar 1200kW specification by 1.9%.

Table 3 compares the modelled emissions rates used for the Works Approval W5629/2014/1 application and the emission rates measured during commissioning:

Table 3 modelled emission rates compared to measured emission rates

Substance	Modelled emission rates at max load (g/s)	Average measured emission rates at 1400kW (g/s)	Maximum measured emission rates at 1400kW (g/s)
NOx (as NO_2)	5.83	4.99	5.52
PM_{10}	0.0315	0.0163	0.0217
SO_2	0.00206	0.0139	0.0284
CO	0.338	1.227	1.696

Ambient monitoring of NO_2 concentrations was conducted during commissioning of the Power Station at the Roy Hill Boundary Monitors and the PHIC Monitoring Network. The maximum NO_2 concentration recorded during commissioning was 35.9ppb at the Roy Hill ambient monitor located adjacent to the BoM PHIC monitor (this equates to around 30% of the NEPM).

Further modelling of ambient NOx Emissions

As part of the operating licence application, Roy Hill submitted results of further modelling performed on NOx emissions from the temporary Power Station. The modelling again assumed a range of scenarios using both AERMOD and CALPUFF models. A summary of the additional modelling is as follows:

- Modelled results from cumulative worst-case scenario (temporary Power Station operating on diesel including background concentrations and third party sources) by AERMOD and CALPUFF are in the range of 38 – 62% and 48 – 72% of the 1-hour NO_2 NEPM criteria respectively;
- Modelled results from the cumulative representative operational scenario (temporary Power Station operating on diesel including background concentrations) by AERMOD and CALPUFF are in the range of 30 – 53% and 39 – 67% of the 1-hour NO_2 NEPM criteria respectively;
- The NEPM criteria is not estimated to be exceeded in any scenario for either model;
- The cumulative NO_2 concentration in both worst-case and representative normal operating scenarios will be similar or below the indicative background NO_2 concentration for 80% of the year; and
- These scenarios are based on conservative emission estimates, that is, 3% time of operations assumed to be worst case emissions were modelled as 100% time of operation. The results from both models are expected to be an overestimate of the actual operating emissions.

Roy Hill has submitted an Air Emissions Management Plan to DER that will be implemented during operation of the Power Station. The AEMP is intended to be used as a tool for the protection of receptors from NOx impacts, by outlining a range of management measures that will be implemented should ambient NOx trigger values be exceeded.

Emission Description

Emission: The most significant emissions from operation of the Power Station (under normal operations) are oxides of nitrogen (NOx) from combustion of diesel fuel. Air emissions modelling has demonstrated that air emissions from the temporary Power Station will have minimal impact on existing SO_2, CO and PM_{10} levels within the Port Hedland Area. Therefore, DER has undertaken a risk assessment of NOx emissions from the operation of the Power Station.

Impact: Reduction in local air quality, above NEPM standard. Excessive NOx concentrations can cause respiratory issues such as bronchitis in asthmatic children, reduced lung function and lower resistance to respiratory infections such as influenza. Environmental issues such as acid rain, eutrophication of waterways and formation of photochemical smog and particulate matter may result from excessive NOx emissions. The nearest sensitive receptor is 5.5km away. Emissions modelling demonstrates NOx emissions could be as high 72% of 1-hour NO_2 NEPM ambient air standards.

Risk Consultant, on behalf of Roy Hill reviewed the air modelling data prepared by PEL and developed a risk model of the NO_2 impact. The risk assessment based on the worst case operating scenario concluded that, at the Taplin St monitoring location:

- 10% of NEPM is exceeded less than 20% of the time;
- 20% of the NEPM (existing Port Hedland background concentrations) is exceeded less than 5% of the time;
- 50% of NEPM is exceeded less than 2% of the time;
- the NEPM value is never exceeded for the worst case scenario; and
- Roy Hill's contribution to NO_2 exposure is negligible at Taplin St.

Controls: Roy Hill has implemented an AEMP during operation of the Power Station. The AEMP provides for:

- maintenance programs;
- complaints management;
- assessment of ambient monitoring data from Port Hedland;
- identification of NOx target trigger levels;
- action plans for addressing trigger levels;
- subsequent tuning of engines to reduce emissions; and
- a mechanism for the ongoing assessment of effectiveness and subsequent review of the management plan.

The AEMP establishes an internal alert process linked to the ambient boundary monitoring network. An automated system will review the ambient data continuously (including meteorology), and will send an alert to relevant Roy Hill representatives when pre-determined criteria are exceeded. Roy Hill personnel receiving the alert will initiate management actions such as reviewing current activities and meteorology, reviewing 1-hour NOx trend line, reviewing ambient PHIC monitoring data, and determination of the risk of continuing operations at current levels. If risk of impact / exceedance is considered likely, activities will be amended to reduce potential for continued exceedance of trigger value. If risk is considered unlikely, current activities will continue and the 1-hour trend line will continue to be monitored.

NOx target trigger levels for ambient air have been developed by Roy Hill, based on the results of the worst case dispersion modelling results. The ambient trigger values set by Roy Hill for the Roy Hill Boundary Monitors and the PHIC Monitor (Taplin St) are shown in Table 4:

Table 4 Roy Hill Internal NO_2 Trigger Values

Substance	Monitor	Roy Hill Ambient Trigger Value (µg/m3)	NEPM (Ambient) Value (µg/m3)	Averaging period	Percentage of Guideline (NEPM) Value
NO_2	Roy Hill Boundary Monitors	350	246	1 hour	142%
	PHIC Ambient Network Monitor (Taplin St)	123	246	1 hour	50%

Risk Assessment
Consequence: Moderate
Likelihood: Possible
Risk Rating: Moderate

Regulatory Controls
DER considers the Roy Hill Port Project to be the major contributor of NOx to the Port Hedland air shed and requires management actions be in place to address emissions from the site should NOx impacts be observed at receptor locations.
Licence condition L1.3.1 has been included to require Roy Hill to implement the AEMP.
Licence condition 2.2.1 approves the point source to air discharge locations (stacks) and height of the emission points.
Licence condition 3.3.1 has been included to specify the monitoring of generator performance data which can be linked and compared to ambient air quality.
Licence conditions 3.4.1 and 3.5.1 specify the ambient monitoring that must be undertaken to provide the data that forms the basis of the management actions within the AEMP.
Licence condition 4.2.3 requires quartile submission of ambient air monitoring data, process monitoring data, and meteorological data so DER can review the impact of the power station on ambient air quality and verify the results of the air quality modelling.

No periodic stack monitoring has been included on the licence. The modular generators have been demonstrated to meet the manufacturer's specifications and basis for the AQA through commissioning. Given the modular nature of the plant, emissions are expected to remain consistent through the operational life at the plant with the maintenance regime that will be implemented. The number of units and location of the plant means periodic stack testing would be difficult to implement. Condition 4.2.3 allows DER to request maintenance records for the generators should concerns arise regarding their emissions performance.

The licence will be issued for a period of five years only, in accordance with the commitment made by Roy Hill to upgrade or decommission the temporary Power Station within five years to ensure a significant reduction in NOx emissions in the Port Hedland air shed. By applying regulatory controls DER is satisfied that that the risk has been reduced to an acceptable level.

Residual Risk
Consequence: Moderate
Likelihood: Possible
Risk Rating: Moderate

References:

- Ambient Air Assessment Criteria, National Environmental Protection Measure (Ambient Air Quality); and
- Application supporting documentation.