Government of Western Australia
Department of Environment Regulation

LICENCE FOR PRESCRIBED PREMISES
Environmental Protection Act 1986

LICENCE NUMBER: L8431/2010/2 **FILE NUMBER:** DEC8830-02

LICENSEE
Pilbara Iron Pty Ltd
Level 22, Central Park
152-158 St Georges Terrace
PERTH WA 6000
ACN: 107 216 535

PREMISES
Yurralyi Maya Power Station
Part of L47/221
MAITLAND WA 6714
(as depicted in Attachment 2)

PRESCRIBED PREMISES CATEGORY
Schedule 1 of the Environmental Protection Regulations 1987

CATEGORY NUMBER	CATEGORY DESCRIPTION	CATEGORY PRODUCTION OR DESIGN CAPACITY	PREMISES PRODUCTION OR DESIGN CAPACITY
52	Electric power generation	20 megawatts or more in aggregate (using natural gas)	230 megawatts

CONDITIONS OF LICENCE
Subject to the conditions of licence set out in the attached pages.

[redacted]

Officer delegated under Section 20
of the *Environmental Protection Act 1986*

ISSUE DATE: Thursday, 11 July 2013
COMMENCEMENT DATE: Friday, 19 July 2013
EXPIRY DATE: Wednesday, 18 July 2018

DEFINITIONS

In these conditions of licence, unless inconsistent with the text or subject matter:

"AS4323.1" means the Australian Standard AS4323.1 *Stationary Source Emissions Method 1: Selection of sampling positions*;

"AS/NZS 5667" means the most recent version and the relevant parts of the Australian and New Zealand series of guidance standards on Water Quality Sampling;

"CEMS" means continuous emissions monitoring system;

"CO" means carbon monoxide;

"Director" means Director, Environmental Regulation Division of the Department of Environment Regulation for and on behalf of the Chief Executive Officer as delegated under Section 20 of the *Environmental Protection Act 1986*;

"Director" for the purpose of correspondence means-
Regional Leader, Industry Regulation, Pilbara Region
Department of Environment Regulation
PO Box 835 Telephone: (08) 9182 2000
KARRATHA WA 6714 Facsimile: (08) 9144 1118;

"m^3/s" means the volumetric flow of exhaust stack gases in cubic metres per second at exit temperature and pressure of those gases;

"mg/m^3" means milligrams per cubic metre, i.e. corrected to dry gas (eliminating any volume contribution from water vapour or droplets) and corrected to Standard Temperature and Pressure (STP);

"mg/L" means milligrams per litre;

"MW" means megawatt;

"NATA" means the Australian National Association of Testing Authorities;

"NO" means nitric oxide;

"NO_2" means nitrogen dioxide;

"NO_x" means oxides of nitrogen, which includes NO and NO_2. All NO_x emissions shall be reported as equivalent NO_2 for this licence;

"O_2" means oxygen gas;

"six monthly" means the 2 inclusive periods from 1 January to 30 June and 1 July to 31 December in that year;

"Standard Methods for Examination of Water and Wastewater-APHA-AWWA-WEF" means the best current practice of American water analysts developed by the American Public Health Association, American Water Works Association, Water Environment Federation;

"STP" means Standard Temperature and Pressure which is 0°C and 101.325 kPa;

"turbine" means General Electric LM6000PD and LM6000PF SPRINT Gas Turbine Generators located on the premises; and

"USEPA Method" means the corresponding standard monitoring method as promulgated by the United States Environmental Protection Agency.

GENERAL CONDITIONS

1 The licensee shall submit an Annual Environmental Report to the Director by **30 April** each year, covering the previous period from 1 January to 31 December. The Annual Environmental Report shall contain but not be limited to:
- (i) monitoring data or other collected data required by any condition of this licence;
- (ii) an assessment of the data against any targets set or other environmental guidelines or policies referred to in this licence and data from previous years' monitoring;
- (iii) a summary of any data exceeding those targets, guidelines or policies including information on why the exceedance occurred (if known) and action taken by the licensee to prevent recurrence of such exceedance; and
- (iv) a list of any monitoring methods used to collect and analyse data required by any condition of this licence to demonstrate they comply with the methods specified in this licence.

2 The licensee shall by **30 April** in each year, provide to the Director an Annual Audit Compliance Report in the form in Attachment 1 to this licence, signed and certified in the manner required by Section C of the form, indicating the extent to which the licensee has complied with the conditions of this licence, and any previous licence issued under Part V of the *Environmental Protection Act 1986* for the premises, during the period beginning 1 January and ending on 31 December in that year.

3 The licensee shall operate and maintain each turbine in accordance with the manufacturer's specifications for the effective minimisation of NO_x in the exit gases discharged into the environment and to ensure those NO_x emissions do not exceed the concentration limit specified below in column 4 of Table 1.

EMISSIONS TO AIR

4 The licensee shall ensure the gas turbine stack emission concentrations do not exceed the limit specified in column 4 of Table 1 for the operating conditions shown in column 3 of Table 1.

Table 1: Air emission limits

Column 1	Column 2	Column 3	Column 4
Gas Turbine discharge point	**Air Emission**	**Operating condition[1]**	**Emission concentration limit[2]**
GT4 Stack	NO_x (as NO_2)	All	70mg/m^3 @ 15% O_2
GT5 Stack			
GT6 Stack			
GT7 Stack			
GT8 Stack			

Note 1 – Excluding start-up, shutdown, initial commissioning, transient and upset conditions and all times when the units are operating below 75% maximum load.
Note 2 – Reported as one hour average and expressed as NO_2.

5 The licensee shall arrange stack tests for the exhaust gases emitted from each turbine stack for the parameters listed in column 1 of Table 2, at the frequencies stated in column 2 of Table 2, with the method specified in column 3 of Table 2 and expressed in the units as stated in column 4 of Table 2.

Table 2: Monitoring parameters, frequencies and methods

Column 1	Column 2	Column 3	Column 4
Parameter to be monitored	**Monitoring Frequency[1]**	**Monitoring Method**	**Units**
Volumetric Flow Rate	Six monthly	USEPA Method 1 or AS4323.1; and USEPA Method 2	m^3/s corrected to STP
Moisture Content		USEPA Method 4	% $H_2O_{(g)}$ of stack gas
NO_x (as NO_2)		USEPA Method 7E	mg/m^3 @ 15% O_2
CO		USEPA Method 10	mg/m^3 @ 15% O_2

Note 1 - Six monthly monitoring should be undertaken at least 5 months apart.

6 The licensee shall measure and record the following parameters during performance of all stack tests as required by condition 5:
(i) Electrical power output in MW of all generators whose turbines exhaust via the stack being tested; and
(ii) Temperature of the exhaust gas in degrees Celsius.

7 The licensee shall ensure that all sampling and analysis for stack tests as required by condition 5 are conducted by companies and laboratories with current NATA accreditation for the methods and analyses specified.

8 The licensee shall ensure that all stack tests as required by condition 5 are only undertaken during stable energy production conditions in excess of 75% maximum load at all times and with less than ±5% variation of electrical power output over the period of each stack test.

9 Each CEMS shall measure the parameter shown in column 1 of Table 3 and recorded in units as shown in column 2 of Table 3 as averaged over the time period and sampling regime as shown in column 3 of Table 3.

Table 3: Monitoring parameters, frequencies and methods

Column 1	Column 2	Column 3
Parameter	**Monitoring Frequency**	**Averaging Period and Sampling Regime**
NO_2	mg/m^3 @ 15 % O_2	60 minute average, starting the 1st minute of each clock hour with a minimum of 4 readings per hour in each successive 15-minute period

10 The licensee shall ensure that all CEMS are regularly maintained and calibrated in accordance with manufacturer's instructions to achieve and maintain the accuracy ascribed to the CEMS by the manufacturer and to ensure the ongoing accurate measurement of the parameter listed in column 1 of Table 3.

NOISE EMISSIONS

11 The licensee shall submit to the Director, in the Annual Environmental Report required by condition 1, records of any noise complaints and the outcome of any investigation and corrective actions taken to resolve the complaint.

DISCHARGES TO LAND

12 The licensee shall arrange sampling and analysis of representative water samples from the sites listed in column 1 of Table 4 for the parameters listed in column 2 of Table 4 at the frequency specified in column 3 of Table 4.

Table 4: Water quality parameters

Column 1	Column 2	Column 3
Discharge Site	**Parameter**	**Frequency**
Evaporation ponds	Total Dissolved Solids	Quarterly
	Total Suspended Solids	
Sedimentation Pond	Total Petroleum Hydrocarbons	

13 The licensee shall collect and preserve all water samples in accordance with the relevant parts of AS/NZS 5667.

14 The licensee shall submit all water samples to a laboratory with current NATA accreditation for the analyses specified in condition 12.

15 The licensee shall have all water samples required by condition 12, analysed in accordance with the current "Standard Methods for Examination of Water and Wastewater-APHA-AWWA-WEF".

16 The licensee shall ensure that the concentration of Total Petroleum Hydrocarbons in waters discharged from the sedimentation pond do not exceed 15mg/L.

ATTACHMENT 1 – ANNUAL AUDIT COMPLIANCE REPORT

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 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 initialed by the person(s) who signs Section C of this annual audit compliance report

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 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 initialed by the person(s) who signs Section C of this annual audit compliance report

INITIAL:_____

SECTION C - SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report may only be signed by a person(s) with legal authority to sign it. The ways in which the Annual Audit Compliance Report 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 Annual Audit Compliance Report 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: _____ SIGNATURE: _____

NAME: (printed) _____ NAME: (printed) _____

POSITION: _____ POSITION: _____

DATE: _____/_____/_____ DATE: _____/_____/_____

SEAL (if signing under seal)

ATTACHMENT 2 - PLAN OF PREMISES

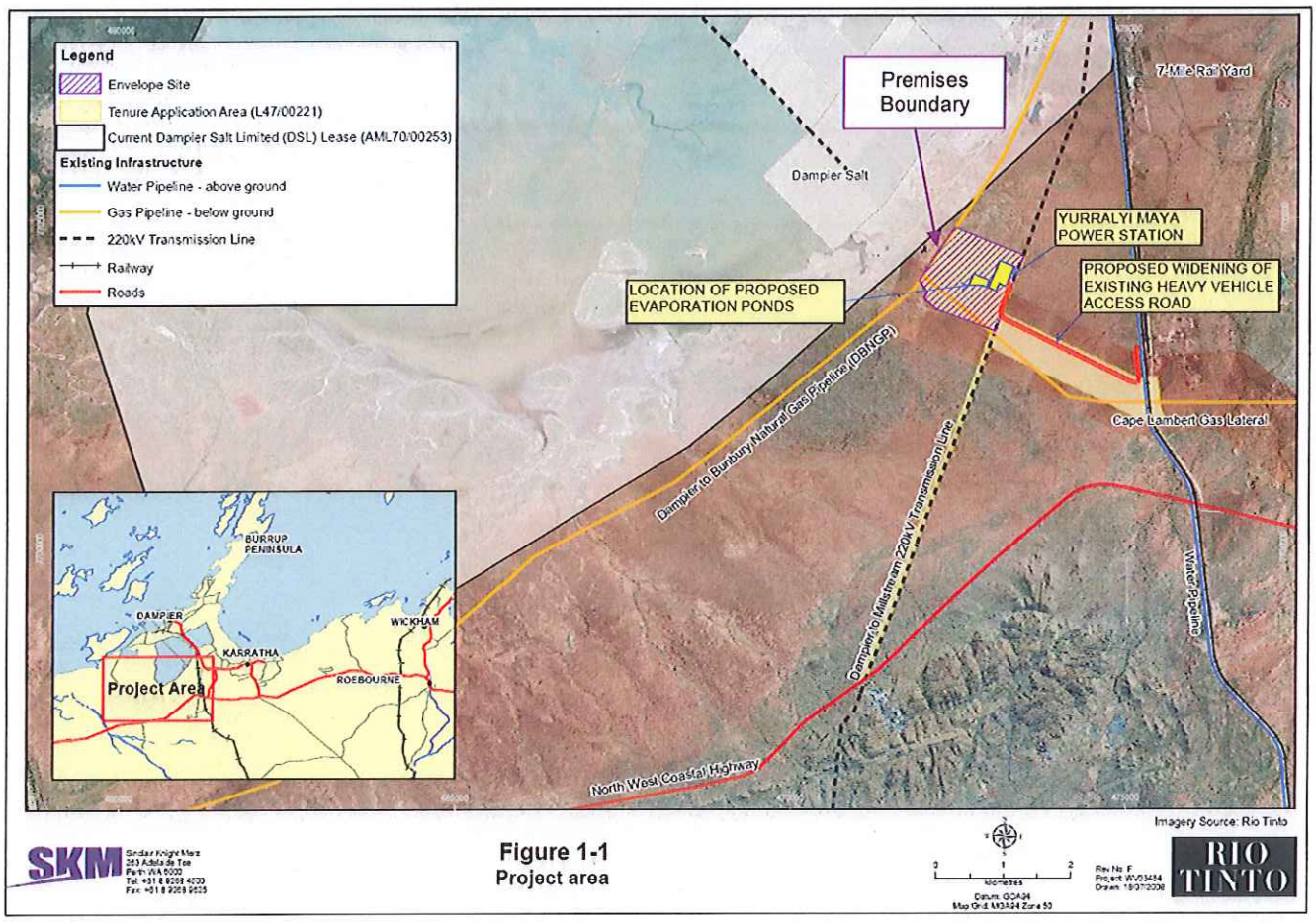

Figure 1-1
Project area

ENVIRONMENTAL ASSESSMENT REPORT

LICENCE NUMBER: L8431/2010/2
LICENCE FILE NUMBER: DEC8830-02
EXPIRY DATE: 18 JULY 2018

PREMISES DETAILS

LICENSEE
Pilbara Iron Pty Ltd
Level 22, Central Park
152-158 St Georges Terrace
PERTH WA 6000
ACN: 107 216 535

PREMISES
Yurralyi Maya Power Station
Part of L47/221
MAITLAND WA 6714

PRESCRIBED PREMISES CATEGORY

Table 1: Prescribed premises category

Category number*	Category Description*	Category Production or Design Capacity*	Premises Production or Design Capacity#	Premises Fee Component**
52	Electric power generation	20 megawatts or more in aggregate (using natural gas)	230 megawatts	More than 200 megawatts

* From Schedule 1 of the Environmental Protection Regulations 1987
# From application
** From Schedule 4 of the Environmental Protection Regulations 1987

This Environmental Assessment Report (EAR) has been drafted for the purposes of detailing information on the management and mitigation of emissions and discharges from the prescribed premises. The objective of the EAR is to provide a risk assessment of emissions and discharges, and information on the management of other activities occurring onsite, which are not related to the control of emissions and discharges from the prescribed premises activity. This does not restrict the Department of Environment Regulation (DER) to assessing only those emissions and discharges generated from the activities that cause the premises to become prescribed premises.

Basis of Assessment
The Yurralyi Maya Power Station (YMPS) has been assessed as a "prescribed premises" under category number 52, within Schedule 1 of the Environmental Protection Regulations 1987.

Category 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.

Pilbara Iron Pty Ltd (Pilbara Iron) currently operate four Open Cycle Gas Turbines (OCGT) units and associated ancillary equipment and systems. The OCGT used at the YMPS are General Electric (GE) LM6000 PD – type aero derivative gas turbine units and each turbine has a design capacity of 46 megawatts (MW). Units are gas-fired only, with no distillate firing capability.

A fifth turbine has been constructed under W4460/2008/1 and compliance documentation was received by DER on the 26 June 2013. This turbine is also an OCGT but is a LM6000 PF unit (updated variant of the LM6000 PD) with a capacity of 46MW bringing the total capacity of the YMPS to 230MW.

1.0 BACKGROUND

1.1 GENERAL COMPANY DESCRIPTION

Rio Tinto Iron Ore (RTIO) is the division of the Rio Tinto Group with responsibility for its iron ore interests, which includes the Pilbara Iron ore mines operated by Pilbara Iron on behalf of Hamersley Iron Pty Limited (Hamersley Iron) and Robe River Iron Associates (Robe River). Both Hamersley Iron and Robe River are owned in whole or in part by RTIO.

1.2 LOCATION OF PREMISES

The YMPS is located in the Pilbara region of Western Australia (Figure 1), approximately 6 kilometres (km) west of Karratha and provides power to the entire RTIO Pilbara power network. The YMPS site occupies approximately 11 hectares (ha) with an additional 14ha of service corridors and the evaporation ponds occupying a further 5.5ha.

Geology, soils and topography

The YMPS sits within the mid-Archaean granite-greenstone terrain of the Pilbara craton. The site is dominated by calcrete (massive, nodular and cavernous limestone), which is variably silicified. Other areas of the footprint are comprised of surficial deposits of:

- eolian sand (red-yellow windblown sand) with local sand ridges;
- sheetwash sand silt, and clay;
- gilgai clay; and
- alluvium (sand and gravel) in areas dissected by minor drainage lines.

The topography is typified by a gently undulating slope with an average elevation of 14 metres (m).

Hydrology and hydrogeology

Dissected by one non-perennial minor stream, the YMPS has drainage lines in the area running towards the Dampier Salt Limited evaporation ponds. Groundwater levels in the area are variable ranging from 3-6m below ground level (mBGL).

Vegetation and flora

The YMPS is located within the Pilbara bioregion, within the Roebourne biological sub-region with approximately seven vegetation types previously identified including variations of shrublands and hummock grasslands. Of the identified types, portions of the *Eragrotistis xerophila* tussock grassland community on clay plains have been listed as the Roebourne Plains Grassland, Priority Ecological Community (PEC). From internal flora surveys the PEC is generally considered to be in excellent condition.

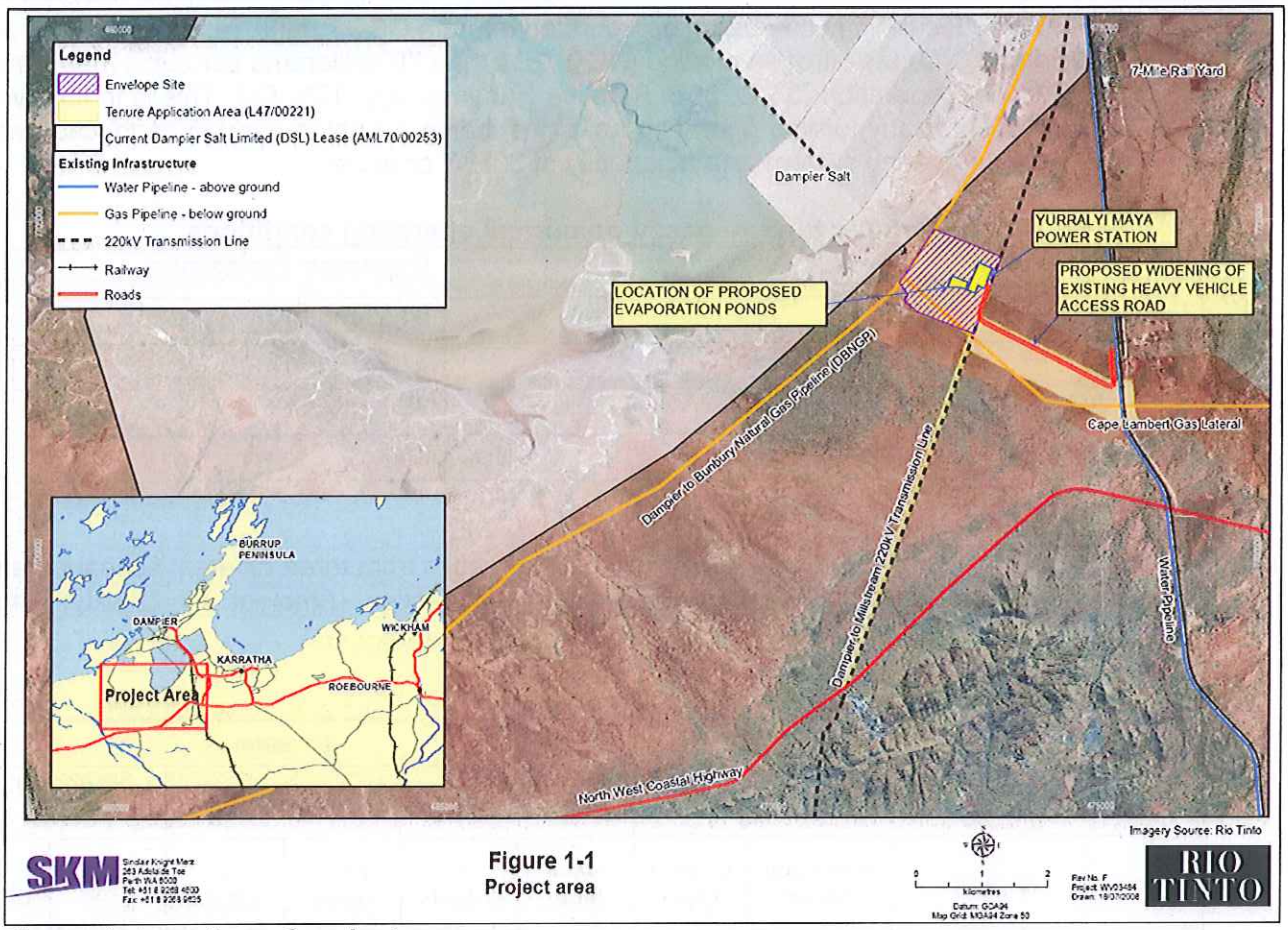

Figure 1-1
Project area

Figure 1: Location of project area

1.3 PROCESS DESCRIPTION

Plant characteristics

The YMPS comprises of five OCGT units with each unit discharging to a separate stack. Fuel requirements are approximately 10 Terajoules (TJ) per OCGT per day at full load. Gas consumption for the power station at full development is approximately 1.5 Petajoules (PJ) OCGT per year. Units are gas-fired only, with no distillate firing capability.

The LM6000 PD/PF units are fitted with spray intercooling (SPRINTTM) technology for power augmentation, as well as a dry low emissions (DLE) combustor for oxides of nitrogen (NO_x) emissions suppression. Each OCGT unit has been fitted with CEMS (continuous emissions monitoring system) to allow the continuous monitoring of point source emissions to air.

Air emissions

A number of industrial facilities are located in the Dampier/Karratha region, resulting in a cumulative loading of pollutants in the local airshed. The operation of the YMPS will predominately result in point source emissions to air from the OCGT stacks. Table 2 shows the expected emissions per turbine based on normal operating conditions for NO_x, carbon monoxide (CO), sulphur dioxide (SO_2) and dust.

Air quality criteria

Point source emissions

Criteria for point source emissions of NO_x are outlined in the New South Wales Protection of the Environment Operations (Clean Air) Regulation 2010 (NSW POEO).

Dry low-NO_x technology has been incorporated into the OCGT units, resulting in point source emissions of NO_x (as nitrogen dioxide (NO_2)) less than 70 milligrams per cubic metre (mg/m^3) during normal operation (35°C, 30% Relative Humidity, dry, 15% O_2). This is in line with the NSW POEO for any turbine operating on a gas, being a turbine used in connection with an electricity generating system with a capacity of 30MW or more.

Table 2: Emission per turbine based on normal operating conditions

Parameter	Expected Emissions
NO_x	$51.25mg/m^3$
CO	$31.25mg/m^3$
SO_2	$36.61mg/m^3$
Dust	1g/s

Ambient emissions

Table 3 shows the ambient air quality modelling results from three different scenarios and the percentage against the National Environment Protection (Ambient Air Quality) Measure (NEPM).

Table 3: Ambient air quality modelling results

				Scenarios					
				Existing		*7-Mile*		*7-Mile without Dampier PS*	
Species	Receptor	Averaging Period	Criteria (ppb)	Value (ppb)	% Criteria	Value (ppb)	% Criteria	Value (ppb)	% Criteria
NO_2	Karratha	1-hour	120	49	41%	53	44%	53	44%
	Dampier			43	35%	39	33%	43	35%
	Hearson Cove			60	50%	61	51%	61	51%
	King Bay			62	52%	66	55%	66	55%
	Max on Grid			83	69%	80	66%	80	67%
	Karratha	Annual	30	1.4	4.7%	1.5	4.9%	1.5	4.8%
	Dampier			2.1	7.1%	2.2	7.3%	2.1	7.0%
	Hearson Cove			2.1	7.0%	2.2	7.2%	2.1	7.0%
	King Bay			3.2	10.6%	3.3	10.9%	3.2	10.5%
	Max on Grid			6.1	20.2%	6.2	20.5%	6.1	20.2%
SO_2	Karratha	1-hour	200	6.9	3.5%	7.2	3.6%	7.2	3.6%
	Dampier			17.0	8.5%	16.0	8.0%	16.0	8.0%
	Hearson Cove			8.9	4.5%	9.0	4.5%	9.0	4.5%
	King Bay			19.5	9.8%	16.5	8.3%	16.5	8.3%
	Max on Grid			36.0	18.0%	37.4	18.7%	37.3	18.6%
	Karratha	24-hour	80	1.1	1.4%	1.2	1.5%	1.1	1.3%
	Dampier			3.7	4.6%	3.7	4.6%	3.7	4.6%
	Hearson Cove			2.5	3.1%	2.4	3.1%	2.4	3.0%
	King Bay			3.6	4.5%	3.8	4.7%	3.7	4.6%
	Max on Grid			12.1	15.1%	12.5	15.6%	12.5	15.6%
	Karratha	Annual	20	0.10	0.5%	0.13	0.6%	0.12	0.6%
	Dampier			0.41	2.1%	0.44	2.2%	0.42	2.1%
	Hearson Cove			0.32	1.6%	0.35	1.7%	0.33	1.6%

	King Bay			0.57	2.9%	0.60	3.0%	0.58	2.9%
	Max on Grid			2.79	14.0%	2.83	14.2%	2.81	14.1%
CO[16]	Karratha	8-hour	9,000			14	0.13%		
	Dampier					53	0.47%		
	Hearson Cove					34	0.30%		
	King Bay					43	0.38%		
	Max on Grid					127	1.13%		

Ancillary infrastructure

Water supply requirements for the YMPS are met by the Western Pilbara Water Supply Scheme (WPWSS) allocation under a licence from the Water Corporation, which requires the necessary supply to be piped to the site from existing Karratha systems. An initial peak hourly supply of approximately 60 kilolitres per hour (kL/hr) is supplied to the site and treated in a demineralisation plant, primarily for use in the OCGT auxiliary systems. The demineralisation plant comprises a combined reverse osmosis (RO) /electro-deionisation (EDI) system.

Approximately 54.8 kilolitres per day (kL/day) of wastewater from each of the five OCGT units is a result of the operation of the demineralisation plant. This is generated from two waste streams; - process water from the demineralisation plant including backwashing and flushing wastewater, and evaporative cooling blowdown. Overall the wastewater is of good quality, with the exception of Total Dissolved Solids (TDS) and Total Suspended Solids (TSS) at approximately 600 – 4100 milligrams per litre (mg/L) and 100mg/L respectively. Wastewater generated from the demineralisation plant is directed to two evaporation ponds onsite, constructed using local clay materials and materials sourced locally, of which permeability ranges between 3.02×10^{-4} to 5.01×10^{-4} metres per day (m/day). These ponds have to capacity to receive and contain the plant wastewater inflow as well as a 100 year Average Recurrence Interval (ARI) storm event of 72 hour duration. Treated water from the oily water separation system and stormwater report to the sedimentation pond, which has been designed to contain a 5 year ARI storm event of 24 hour duration.

1.4 REGULATORY CONTEXT

1.4.1 Part IV *Environmental Protection Act 1986*, Environmental Impact Assessment

RTIO liaised with the Environmental Protection Authority (EPA) regarding the proposal. The Level of Assessment for the project was "Not Assessed, managed under Part V of the *Environmental Protection Act 1986* (Works Approval)".

1.4.2 Part V *Environmental Protection Act 1986*, Environmental Management

The YMPS has been assessed as a "prescribed premises" under the Environmental Protection Regulations 1987. Licence L8431/2010/2 allows Pilbara Iron to carry out category 52 prescribed activities as per Schedule 1 of the *Environmental Protection Act 1986*.

Works approval W4460/2008/1 for the YMPS assessed the construction of six gas turbines. To date only five have been constructed. W4460/2008/1 expires on the 30 November 2013.

DER will also administer the following legislation:

- Environmental Protection Regulations 1987;
- *Contaminated Sites Act 2003*;
- Environmental Protection (Clearing of Native Vegetation) Regulations 2004;
- Environmental Protection (Unauthorised Discharges) Regulations 2004;
- Environmental Protection (Controlled Waste) Regulations 2004; and

- Environmental Protection (Noise) Regulations 1997.

1.4.3 Other Decision Making Authorities' Legislation which applies

The onsite storage of hydrocarbons and dangerous goods will be regulated by the following legislation:

- *Dangerous Goods Safety Act 2004*;
- Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007;
- *Occupational Safety and Health Act 1984*;
- Occupational Safety and Health Regulations 1996; and
- Australian Standards 1940-2004 The storage and handling of flammable and combustible liquids.

Department of Indigenous Affairs

Any impacts on Aboriginal sites of significance; etc are regulated by the Department of Indigenous Affairs under the *Aboriginal Heritage Act 1972*.

1.4.4 *Rights in Water Irrigation Act 1914*

Water for the power station will be met by their existing water allocation from the WPWSS under a licence from the Water Corporation.

1.4.5 Local Government Authority

The premises are located within the Shire of Roebourne.

2.0 STAKEHOLDER AND COMMUNITY CONSULTATION

SUBMISSIONS RECEIVED DURING 21 DAY PUBLIC COMMENT PERIOD

The application for licence details for this facility were advertised in The West Australian newspaper on 20 May 2013 as a means of advising stakeholders and to seek public comments. No submissions were received.

3.0 EMISSIONS AND DISCHARGES RISK ASSESSMENT

DER considers that conditions should focus on regulating emissions and discharges of significance. Where appropriate, emissions and discharges which are not significant should be managed and regulated by other legislative tools or management mechanisms.

The following section assesses the environmental risk of potential emissions from the YMPS. In order to determine the site's appropriate environmental regulation, an emissions and discharges risk assessment was conducted of the YMPS using the environmental risk matrix outlined in Appendix A. The results of this are summarized in Table 4.

Table 4: Risk assessment and regulatory response summary table

Risk factor	Significance of emissions	Socio-Political Context of Each Regulated Emission	Risk Assessment	DER Regulation (EP Act - Part V)	EAR Reference	Other management (legislation ,tools, agencies)
Air emissions (point source)	**Emission significance of 3 for NO_x** The operation of the YMPS will predominately result in point source emissions to air from the OCGT stacks. The NO_x emission rate of 51.25mg/m^3 per turbine based on normal operating conditions (Table 2) equates to 73% of the NSW POEO standard of 70mg/m^3. A CEMS is in place on each turbine exhaust stack and each CEMS continuously monitors the concentrations of oxygen (O_2), CO, nitric oxide (NO), and NO_2 gases in the turbine emissions to the atmosphere. In addition to this system, bi-annual stack testing is conducted for all of the above parameters including volumetric gas flow and moisture. **Ambient emissions** Ambient emissions have been modelled (Table 3) against the NEPM guideline. *3 - NO_x 1 hour average* 44.0 – 55.0% (normal) 67% (worst) *1 - NO_2 Annual average* 4.8 – 10.5% (normal) 20.0% (worst) *1 - SO_2 1 hour average* 3.6 – 8.3% (normal) 18.6% (worst) *1 - SO_2 24 hour average* 1.3 – 4.6% (normal) 15.6% (worst) *1 - SO_2 Annual average* 0.6 – 2.9% (normal) 14.1% (worst) *1 - CO 8 hour average* 0.13 – 0.47% (normal)	**Low** level of community interest or concern. The closest residence is located 3.7km north-east of the YMPS.	**C** – Licence conditions.	LIC – Conditions on licence relating to six monthly monitoring of NO_x including a limit of 70mg/m^3, CEMS monitoring and reporting in the Annual Environmental Report and Annual Audit Compliance Report.	N/A.	General provisions of the *Environmental Protection Act 1986.* NSW Protection of the Environment Operations (Clean Air) Regulation 2010. National Environment Protection (Ambient Air Quality) Measure.

Risk factor	Significance of emissions	Socio-Political Context of Each Regulated Emission	Risk Assessment	DER Regulation (EP Act - Part V)	EAR Reference	Other management (legislation ,tools, agencies)
	1.13% (worst) The operation of the YMPS should not significantly impact the nearby receptors.					
Dust emissions	**Emission significance of 1** Dust emissions are generated from vehicles travelling on the unsealed access roads. This emission should not be significant and no other dust emissions are expected during operation of the YMPS. The majority of the site is covered in gravel or hardstand material and water carts are used for dust suppression when required.	**Low** level of community interest or concern.	E – No regulation, other management mechanisms.	LIC – No conditions.	N/A.	General provisions of the *Environmental Protection Act 1986.* Environmental Protection (Unauthorised Discharges) Regulations 2004.
Odour emissions	**Emission significance of 1** There should be no odour emissions associated with the operation of the YMPS.	**Low** level of community interest or concern.	E – No regulation, other management mechanisms.	LIC - No conditions.	N/A.	General provisions of the *Environmental Protection Act 1986.*
Noise emissions	**Emission significance of 2** Noise from the operation of the YMPS will primarily be associated with the OCGT units. Noise modelling validations for GT4 indicate that average noise emissions 200m and 500m from the power station are 46.2 and 50.5 dBA respectively. Noise monitoring results for GT4 and GT5 combined show a LA_{10} maximum of 61.7 dBA at 125m downwind of the site. Given the nearest sensitive receptor is over 2km away from the site, both are consistent with the Environmental Protection (Noise) Regulations 1997, which state 60 dBA as the standard for noise sensitive premises at locations further than 15m from a building directly associated with a noise sensitive use.	**Low** level of community interest or concern due to distance to nearest residence.	D – EIP's, other management mechanisms.	LIC – Condition on licence relating to reporting any noise complaints in the Annual Environmental Report.	N/A.	General provisions of the *Environmental Protection Act 1986.* Environmental Protection (Noise) Regulations 1997.
Light emissions	**Emission significance of 1** Due to the distance between the YMPS and the closest receptors, light spill is not expected to be a significant emission.	**Low** level of community interest or concern due to distance to nearest residence.	E – No regulation, other management mechanisms.	LIC - No conditions.	N/A.	General provisions of the *Environmental Protection Act 1986.*
Discharges to water	**Emission significance of 1** There will be no direct discharge to any permanent or semi-permanent surface water bodies. The majority of wastewaters generated on the YMPS site are directed to	**Low** level of community interest or concern due to distance to nearest residence.	E – No regulation, other management mechanisms.	LIC - Conditions on licence relating to the quarterly monitoring of the evaporation ponds	N/A.	General provisions of the *Environmental Protection Act 1986.*

Risk factor	Significance of emissions	Socio-Political Context of Each Regulated Emission	Risk Assessment	DER Regulation (EP Act - Part V)	EAR Reference	Other management (legislation ,tools, agencies)
	either the sedimentation pond or evaporation ponds dependent on their point of origin. Treated water from the oily water separation system and stormwater report to the sedimentation pond, while the RO plant and blowdown wastewater report to the evaporation ponds. The two evaporation ponds onsite have a permeability range between 3.02 x 10^{-4} to 5.01 x 10^{-4}m/day and a capacity to receive and contain the plant wastewater inflow as well as a 100 year ARI storm event of 72 hour duration. The sedimentation pond has been designed to contain a 5 year ARI storm event of 24 hour duration. Discharge in excess of the pond capacity exits the pond via a broad crested rectangular weir-type spillway, with dimensions of 10m x 0.5m, installed at the southern end of the pond at ground level. Rocks have been installed at the discharge point to reduce velocity and thus erosion impacts. Water enters the natural drainage channels. Given the expected frequency of discharge to the creek line, the negative impacts are expected to be negligible. Erosion control measures implemented at the discharge location including rock armour and Infrastructure are regularly inspected and maintained.			for TDS and TSS and sedimentation pond for total petroleum hydrocarbons (TPH). A limit of 15mg/L for TPH in waters discharged from the sedimentation pond is also included.		Environmental Protection (Unauthorised Discharges) Regulations 2004.
Discharges to land	**Emission significance of 1** Wastewater generated from the demineralisation plant is directed to evaporation ponds onsite. The evaporation ponds have the capacity to contain a 100 year ARI storm event of 72 hours in addition to the incoming wastewater flows from the OCGT units and demineralisation plant. Wastewater entering the evaporation pond is expected to be TDS approximately TDS 600 – 4100mg/L and TSS approximately 100mg/L. Clean stormwater is collected in culverts and directed to the sedimentation pond. Wastewater from the oil water separators is directed to the sedimentation pond. Hydrocarbon concentrations from the oil water separator wastewater should not exceed 15mg/L. Discharge from	**Low** level of community interest or concern due to distance to nearest residence.	**E** – No regulation, other management mechanisms.	LIC – Conditions on licence relating to the quarterly monitoring of the evaporation ponds for TDS and TSS and sedimentation pond for TPH. A limit of 15mg/L for TPH in waters discharged from the sedimentation pond is also included.	N/A.	General provisions of the *Environmental Protection Act 1986.* Environmental Protection (Unauthorised Discharges) Regulations 2004.

Risk factor	Significance of emissions	Socio-Political Context of Each Regulated Emission	Risk Assessment	DER Regulation (EP Act - Part V)	EAR Reference	Other management (legislation ,tools, agencies)
	the oil water separator to the sedimentation pond is expected to be minimal as it only results from rainfall entering the bunded areas, uncommon plant washdown events or unexpected spills or leaks. Pilbara Iron have implemented the following management strategies: • monitoring of the demineralisation process wastewater entering the evaporation ponds occurs on a quarterly basis. In the event that overflow occurs from the evaporation pond into natural drainage lines, water quality is analysed prior to discharge. • conductivity of the evaporative cooling blowdown water is monitored via an in-line conductivity meter, which is triggered when conductivity levels exceed 750 microSiemens per centimetre. The in-line conductivity probe is maintained and calibrated in accordance with the manufacturer's specifications. • the evaporation and sedimentation pond walls and general structure is checked for integrity on a regular basis with any defects repaired and reported. • discharge from the oil water separator is monitored on a quarterly basis for hydrocarbon levels and when discharge is occurring.					
Solid / liquid wastes	**Emission significance of 1** A number of waste streams are created at YMPS including hydrocarbon wastes (oils, drums, rags, filters etc), batteries, scrap metal, printer cartridges, paper and cardboard. Non hazardous wastes that cannot be recycled are disposed of in shire landfills or other licensed facilities. Hazardous waste types collected are sent off-site for treatment at licensed facilities. Pilbara Iron implement the following management strategies: • non-recyclable solid waste is collected by contractors. • evaporation and sedimentation pond walls and general structure are checked for integrity and if	**Low** level of community interest or concern due to distance to nearest residence.	E – No regulation, other management mechanisms.	LIC – No conditions.	N/A.	General provisions of the *Environmental Protection Act 1986*. Environmental Protection (Unauthorised Discharges) Regulations 2004. Environmental Protection (Controlled Waste) Regulations 2004.

Risk factor	Significance of emissions	Socio-Political Context of Each Regulated Emission	Risk Assessment	DER Regulation (EP Act - Part V)	EAR Reference	Other management (legislation ,tools, agencies)
	damaged, repaired and reported. • in the unlikely event that off-site discharge from the evaporation ponds is to take place, samples are collected and analysed (this is only expected to occur during severe storm events).					
Hydrocarbon/ chemical storage	**Emission significance of 1** Storage of hazardous material such as hydrocarbons and chemicals are stored in compliance with appropriate legislation and Australian Standards including storage in bunded facilities.	**Low** level of community interest or concern due to distance to nearest residence.	**E** – No regulation, other management mechanisms.	LIC – No conditions.	N/A.	General provisions of the *Environmental Protection Act 1986.* Environmental Protection (Unauthorised Discharges) Regulations 2004. Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007. Australian Standards 1940-2004 The storage and handling of flammable and combustible liquids.
Native vegetation clearing	**Emission significance of 1** No native vegetation clearing should be undertaken during the operation of the YMPS unless under an approved permit.	**No** level of community interest or concern.	**E** – No regulation, other management mechanisms.	LIC – No conditions.	N/A.	General provisions of the *Environmental Protection Act 1986.* Environmental Protection (Clearing of Native Vegetation) Regulations 2004.
Contaminated site identification	**Emission significance of 1** The site has not been reported under the *Contaminated Sites Act 2003.*	**No** level of community interest or concern.	**E** – No regulation, other management mechanisms.	LIC – No conditions.	N/A.	General provisions of the *Environmental Protection Act 1986.* *Contaminated Sites Act 2003.*

4.0 GENERAL SUMMARY AND COMMENTS

Pilbara Iron operates the YMPS 6km west of Karratha in the Pilbara region of Western Australia. The YPMS currently has five turbines each with a capacity of 46MW bringing the total capacity of the YMPS to 230MW.

As shown in Table 4, emissions and discharges related to the operation of the YMPS are a low risk to the environment if managed as per Pilbara Iron commitments and should not result in significant impacts to the environment.

The facility is also subject to the general provisions of the *Environmental Protection Act 1986* relating to the causing and reporting of pollution and will be subject to inspections by DER officers.

OFFICER UPDATING REPORT

Sonya Poor

Position: Environmental Officer
Pilbara Region
Department of Environment Regulation
(08) 9182 2009

July 2013

ENDORSEMENT

Alana Kidd

Position: Regional Leader – Industry Regulation
Pilbara Region
Department of Environment Regulation
(08) 9182 2037

July 2013

APPENDIX A: EMISSIONS AND DISCHARGES RISK ASSESSMENT MATRIX

Table 5: Measures of Significance of Emissions

Emissions as a percentage of the relevant emission or ambient standard		Worst Case Operating Conditions (95th Percentile)			
		>100%	50 – 100%	20 – 50%	<20%*
Normal Operating Conditions (50th Percentile)	>100%	5	N/A	N/A	N/A
	50 – 100%	4	3	N/A	N/A
	20 – 50%	4	3	2	N/A
	<20%*	3	3	2	1

*For reliable technology, this figure could increase to 30%

Table 6: Socio-Political Context of Each Regulated Emission

		Relative proximity of the interested party with regards to the emission				
		Immediately Adjacent	Adjacent	Nearby	Distant	Isolated
Level of Community Interest or Concern*	5	High	High	Medium High	Medium	Low
	4	High	High	Medium High	Medium	Low
	3	Medium High	Medium High	Medium	Low	No
	2	Low	Low	Low	Low	No
	1	No	No	No	No	No

Note: These examples are not exclusive and professional judgement is needed to evaluate each specific case

Table 7: Emissions Risk Reduction Matrix

		Significance of Emissions				
		5	4	3	2	1
Socio-Political Context	High	A	A	B	C	D
	Medium High	A	A	B	C	D
	Medium	A	B	B	D	E
	Low	A	B	C	D	E
	No	B	C	D	E	E

PRIORITY MATRIX ACTION DESCRIPTORS
A = Do not allow (fix)
B = licence condition (setting limits + EMPs - short timeframes)(setting targets optional)
C = licence condition (setting targets + EMPs - longer timeframes)
D= EIPs, other management mechanisms/licence conditions (monitoring/reporting)/other regulatory tools
E = No regulation, other management mechanisms