



Licence Number L8818/2014/1

Licence Holder TEC Hedland Pty Ltd

ACN 169 777 404

File Number DER2014/000782

Premises
Hedland Precinct Power Project
Boodarie Station Access Road
BOODARIE WA 6722
Lot 601 on Deposited Plan 70566
Certificate of Title Volume 3159 Folio 788

Date of Amendment 17 August 2017

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.


Jonathan Bailes

A/Senior Manager Industry Regulation (Process Industries)

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Definitions and interpretation

Definitions

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

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
Amendment Notice / Notice	refers to this document
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 33 Cloisters Square PERTH WA 6850 info-der@dwer.wa.gov.au
Decision Document	Is the Decision Document supporting Works Approval W5729/2014/1
Delegated Officer	an officer under section 20 of the EP Act
Department	Department of Water and Environmental Regulation (DWER)
EP Act	<i>Environmental Protection Act 1986</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
Existing Licence / Licence	Licence L8818/2014/1 granted under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this assessment
Licence Holder	TEC Hedland Pty Ltd
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997</i> (WA)
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
Stage 1	has the meaning given to that term in Works Approval W5729/2014/1 and relates to Unit 40.
Stage 2	has the meaning given to that term in Works Approval W5729/2014/1 and relates to Units 10, 20 and 30.
the Works Approval	Works Approval W5729/2014/1 including its supporting Decision Document

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend Licence L8818/2014/1 (Existing Licence) granted under the EP Act for a Prescribed Premises as set out below. This Notice of amendment is given under section 59B(9) of the EP Act.

This Notice is limited to the decommissioning of two existing gas turbines and the operation of new gas and steam turbines constructed and commissioned under Works Approval W5729/2014/1 (the Works Approval).

The following guidance statements have informed the decision made on this amendment
Guidance Statement: Regulatory Principles (July 2015)

- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Decision Making (November 2016)*
- *Guidance Statement: Risk Assessment (November 2016)*
- *Guidance Statement: Environmental Siting (November 2016)*

Amendment description

The Existing Licence was transferred to the Licence Holder on 11 July 2017 and relates to the operation of four open cycle gas turbines (OCGT) with a 68 MW design capacity. The Licence Holder has constructed and commissioned a new OCGT unit (Unit 40) and three closed cycle gas turbines (CCGT) units (Units 10, 20 and 30) under the Works Approval. As a consequence of the new gas turbines having been commissioned, the Licence Holder is phasing out the four existing OCGTs.

The Licence Holder lodged an application to amend the Existing Licence on 3 August 2017 in order to:

- remove two decommissioned OCGTs (emissions points A1 and A2 in Table 2.2.1 of the Existing Licence);
- include the operation of the new CCGT Units 10, 20 and 30 and OCGT Unit 40; and
- amend the design capacity to 210 MW, which includes the four new turbines and the two remaining older turbines.

Table 2 below details the relevant supporting information supplied by the Licence Holder and used in the assessment of the application.

Table 2: Documents and information submitted to inform the assessment process

Document/information description	Date received	DWER document reference
Licence Amendment Application Form including: <ul style="list-style-type: none">• Attachment 2 – premises plan;• Attachment 3A & 6A – supporting document;• Attachment 4 – approvals and stakeholder consultation; and• Attachment 7 – Siting and location	3 August 2017	A149912
Works Approval W5729/2014/1 - Commissioning Report Stage 1, OCGT Unit 40	5 January 2017	A1497209
Works Approval W5729/2014/1 – Commissioning Report, Stage 2, CCGT Units 10, 20 and 30	1 August 2017	A1383982

Commissioning air emissions assessment

As part of the Works Approval, the Licence Holder was required to undertake a commissioning monitoring program of emissions to air (oxides of nitrogen (NOx) from Units 20, 30 and 40. The results as summarised in Table 3 indicate compliance with the limits imposed in the Works Approval and confirm the Decision Document risk assessment of emissions during operation of the turbines.

Table 3: Licence Holder's NOx air emissions commissioning test results

Unit	Fuel Type	Base load (%)	NOx concentration (mg/m ³) ¹	Works Approval limit (mg/m ³) ¹
Unit 20	Natural gas	50	39	412
		75	30	-
		100	27	52
	Low sulphur diesel	50	270	618
		75	250	-
		100	170	175
Unit 30	Natural gas	50	46	412
		75	27	-
		100	30	52
	Low sulphur diesel	50	92	618
		75	120	-
		100	170	175
Unit 40	Natural gas	50	42	412
		75	24	-
		100	36	52
	Low sulphur diesel	50	120	618
		75	120	-
		100	170	175

Note 1: 15% oxygen at STP

Commissioning noise assessment

Condition 4.1.1 (Improvement Reference 2 (IR2)) of the Works Approval required a noise assessment of the Premises to be undertaken during commissioning of Stage 1 and Stage 2. The Licence Holder submitted a noise assessment report to the Department as part of its Stage 2 commissioning report.

The noise assessment report outlines site specific noise monitoring data obtained to confirm noise modelling and predictions that formed part of the works approval application. A summary of comparison outcomes is provided in Table 4.

The noise assessment report concluded that noise level at the industry-to-industry Premises boundary complied with the 65 dB assigned level in the Noise Regulations. The Licence Holder noted that the recorded L_{A10} noise level of 66 dB at the Northern Boundary Receiver 3 (NR3) was dominated by the adjacent industrial facility (Port Hedland Power Station), and that noise from the Premises was less than 60 dB. The Licence Holder referred to logged noise data that showed that levels at NR3 (closest to the adjacent Port Hedland Power Station) were higher than those recorded at NR2 (closest to the Premises) for the same time period.

The Licence Holder made the observation that during noise monitoring events, two to three turbines were operational at the adjacent Port Hedland Power Station, which during normal operations tended to dominate the noise level at the industry-to-industry Premises boundary locations. The Licence Holder also made the observation that noise from the Premises was only faintly audible at all measurement points. Further observations were made that the turbine operating loads had little correlation with noise levels, and that tonality was not consistently evident at the industry-to-industry Premises boundary locations. Ultimately, the Licence Holder found the measured sound levels on industry-to-industry boundaries of the

Premises were approximately 4 – 7 dB quieter for normal operation than estimated.

For residential receptors, the Licence Holder concluded that modelled noise levels aligned with previously predicted levels (pre-construction) and complied with the Noise Regulations.

Table 4: Summary comparison of pre-construction and post-construction noise levels

Noise sensitive receptor	Assigned L _{A10} noise level (dB)	Works Approval application model prediction (dB)	Commissioning validated result (dB)
Residential			
Boodarie Homestead	35	7.9	13 ¹
Boodarie Locality		16.2	21 ¹
South Hedland town site	30	13.8	19 ¹
Industrial			
Northern Boundary Receiver 1	65	60	56 – 63 ²
Northern Boundary Receiver 2		61.3	58– 61 ²
Northern Boundary Receiver 3		59.7	57 – 66 ²
Eastern Boundary Receiver 1		59.5	60 – 61 ²
Eastern Boundary Receiver 2		63.1	51 – 62 ²
Eastern Boundary Receiver 3		59.2	55 – 61 ²

Note1: A 5 dB penalty has been added to account for tonality

Note 2: Values represent the minimum and maximum of measured values across monitoring events.

Key Finding: The Delegated Officer has reviewed information regarding the Licence Holder's noise assessment and considers that:

1. post-construction noise levels are comparable to those predicted and modelled within the application for the Works Approval; and
2. noise levels are expected to comply with the assigned levels within the Noise Regulations for all noise sensitive receptors (i.e. residential and adjacent industrial receptors).

Amendment history

Table 5 provides the amendment and transfer history for Licence L8818/2014/1.

Table 5: Licence amendments

Instrument	Issued	Amendment
L8818/2014/1	17/08/2017	Amendment Notice 1 Licence Holder initiated amendment for operation of new gas turbines constructed and commissioned under Works Approval W5729/2014/1
L8818/2014/1	11/07/2017	Licence transferred from APR Energy Pty Ltd to TEC Hedland Pty Ltd
L8818/2014/1	16/07/2015	Licence transferred from Regional Power Corporation Pty Ltd to APR Energy Pty Ltd

Location and receptors

The Decision Document for the Works Approval considered the location of the Premises and relevant receptors. The Premises is located within the Boodarie Industrial Estate approximately 13 km south of Port Hedland town site and 6 km west of South Hedland town site. The Premises is within the Gas Power Station Buffer Special Control Area, zoned 'Strategic Industry' under the Town of Port Hedland Planning Scheme 5.

The Decision Document notes the Premises is within the northern boundary of the Turner River Water Reserve, which is a Public Drinking Water Source Area (PDWSA). However the PDWSA has not been assigned a Protection Area rating.

Table 6 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 7 shows the distance to specified ecosystems as defined in DWER's *Guidance Statement: Environmental Siting*.

Table 6: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
South Hedland Rural Estate	5 km to the east southeast
South Hedland town site	6 km to the northeast
Boodarie Homestead	8 km to the west
Industrial receptor	
Port Hedland Power Station (Licence L7336/1998/10)	Adjacent northeast

Table 7: Specified ecosystems

Specified ecosystems	Distance from Prescribed Premises
Turner River PDWSA	Premises intersect with the northern boundary of the PDWSA.
South West Creek	Approximately 1 km north east of the Premises

Risk assessment

Table 8 below describes the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. The table identifies whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 8: Risk assessment for proposed amendments during operation

Source/Activities		Risk Event				Consequence rating	Likelihood rating	Risk	Reasoning
		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Cat 52 Electrical power generation	Gas turbines operated on natural gas or diesel	Emissions to air – combustion gases from operation of new turbines	Nearest dwelling 5 km ESE	Air / wind dispersion	Health and amenity impacts	Slight	Rare	Low	<p>The Premises is located within a 'Strategic Industry' zone.</p> <p>The works approval Decision Document assessed the risk of NOx emissions during full load, part load and emergency operations to be moderate (medium consequence and unlikely likelihood).</p> <p>The Delegated Officer has reviewed air emissions commissioning data and considered that the results comply with the Works Approval commissioning limits, meet the proposed emission specifications, and do not materially change the modelling outcomes as outlined in the Decision Document. NOx emissions are expected to meet specified criteria in the Decision Document. The consequence of NOx emissions is assessed to be slight.</p> <p>Exceedances of the Decision Document assessed criteria would only be expected in exceptional circumstances.</p> <p>The Delegated Officer considers that the design of the gas turbines, the location of the premises, and the separation distance between the source and receptors is sufficient to ensure there is a low risk of adverse impacts on receptors. Monitoring of emissions to air is specified in the Existing Licence and can be expanded to include the new turbines.</p>
		Discharge of oily waters to surface drains	South West Creek (approx. 1 km north east) Groundwater (depth 4 – 7 m below ground level)	Direct discharge	Soil contamination Impacts on the beneficial use of groundwater Surface water ecosystem impacts	Minor	Rare	Low	<p>The Premises is located within a 'Strategic Industry' zone.</p> <p>There are no specified ecosystems in proximity aside from a PDWSA that has not been assigned a protection area rating.</p> <p>The Premises has existing infrastructure for the containment, treatment and discharge of treated waters, with associated controls specified in the Existing Licence.</p> <p>Risk events are likely to be confined to low volume and localised spillages within containment infrastructure and are not expected to result in tangible impacts on groundwater or result in contaminated wastewaters reaching South West Creek.</p>
		Fugitive dust	Nearest dwelling 5 km ESE Adjacent industrial receptor	Air / wind dispersion	None	N/A	N/A	N/A	<p>The Works Approval Decision Document assessed the risk of fugitive dust emissions during operations to be medium without regulatory controls or low if regulatory controls were applied. The Delegated Officer has further considered the risk of fugitive dust.</p> <p>The Delegated Officer considers that the separation distance to human receptors is sufficient for health or amenity impacts not to arise.</p> <p>Activities that may generate fugitive dust are limited to light vehicle movements which are not expected to generate tangible airborne dust.</p> <p>The Delegated Officer considers there is no risk of fugitive dust impacts on receptors during operations and has determined that regulatory controls are not required.</p>
		Noise – generated by operation of new turbines	Nearest dwelling 5 km ESE Adjacent industrial receptor	Air / wind dispersion	Amenity impacts	Slight	Rare	Low	<p>Based on the acoustic assessment and location of the premises within a 'Strategic Industry' zone, the Delegated Officer has determined that the distance between the source and potential receptors is sufficient to ensure that there are no adverse impacts on potential receptors during operations.</p> <p>The Noise Regulations regulate noise emissions from industrial sites.</p>

Decision

The Delegated Officer has determined the application by granting of this Notice to give effect to amendments to the conditions of the Existing Licence.

The conditions of the Existing Licence have been amended to:

- increase the approved premises production or design capacity;
- remove air emission points for the two decommissioned gas turbines;
- include the emission points associated with Units 20, 30 and 40 (Unit 10 is a closed-cycle steam turbine with no emissions to air);
- update the existing annual requirement to monitor emissions to air to include the three new stack emissions points;
- update the specified containment infrastructure to correctly reference the two existing evaporation ponds (the Existing Licence only references one evaporation pond; however this is actually split into two cells referenced E1 and E2);
- update the specified emission to land points and controls to include new discharge points; and
- update annual reporting requirement and to remove redundant reporting forms.

Based on the air emissions risk assessment and consideration of the Licence Holder's commissioning data, the Delegated Officer has determined that emission limits for the new gas turbines are not required. The Licence Holder will be required to continue annual stack monitoring and the Department will review the reported data to identify potential changes to the emission risk profile.

While the Decision Document provisioned for ongoing noise monitoring and assessment by the Licence Holder, the Delegated Officer determined this is not required based on consideration of the commissioning noise assessment and the noise risk assessment.

The Delegated Officer notes the Licence Holder intends to phase out and decommission the remaining two existing gas turbines. It is expected that the Licence Holder will lodge a further application for licence amendment when this occurs.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 16 August 2017. The Licence Holder advised the Department in writing on 16 August 2017 that it had no objections to the proposed amendments and waived the 21 day consultation period.

Amendment

1. The Licence approved Premises production or design capacity for Category 52 electric power generation is amended from 68 MW to 210 MW.
2. Condition 1.1.2 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

'Annual Audit Compliance Report' means a report in a format approved by the CEO as presented by the Licence Holder or as specified by the CEO (guidelines and templates may be available on the Department's website).

~~'CEMS Code'~~ means ~~the current version of the Continuous Emission Monitoring System (CEMS) Code for Stationary Source Air Emissions, Department of Environment & Conservation, Government of Western Australia;~~

'CEO' means Chief Executive Officer;

'CEO' for the purposes of notification means: Director General, Department Administering the Environmental Protection Act 1986, Locked Bag 33, CLOISTERS SQUARE WA 6850, email: info-der@dwer.wa.gov.au;

'Department' means the department established under section 35 of the Public Sector Management Act 1994 and designated as responsible for the administration of Part V, Division 3 of the EP Act;

3. Table 1.3.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below.

Table 1.3.1: Containment infrastructure		
Storage compound and location on map of storage locations <u>Map of storage locations, emission points and monitoring locations</u>	Material	Infrastructure requirements
Evaporation pond E1 and E2	Process water, treated wastewater from the oily water separator, and reject water from the demineralized water plant, <ul style="list-style-type: none"> • <u>Stormwater from paved areas, service yards and building roofs via oil water separators (L1 and L2).</u> • <u>demineralization water treatment plant wastewater;</u> • <u>water-softening plant wastewater; and</u> • <u>compressor water washing</u> 	Evaporation pond lined with clay liner to achieve a permeability of at least 10^{-9} m/s and designed to accommodate a 1 in 100 year annual recurrence interval rainfall event with a minimum freeboard of 300mm

4. Table 2.2.1 of the Licence is deleted and replaced with Table 2.2.1 below:

Table 2.2.1: Emission points to air			
Emission point reference and location on Map of emission and monitoring points	Emission point and source	Emission point height (m)	Source, including any abatement
A1	CCGT Turbine 1	35	CCGT Turbine 1 (Unit 20)
A2	CCGT Turbine 2	35	CCGT Turbine 2 (Unit 30)
A3	OCGT Turbine 1	25	OCGT Turbine 1 (Unit 40)
A4	Stack 3 for Turbine 3	6	GETM2500 OCGT
A5	Stack 4 for Turbine 4	6	GETM2500 OCGT

5. Table 2.3.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below.

Table 2.3.1: Emission to land		
Emission point reference and location on Map of emission and monitoring points <u>Map of storage locations, emission points and monitoring locations</u>	Description	Source including abatement
L1 – L2	Oil water separators discharging to drainage systems <u>E1 and/or E2</u>	Stormwater from paved areas, service yard areas and building roofs
<u>L3 – L6</u>	<u>Oil water separators discharging to sediment pond via drainage system</u>	<u>Stormwater from bunding under gas turbine units, paved areas, service yards and building roofs</u>

6. Table 2.3.2 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below.

Table 2.3.2: Emission limits to land			
Emission point reference	Parameter	Limits (including units)	Averaging period
L1 – L2 <u>L3 – L6</u>	Total Recoverable Hydrocarbons	15 mg/L	Spot sample

7. Table 3.2.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below.

Table 3.2.1: Monitoring of point source emissions to air				
Emission point reference	Parameter	Units¹	Frequency²	Method
A1 – A4 A5	Oxides of nitrogen	ppmvd	Annually	USEPA Method 7E

Note 1: All units are referenced to STP dry and 15% oxygen.

Note 2: Monitoring shall be undertaken to reflect normal operating conditions and any limits or conditions on inputs or production.

8. Table 3.3.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below.

Table 2.3.2: Monitoring of emissions to land			
Emission point reference	Parameter	Units	Frequency
L1 – L2 <u>L3 – L6</u>	Total Recoverable Hydrocarbons	mg/L	Quarterly

9. The Licence is amended by the deletion of the *Map of storage locations* and *Maps of emission and monitoring locations* and the insertion of the *Map of storage locations, emission points and monitoring locations* attached in Appendix 2 of this Notice.

10. The Licence is amended by the deletion of *Schedule 2: Reporting & notification forms*.

Appendix 1: Key documents

	Document title	In text ref	Availability
1	Works Approval W5728/2014/1 including the supporting Decision Document	the Works Approval	<p>Accessed at www.der.wa.gov.au</p>
2	Licence L8818/2014/1	Existing Licence	
3	<i>DWER Guidance Statement: Regulatory Principles (July 2015)</i>	N/A	
4	<i>DWER Guidance Statement: Setting Conditions (October 2015)</i>		
5	<i>DWER Guidance Statement: Land Use Planning (February 2017)</i>		
6	<i>DWER Guidance Statement: Decision Making (November 2016)</i>		
7	<i>DWER Guidance Statement: Risk Assessment (November 2016)</i>		
8	<i>DWER Guidance Statement: Environmental Siting (November 2016)</i>		

Appendix 2

Map of storage locations, emission points and monitoring locations

The locations of the storage locations in Table 1.3.1, emission points in Tables 2.2.1 and 2.3.1, and monitoring locations in Table 3.4.1 are shown below.

