



Licence Number L8777/2013/1

Licence Holder Buru Energy Limited

ACN 130 651 437

File Number: DER2014/000609

Premises Ungani Facility
Petroleum Production Licences L20 and L21
GEEGULLY CREEK WA 6728

Date of Amendment 20 August 2018

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* (EP Act) 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.

Date signed 20/08/2018

Caron Goodbourn

A/Manager, 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	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@dwer.wa.gov.au
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DMIRS	Department of Mines, Industry Regulation and Safety
DWER	Department of Water and Environmental Regulation
EP Act	<i>Environmental Protection Act 1986</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
Licence Holder	Buru Energy Limited
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997</i> (WA)
Occupier	has the same meaning given to that term under the EP Act.
PFW	Produced Formation Water
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>

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued 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.

The guidance statements which inform this assessment are outlined in Appendix 1.

Amendment description

On 12 June 2018, Buru Energy Limited (the Licence Holder) submitted an Application (Buru 2018) to DWER for amendments to the Ungani Facility (the Premises) for Licence L8777/2013/1. The Application pertains to reconfiguration of existing wells on the Premises and construction of additional in-field flowlines and oil storage tanks. The changes will also result in changes to the Premises boundary. The infrastructure changes proposed are:

- the configuration of Ungani North 1 and Ungani West 1 wells (new well sites) and existing Ungani Far West 1 well, for oil production;
- installation of associated oil flowlines from those wells to Ungani Central Facility (processing area) and installation of a 110kL storage tank within a HDPE lined bunded area at those well sites; and
- reconfiguration of existing Ungani 3 oil production well to be used for reinjection of PFW.

The additional wells and associated infrastructure will enable the Licence Holder to maintain oil production rates at around 146,615 tonnes per year (~3,000 barrels (bbl) per day). There will be no change to the Premises approved production design capacity, which is 146,615 tonnes of oil or gas per year, as approved via L8777/2013/1 Amendment Notice #1 on 20 December 2017.

Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 2.

Table 2: Relevant approvals

Legislation	Number	Approval
<i>Petroleum and Geothermal Energy Resources Act 1967 & Petroleum Pipelines Act 1969</i>	Ungani Production Facility Modification Environment Plan (HSE-PLN-042)	Revision 6 approved by DMIRS on 8 March 2018 in relation to previous facility modifications.
	Ungani Far West 1 Production Conversion Environment Plan (HSE-PLN-050)	Revision 1 has been submitted to DMIRS in relation to proposed changes reviewed in this Amendment Notice and is pending approval.
	Ungani Production Facility Commissioning and Operations Environment Plan (HSE-PLN-037)	Revision 11 approved by DMIRS on 15 March 2018. Revision 13 has been submitted to DMIRS in relation to proposed changes reviewed in this Amendment Notice and is pending approval.
	Production Licences L 20 and L 21	Issued 02/07/2015

	Pipeline Licence PL 109	Issued 04/06/2015
	Ungani Production Facility Health, Safety, Security Management System (HSE-SMS-002) Ungani Production Facility Emergency Response Plan (HSE-ER-019)	Revision 4 approved by DMIRS on 15 March 2018.

Amendment history

Table 3 provides the amendment history for L8777/2013/1.

Table 3: Licence amendments

Instrument	Issued	Amendment
L8777/2013/1	30/10/ 2014	Authorised expansion of the Premises boundary to incorporate a second turkey nest dam, constructed in January 2014 for the drilling of the Ungani 3 well.
	3/9/2015	Authorised the use of a floating evaporator on the Ungani 3 turkey nest dam in order to enhance evaporation rates of produced formation water (PFW) stored in the dam.
	29/4/2016	Extended the duration of licence from 17/11/2018 to 17/11/2034.
	25/5/2017	Authorised the construction and operation of new water handling and oil storage infrastructure and removal of existing infrastructure not required following the upgrades.
	20/12/2017	Amendment Notice 1: to authorise an increase in production design capacity associated with the drilling of new petroleum wells and installation of new oil and produced water storage infrastructure.
	20/08/2018	Amendment Notice 2: to authorise the configuration of new and existing wells on the Premises and construction of additional in-field flowlines and oil storage tanks and change of boundary.

Location and receptors

Table 4 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 4: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Yakka Munga Pastoral Station Homestead	30km to the east
Bedunburra Aboriginal Community	35km to the north

Table 5 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 5: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
ESA: Taylor's Lagoon and associated Roebuck Plains Wetland System (ANCA Wetland)	28km north-west
Threatened Ecological Community (buffer): Kimberley Vegetation Association 67; Priority 3	30km north-west, 34 km east and 36km west

Risk assessment

Tables 6 and 7 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 6: Risk assessment for proposed amendments during construction

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Cat 10 Oil or gas production from wells	Installation of new infrastructure (storage tanks, bunded area and flowlines)	Dust: associated with construction of bunded area around storage tanks Noise: associated with construction of bunded area around storage tanks and movement of vehicles	No residences or other sensitive receptors in proximity.	Air / wind dispersion	Health and amenity impacts	N/A	N/A	The Delegated Officer considers that a sufficient separation distance exists between the Premises and any sensitive receptors. The Applicant will use a water truck to reduce dust emissions during the construction period.
					Amenity impacts causing nuisance	N/A	N/A	Noise emissions are expected to comply with the Noise Regulations.

Table 7: Risk assessment for proposed amendments during operation

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Cat 10 Oil or gas production from wells	Operation of new infrastructure (wells, storage tanks, bunded areas and flowlines)	Air emissions: Increase in Volatile Organic Carbons (VOCs) from storage tank vents	No residences or other sensitive receptors in proximity.	Air / wind dispersion	Health and amenity impacts	N/A	N/A	The Delegated Officer considers that a sufficient separation distance exists between the Premises and any sensitive receptors. The Licence Holder has previously provided estimates that around 36m ³ of VOCs will be vented each day during operations. As there will be no change to oil production volumes, VOC

									emissions are not expected to increase. Air emissions modelling has shown that any reduction in air quality during operations will be restricted to the immediate vicinity (~2m) of the tank vents. Due to the absence of receptors the Delegated Officer considers that the risks to public and environment are negligible and regulatory controls are not required.
	Operation of well pumps and flowlines to central separator	Discharge to land: spills / leaks of reservoir fluids (oil and PFW)	Soils and groundwater. Depth to groundwater is approximately 30mbgl	Direct discharge to soils, seepage to groundwater	Contamination of soils. Reduction in groundwater quality / availability for dependent fauna / vegetation and / or stock on adjacent pastoral land	N/A	N/A	N/A	The Delegated Officer has previously reviewed the risks presented from the operation of pumps and flowlines associated with processing of oil on the premises. The Delegated Officer considers that installation of new wells, pumps and flowlines will not materially alter the risk of operation on the Premises, and notes that the existing Licence conditions and Licence Holder controls are sufficient to regulate such operations. No additional conditions are required.

Decision

The Delegated Officer has determined the Application by granting this Amendment Notice to give effect to amendments to the conditions of the Existing Licence. The Delegated Officer notes that there will be no increase the production or design capacity of the Premises as a result of the amendment, the oil production process has not changed and the change to the Premises boundary does not significantly alter the separation distances to nearest receptors. Existing Licence conditions remain sufficient to regulate the risks during operations.

Licence Holder controls for the construction of the works and maintenance of existing infrastructure are conditioned on this Amendment Notice to ensure that design specifications are adhered to in order to minimise the likelihood of emissions occurring. Existing conditions on the Licence remain sufficient to manage ongoing operations on the Premises, as follows:

- Licence condition 10 requires daily visual monitoring of all production flowlines when operating and conditions 11 and 12 specify treated stormwater discharge parameters; and
- Groundwater monitoring will continue to be undertaken in accordance with condition 15 to detect any potential impacts to groundwater as a result of oil production operations on the Premises.

The Prescribed Premises boundary map (Figure 1) in Schedule 1 of the Existing Licence has been updated to incorporate the new well locations Ungani West 1 and Ungani North 1.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 16 August 2018. Comments received from the Licence Holder have been considered by the Delegated Officer as shown in Appendix 2.

Amendment

1. The Licence is amended by the deletion of Condition 2 and Table 2 shown in strikethrough below and replaced by the insertion of new Condition 2 and Table 2.1 shown further below:

~~2. The Licence Holder shall carry out the Works within the Premises in accordance with the requirements set out in Table 2 below.~~

~~Table 2: Works Infrastructure to be constructed on the Premises~~

Column 1	Column 2	Column 3
Item	Works	Specifications
4	Ungani Central Facility	Installation of: <ul style="list-style-type: none">• 2 x artificial lift (downhole) pumps to maintain oil production rates at ~199kL per day;• 1,590kL per day oil-water separator;• 191kL oil stock (storage) tanks;• an additional 95kL segregation tank at the Ungani Central Facility;• an additional two 199kL oil storage tanks at the Ungani Central Facility;

		<ul style="list-style-type: none"> a 30 x 25m HDPE bunded area that is lined to achieve a permeability of less than $2 \times 10^{-9} \text{ m.s}^{-1}$ around the additional water tanks at the Ungani Central Facility; a 45 x 30m HDPE bunded area that is lined to achieve a permeability of less than $2 \times 10^{-9} \text{ m.s}^{-1}$ around the additional separator, oil tank and segregation tank at the Ungani Central Facility; addition of an in-field flowline between Ungani 4 and the Ungani Central Facility for produced fluids; and addition of an in-field flowline between Ungani 5 and the Ungani Central Facility for produced fluids; and 461kL water storage tanks; <p>Extension of the Prescribed Premises boundary to include the Ungani 4 location;</p> <ul style="list-style-type: none"> Extension of approximately 20m of bunding that is lined to achieve a permeability of less than $2 \times 10^{-9} \text{ m.s}^{-1}$ to encompass additional oil and water storage tanks; and 3.5km HDPE Flowline between Ungani Central Facility and Ungani FW 1 well site
2	Ungani Far West 1	<p>Installation of:</p> <ul style="list-style-type: none"> 71kL PFW receiving tank; and reinjection pump to allow reinjection of PFW to Ungani Far West 1

2. The Licence Holder shall carry out the Works within the Premises in accordance with the requirements set out in Table 2.1 below.

Table 2.1: Works Infrastructure to be constructed on the Premises

Column 1	Column 2	Column 3
Item	Works	Specifications
1	Ungani Central Facility	<p>Installation of:</p> <ul style="list-style-type: none"> 1,590 kL per day oil-water separator; and 461kL water storage tanks.
2	Ungani Far West 1	<p>Installation of:</p> <ul style="list-style-type: none"> 1 x 110kL oil storage tank enclosed within HDPE bunded area that is lined to achieve a permeability of less than $2 \times 10^{-9} \text{ m.s}^{-1}$ and has a minimum containment capacity of 123m³.
3	Ungani North 1	<p>Installation of:</p> <ul style="list-style-type: none"> 1 x 110kL oil storage tank enclosed within HDPE bunded area that is lined to achieve a permeability of less than $2 \times 10^{-9} \text{ m.s}^{-1}$ and has a minimum containment capacity of 123m³; and

		<ul style="list-style-type: none"> • Production Flowline between Ungani Central Facility and Ungani North 1 well site; and • Extension of the Prescribed Premises boundary to include the Ungani North 1 location,
4	Ungani West 1	<p>Installation of:</p> <ul style="list-style-type: none"> • 1 x 110kL oil storage tank enclosed within HDPE bunded area that is lined to achieve a permeability of less than $2 \times 10^{-9} \text{ m.s}^{-1}$ and has a minimum containment capacity of 123m³; • Production Flowline between Ungani Central Facility and Ungani West 1 well site; and • Extension of the Prescribed Premises boundary to include the Ungani West 1 location,
5	Ungani East	Ungani 3 well to be reconfigured for use as PFW reinjection well.

3. The Licence is amended by the deletion of Condition 8 and Table 3 shown in strikethrough below and replaced by the insertion of Condition 8 and Table 3.1 shown further below:

~~8. The Licence Holder must ensure that the infrastructure and equipment specified in Table 3 are maintained in good working order.~~

Table 3: Infrastructure and Equipment Controls on the Premises

Column 1	Column 2	Column 3
Item	Site Infrastructure	Description
4	Ungani Central Facility	<ul style="list-style-type: none"> • Ungani 1, 2, 4 and 5 2 wells: oil production wells with estimated capacity at 415kL 759kL per day • 2 x three phase separators with combined capacity of 1,987kL per day; • Segregation tanks with capacity of 55kL 150kL; • Oil stock (storage) tanks with combined capacity of 620kL 827kL; • PFW storage tanks with combined capacity of 596kL; • All oil and PFW storage tanks to be located in bunded areas that are lined to achieve a permeability of less than $2 \times 10^{-9} \text{ m.s}^{-1}$ and sized to accommodate 110% of the capacity of the largest tank in the bund; • Produced water unit comprising pump, filtration units, injection points and chemical injection unit; • Ungani Central Turkey's Nest Dam: lined with a synthetic material to achieve a permeability of less than $1 \times 10^{-9} \text{ m.s}^{-1}$; • Road tanker load out facility and refuelling facility:- <ul style="list-style-type: none"> * bunded and lined with a synthetic material to achieve a

		permeability of less than $1 \times 10^{-9} \text{ m.s}^{-1}$; and • stormwater drains to sump with oil-water separator installed to treat stormwater prior to discharge.
2	Ungani Far West 1	• 71kL PFW receiving tank; and • reinjection pump to allow reinjection of PFW to Ungani Far West 1
3	PFW reinjection wells	• Ungani 3 and Ungani Far West 1 wells
4	HDPE flowlines	• Oil and PFW flowlines across the premises including all pipework, hoses, pumps, valves and meters

8. The Licence Holder must ensure that the infrastructure and equipment specified in Table 3.1 are maintained in good working order.

Table 3.1: Infrastructure and Equipment Controls on the Premises

Column 1	Column 2	Column 3
Item	Site Infrastructure	Description
1	Ungani Central Facility	<ul style="list-style-type: none"> • Ungani 1 and 2 oil production wells fitted with high/low pressure automatic shutdown controls; • 2 x three phase separators with combined capacity of 1,987kL per day; • Segregation tanks with capacity of 150kL; • Oil stock (storage) tanks with combined capacity of 827kL; • PFW storage tanks with combined capacity of 596kL; • All oil and PFW storage tanks to be located in bunded areas that are lined to achieve a permeability of less than $2 \times 10^{-9} \text{ m.s}^{-1}$ and sized to accommodate 110% of the capacity of the largest tank in the bund; • Produced water unit comprising pump, filtration units, injection points and chemical injection unit; • Ungani Central Turkey's Nest Dam: lined with a synthetic material to achieve a permeability of less than $1 \times 10^{-9} \text{ m.s}^{-1}$; • Road tanker load out facility and refuelling facility: <ul style="list-style-type: none"> ▪ bunded and lined with a synthetic material to achieve a permeability of less than $1 \times 10^{-9} \text{ m.s}^{-1}$; and ▪ stormwater drains to sump with oil-water separator installed to treat stormwater prior to discharge.
2	Ungani Far West 1	<ul style="list-style-type: none"> • Ungani Far West 1 oil production well fitted with high/low pressure automatic shutdown control (may also be used as a PFW reinjection well); • 1 x 110kL oil storage tank enclosed within HDPE bunded area that is lined to achieve a permeability of less than $2 \times 10^{-9} \text{ m.s}^{-1}$

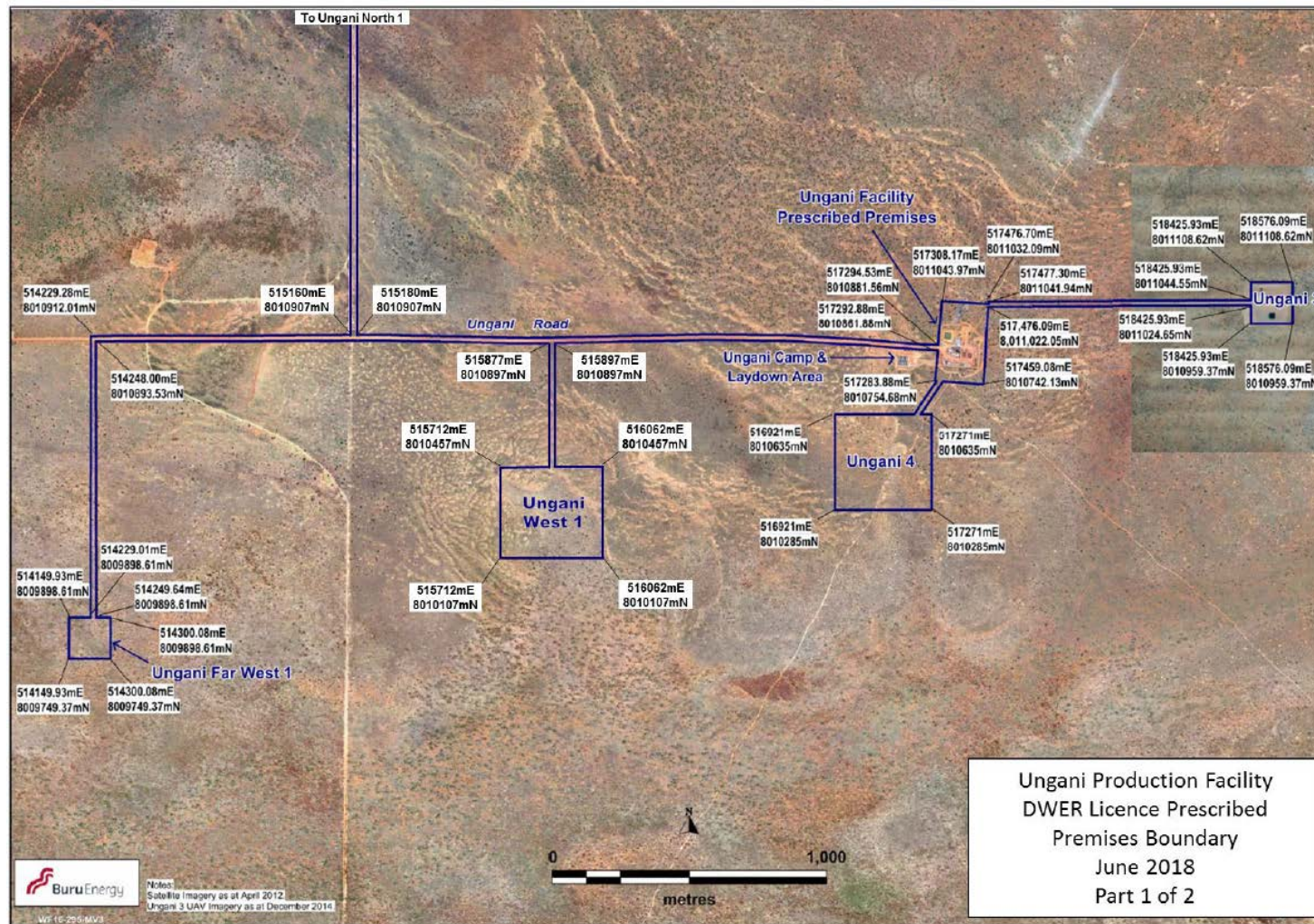
		and has a minimum containment capacity of 123m ³ .
3	Ungani North 1	<ul style="list-style-type: none"> • Ungani North 1 oil production well fitted with high/low pressure automatic shutdown control; and • 1 x 110kL oil storage tank enclosed within HDPE bunded area that is lined to achieve a permeability of less than $2 \times 10^{-9} \text{ m.s}^{-1}$ and has a minimum containment capacity of 123m³.
4	Ungani West 1	<ul style="list-style-type: none"> • Ungani West 1 oil production well fitted with high/low pressure automatic shutdown control; and • 1 x 110kL oil storage tank enclosed within HDPE bunded area that is lined to achieve a permeability of less than $2 \times 10^{-9} \text{ m.s}^{-1}$ and has a minimum containment capacity of 123m³.
5	Ungani 4	<ul style="list-style-type: none"> • Ungani 4 oil production well fitted with high/low pressure automatic shutdown control; and • 1 x 110kL oil storage tank enclosed within HDPE bunded area that is lined to achieve a permeability of less than $2 \times 10^{-9} \text{ m.s}^{-1}$ and has a minimum containment capacity of 123m³.
6	Ungani East	<ul style="list-style-type: none"> • Ungani 3 and 5 oil production wells fitted with high/low pressure automatic shutdown controls; and • Ungani 3 well to also be used as PFW reinjection well.
7	Flowlines	<ul style="list-style-type: none"> • Oil and PFW flowlines across the premises including all pipework, hoses, pumps, valves and meters.

4. The Premises Maps given in Schedule 1 of the Licence (Figures 1 and 2) are amended by the replacement of the new Premises Maps (Parts 1 and 2) dated June 2018 shown below:

Schedule 1: Maps

Figure 1 - Premises Map (Part 1)

The Premises is shown in the map below (Part 1 of 2). The blue line depicts the boundary to the Premises.

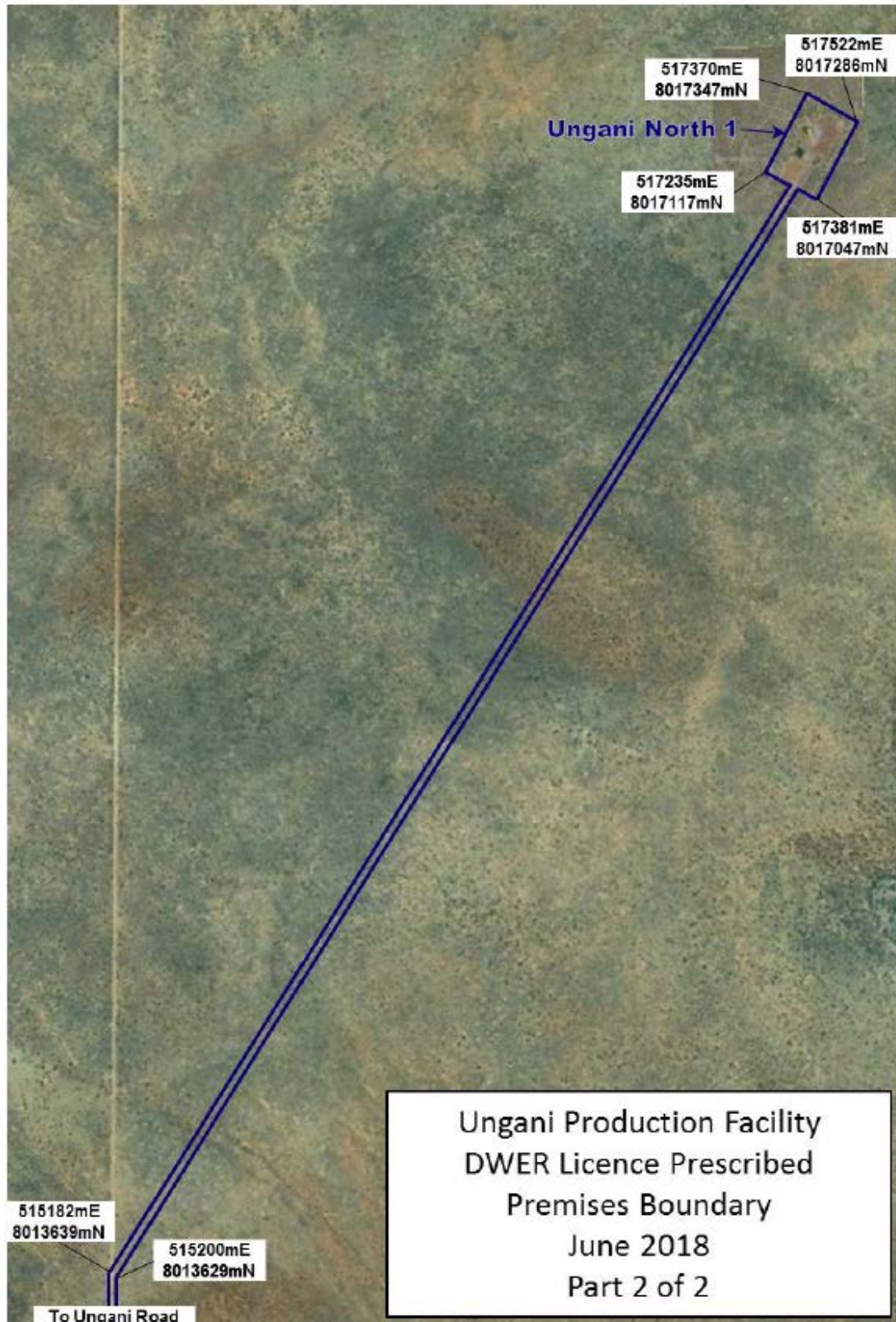


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Figure 2 - Premises Map (Part 2)

The Premises is shown in the map below (Part 2 of 2). The blue line depicts the boundary to the Premises.



Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L8777/2013/1 Ungani Facility	L8777/2013/1	accessed at www.dwer.wa.gov.au
2	Amendment Notice 1 for Licence L8777/2013/1 Ungani Facility	Amendment Notice #1	
3	Amendment Application Form completed by Buru Energy Limited and dated 12 June 2018	Buru 2018	DWER Records (A1690405)
4	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	accessed at www.dwer.wa.gov.au	
5	DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.		
6	DER, November 2016. <i>Guidance Statement: Environmental Siting</i> . Department of Environment Regulation, Perth.		
7	DER, February 2017. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.		
8	DER, February 2017. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.		

Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Notice on 16 August 2018 for review and comment. The Licence Holder responded on 17 August 2018 with the following comments received on the draft Amendment Notice.

Condition	Summary of Licence Holder comment	DWER response
8	<p>The Licence Holder requested the following updates to (draft) Table 3.1:</p> <ul style="list-style-type: none">• The Ungani 5 well is not located at the Central Facility, but on the same well site as Ungani 3 (called Ungani East) – please update; and• Ungani Far West 1 may from time to time be used for PFW reinjection – please list this well as an oil production and PFW reinjection well	<p>Requested changes were incorporated into final Amendment Notice.</p>