



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 6728

Date of Amendment 20/12/2017

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* (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 December 2017

Caron Goodbourn

A/Manager Licensing (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-der@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
HDPE	High Density Poly Ethylene
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 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: Licence Duration (August 2016)*
- *Guidance Statement: Environmental Siting (November 2016)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessment (February 2017)*

Amendment description

On 11 September 2017, Buru Energy Limited (the Licence Holder) submitted an Application (Buru 2017) to DWER for amendments to the Ungani Facility (the Premises) Existing Licence L8777/2013/1. The amendment application relates to future expansion works proposed at the Premises. Specifically, the Licence Holder is proposing to drill an additional two petroleum wells at the Premises, the Ungani 4 well located approximately 400m south of the Ungani Production Facility (beyond the current Prescribed Premises boundary) and the Ungani 5 well that will be located at the existing Ungani 3 well site (within the current Prescribed Premises boundary). Once the new wells have been successfully completed and tested they will be connected via in-field flowlines to the Ungani Production Facility, where the produced fluids will be separated into crude oil and produced formation water (PFW) streams as per the current production process.

The Licence Holder has applied to make the following infrastructure changes at the Premises:

- Installation of an additional 95kL segregation tank at the Ungani Central Facility;
- Installation of an additional two 199kL oil storage tanks at the Ungani Central Facility;
- Addition of a 30 x 30m HDPE bunded area around the additional tanks at the Ungani Central Facility;
- Extension of the Prescribed Premises boundary to include the Ungani 4 location,
- 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.

With the addition of the crude oil segregation tank and two oil storage tanks outlined above, the 191kL crude oil storage tank approved under the Existing Licence will no longer be required and will be removed from the Premises. This tank will therefore be removed from the approved infrastructure listed on the Existing Licence. Similarly, the PFW flowline to Ungani Far West 1 that was authorised to be installed under the previous version of the Licence has now been completed and will therefore be removed from the approved works table in the Existing Licence.

The additional infrastructure will result in an increase to the Premises maximum

production design capacity which is outlined in Table 2 below.

Table 2: Proposed design capacity changes

Category	Current design capacity	Proposed design capacity	Description of proposed amendment
10: Oil or gas production from wells	127,750 tonnes per year	244,359 tonnes per year	Additional petroleum wells and oil and produced water storage infrastructure that will result in an increase to the Premises design capacity

The Licence Holder estimates that actual throughputs will be around 146,615 tonnes of oil or gas per year.

In addition, the Licence Holder has advised DWER of a change to the registered business address for Buru Energy limited. The Licence Holder's new registered business address has therefore been updated as part of this Amendment Notice.

Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 3.

Table 3: Relevant approvals

Legislation	Number	Approval
<i>Petroleum and Geothermal Energy Resources Act 1967 & Petroleum Pipelines Act 1969</i>	Environment Plan Currently under assessment by DMIRS	Approval from DMIRS has been granted for the additional storage tanks. An Environment Plan for the tie in of the new petroleum wells is currently under preparation and will be submitted to DMIRS in the near future.

Amendment history

Table 4 provides the amendment history for L8777/2013/1.

Table 4: 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.
--	------------	---

Location and receptors

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

Table 5: 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	40km to the north

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

Table 6: 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)	31km north-west

Risk assessment

Tables 7 and 8 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 7: 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 form wells	Installation of new infrastructure (storage tanks, banded area and flowlines)	Dust: associated with construction of banded area around storage tanks	No residences or other sensitive receptors in proximity.	Air / wind dispersion	Health and amenity impacts	N/A	N/A	N/A	The Delegated Officer considers that a sufficient separation distance exists between the Premises and any sensitive receptors. The construction period is expected to last for around 12 weeks. The Applicant will use a water truck to reduce dust emissions during the construction period.
		Noise: associated with construction of banded area around storage tanks and movement of vehicles			Amenity impacts causing nuisance	N/A	N/A	N/A	Noise emissions are expected to comply with the Noise Regulations.

Table 8: 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 (storage tanks, banded area 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	N/A	The Delegated Officer considers that a sufficient separation distance exists between the Premises and any sensitive receptors. The Licence Holder estimates that around 36m ³ of VOCs will be vented each day. Air

									emissions modelling has shown that any reduction in air quality 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 pumps and new flowlines to 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 flowlines will not materially alter the risk of operation on the Premises, and notes that the existing Licence conditions are sufficient to regulate such operations. No additional conditions are required.

Decision

The Delegated Officer has determined the Application by granting this Notice to give effect to amendments to the conditions of the Existing Licence. The Delegated Officer notes that although the Licence Holder has applied to increase the production design capacity of the Premises by installing new petroleum wells and oil and water storage infrastructure, the oil production process has not changed and the Existing Licence conditions are sufficient to regulate the risks during operations.

The Licence Holder's new registered business address has been updated. Condition 2 (Table 2) of the Existing Licence has been amended to authorise construction of the new storage tanks, bunding and flowlines to be constructed. Condition 2 retains previously authorised works yet to be constructed and has been updated to remove works that have been recently completed. Condition 8 has been amended to incorporate the new infrastructure and equipment controls that are authorised to be operated and required to be maintained on the Premises.

The Prescribed Premises boundary map (Figure 1) in Schedule 1 of the Existing Licence has been updated to incorporate new infrastructure at Ungani 4, and the Premises Layout Map (Figure 2) has been replaced with a new layout map of proposed and future infrastructure. Schedule 2 of the Existing Licence has also been updated to reflect the new production design capacity and approved infrastructure and equipment at the Premises.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 6 October 2017. The Licence Holder responded on 11 October 2017 advising there were no comments or representations to make in regards to the Amendment Notice.

Amendment

1. The Licence Holder's registered business address is amended from the address below:

*Level 2
88 William Street
PERTH WA 6850*

To the new address below:

*Level 2
16 Ord Street
WEST PERTH WA 6005*

2. Condition 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:

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
1	Ungani Central Facility	<p>Installation of:</p> <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; • <u>an additional 95kL segregation tank at the Ungani Central Facility;</u> • <u>an additional two 199kL oil storage tanks at the Ungani Central Facility;</u> • <u>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;</u> • <u>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;</u> • <u>addition of an in-field flowline between Ungani 4 and the Ungani Central Facility for produced fluids; and</u> • <u>addition of an in-field flowline between Ungani 5 and the Ungani Central Facility for produced fluids; and</u> • 461kL water storage tanks; <p><u>Extension of the Prescribed Premises boundary to include the Ungani 4 location.</u></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

3. Condition 8 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:

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

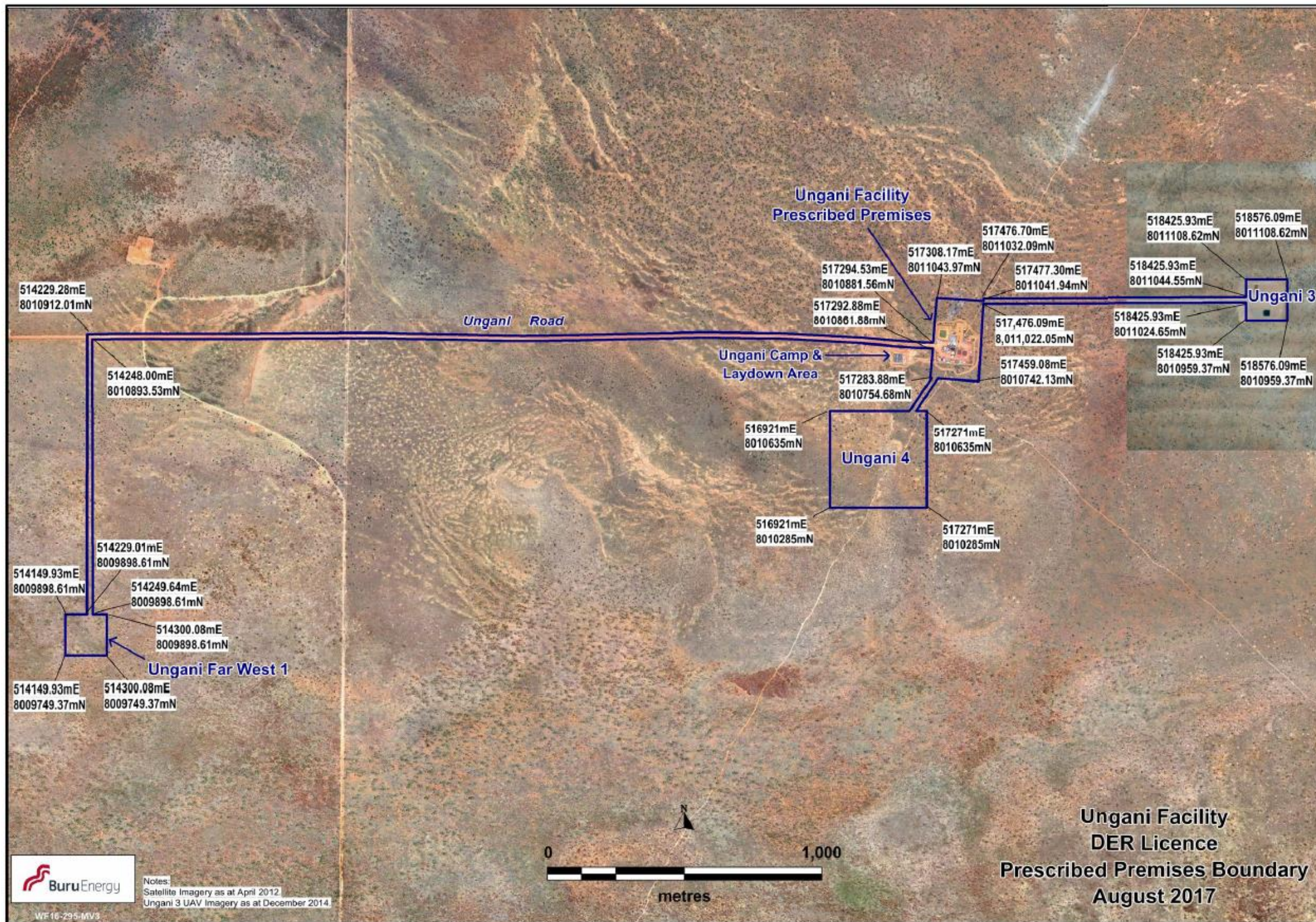
Column 1	Column 2	Column 3
Item	Site Infrastructure	Description
1	Ungani Central Facility	<ul style="list-style-type: none"> Ungani 1, 2, 4 and 5 2 wells: oil production wells with estimated capacity at 445kL 759kL per day 2 x three phase separators with combined capacity of 1,987kL per day; Segregation 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	<ul style="list-style-type: none"> 71kL PFW receiving tank; and reinjection pump to allow reinjection of PFW to Ungani Far West 1
3	PFW reinjection wells	<ul style="list-style-type: none"> Ungani 3 and Ungani Far West 1 wells
4	HDPE 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 map dated August 2017 and the Premises Layout Map shown below:

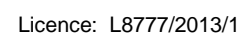
Schedule 1: Maps

Figure 1 - Premises Map

The Premises is shown in the map below. The blue line depicts the boundary to the Premises.



The Premises Infrastructure is shown in the plan below.



5. Schedule 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:

Schedule 2: General Description

At the time of assessment, Emissions and Discharges from the following Primary Activity were considered in the determination of the risk and related Conditions for the Premises.

The Primary Activities are listed in **Table 9**:

Table 9: Primary Activity

Primary Activity	Premises Production or Design Capacity
Category 10 - Oil or gas production from wells: premises, whether on land or offshore, on which crude oil, natural gas or condensate is extracted from below the surface of the land or the seabed, as the case requires, and is treated or separated to produce stabilized crude oil, purified natural gas or liquefied hydrocarbon gases.	427,750 <u>244,359</u> tonnes per year

Infrastructure and equipment

The following Primary Activity infrastructure and equipment are situated on the Premises:

Table 10: Infrastructure and equipment

	Infrastructure and Equipment	Plan reference
1	Three-phase (oil, produced water and gas) production separator with a 15.8 kilolitre (kL) gauge tank	Figure 2 – premises layout map
2	55kL segregation tank used to segregate unseparated oil (carried over from separator) from the water prior to storage	Figure 2 – premises layout map
3	Two produced water tanks with a total capacity of 136kL	Figure 2 – premises layout map
4	Three vented oil stock gravity settling tanks with a total capacity of 441kL	Figure 2 – premises layout map
5	Produced formation water (PFW) unit comprising a pump and filtration unit; injection points and chemical injection unit	Figure 2 – premises layout map
6	Lined Turkey's Nest dam with a storage capacity of 1,500kL	Figure 2 – premises layout map
7	Road tanker oil load out facility	Figure 2 – premises layout map
8	Refueling facility	Figure 2 – premises layout map

The following Primary Activity infrastructure and equipment (the Works) are approved to be

constructed on the Premises in accordance with condition 2 of this Licence:

Table 11: Infrastructure and equipment to be constructed on the Premises

	Infrastructure and Equipment	Plan reference
9	Additional three-phase separator with a capacity of around 1,971kL	Figure 2 – premises layout map
10	Additional 191kL two 199kL oil stock tanks	Figure 2 – premises layout map
11	Additional 461kL water storage tank	Figure 2 – premises layout map
12	Additional artificial lift (downhole) pumps to maintain oil production rates at approximately 198kL per day	Figure 2 – premises layout map
13	<u>Additional 95kL oil segregation tank</u>	Figure 2 – premises layout map

Site layout

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

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 Application Form completed by Buru Energy Limited	Buru 2017	DWER Records (A1520895)
3	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	accessed at www.dwer.wa.gov.au	
4	DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.		
5	DER, November 2016. <i>Guidance Statement: Environmental Siting</i> . Department of Environment Regulation, Perth.		
6	DER, February 2017. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.		
7	DER, February 2017. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.		