Decision Report

Application for Licence Amendment

Division 3, Part V *Environmental Protection Act 1986*

Licence Number	L6872/1994/11
Licence Holder	Buru Energy Limited
ACN	130 651 347
File Number	DER2013/001065-2
Premises	Blina Production Facility Blina Road MEDA (6278) and MOUNT HARDMAN (6765) WA SHIRE OF DERBY WEST KIMBERLEY Petroleum Tenements EP129, L6, L8, L17 and PL7 As defined by the coordinates in Schedule 1 of the Licence
Date of Report	28/01/2020
Status of Report	Final

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1. Definitions of terms and acronyms

In this Decision Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AACR	means Annual Audit Compliance Report
ACN	means Australian Company Number
AER	means Annual Environment Report
BGL	means below ground level
BTEX	means benzene, toluene, ethylene and xylene
Category/ Categories/ Cat.	means Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
Decision Report	refers to this document.
Delegated Officer	means an officer under section 20 of the EP Act.
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.
DMIRS	Department of Mines, Industry Regulation and Safety
DWER	Department of Water and Environmental Regulation
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (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 amendment
Licence Holder	Buru Energy Limited
m^3	cubic metres
NEPM	means National Environmental Protection Measure
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Occupier	has the same meaning given to that term under the EP Act.
PAH	means Polyaromatic Hydrocarbons
PFW	means Produced Formation Water
PM	means Particulate Matter
PM_{10}	used to describe particulate matter that is smaller than 10 microns (µm) in

	diameter
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
psi	means pounds per square inch
Amended Licence	the amended Licence issued under Part V, Division 3 of the EP Act following the finalisation of this amendment.
Risk Event	As described in *Guidance Statement: Risk Assessment*
UDR	*Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA)
µg/m^3	micrograms per cubic metre
µg/L	micrograms per litre

2. Purpose and scope of assessment

An application to amend Licence L6872/1994/11 for the Blina Production Facility (the Premises) was received by Buru Energy Limited (Licence Holder) on 1 May 2019.

The Premises is licenced under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) for Category 10: oil and gas production from wells. The Premises is an existing oil production facility that has been on care and maintenance since February 2013. The Licence amendment application requests approval to utilise existing petroleum wells on the Premises for disposal of produced formation water (PFW) from other oil and gas operations. This change in operations triggers an additional category under the EP Regulations: Category 61: liquid waste facility. In addition to the amendment requested by the Licence Holder, DWER has also conducted a CEO initiated review of the Premises category 10 operations to ensure any existing oil and gas infrastructure is captured under the Revised Licence.

This amendment is made pursuant to sections 59(1) and (2) of the *Environmental Protection Act 1986* (EP Act) to amend Licence L6872/1994/11 granted to the Licence Holder for operation of the Premises.

2.1 Application details

Table 2 lists the documents submitted during the assessment process.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received	DWER reference number
Application to amend licence Form - L6872/1994/11 Blina Production Facility. Including • Attachment 2: Maps; • Attachment 6B: Example of Produced Formation Water Characteristics; and • Attachment 7: Siting and location maps	1 May 2019	DWERDT156107
Response to DWER request for further information: including GPS locations of PFW disposal wells, updated Premises boundary map, groundwater information, PFW disposal rates, frequencies, depths and key pollution control infrastructure for management of potential leaks / spills of PFW during transfer / disposal operations.	1 October 2019 and 2 October 2019	A1828138 and A1828151
Confirmation from Licence Holder regarding proposed licence conditions relating to groundwater monitoring bore construction and analysis of PFW to be disposed on the Premises.	22 January 2020	A1861090

3. Background

Blina Production Facility is located on Petroleum Tenements EP129, L6, L8, L17 and PL7 approximately 100km south east of Derby, Western Australia (Figure 1). The Premises spans approximately 66km from the northwest to southeast boundaries and is around 35km wide at its widest point. The Premises footprint covers some 110,000 ha.

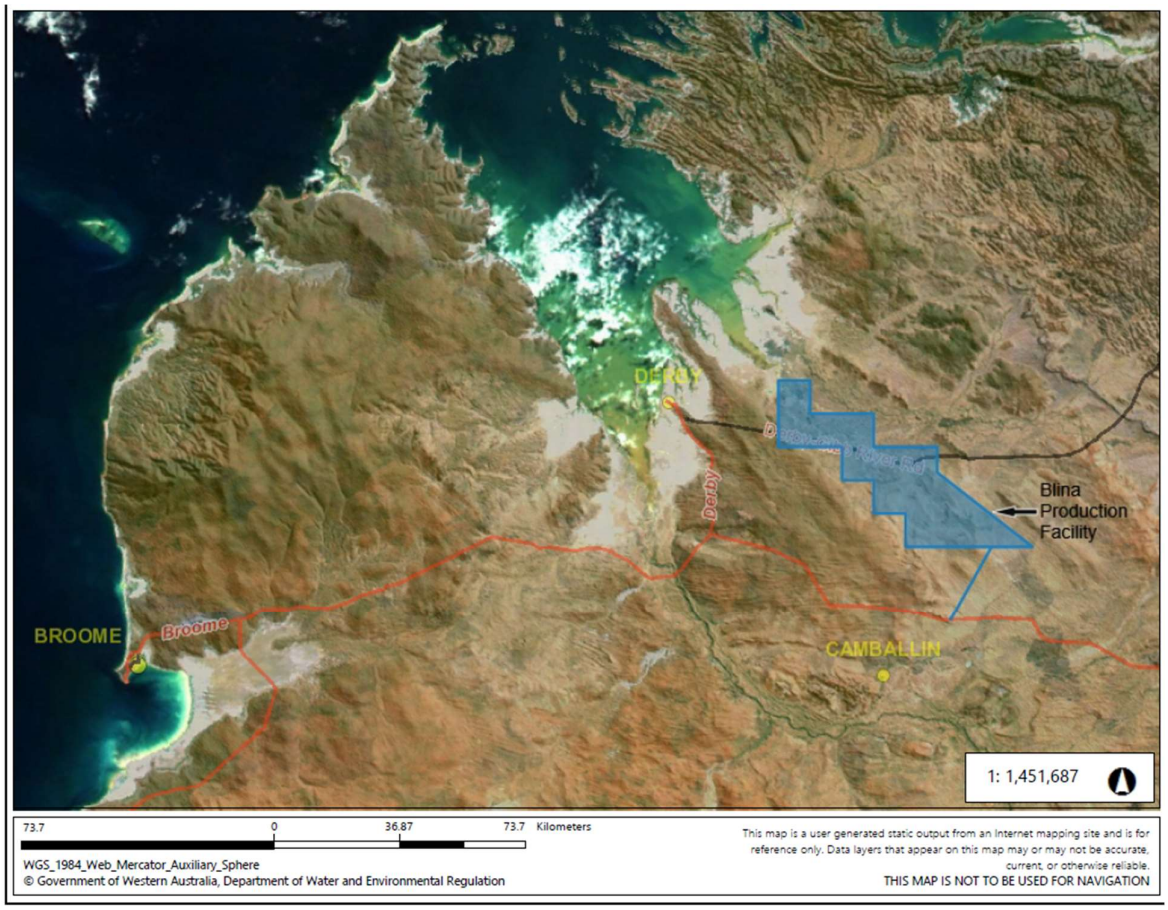

Figure 1: Location of Blina Production Facility (various petroleum tenements)

A Category 10 Prescribed Premises licence was first issued to allow production of oil at the Premises in February 2001.

Table 3 lists the Prescribed Premises Category that is authorised on the Existing Licence, as well as the additional Prescribed Premises Category that has been applied for via the Licence amendment application.

Table 3: Prescribed Premises Categories in the Existing Licence

Classification of Premises	**Description**	***Approved Premises production or design capacity or throughput***
Existing approved category		
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.	≤50,000 tonnes per year
New category applied for via this licence amendment application		
Category 61	Liquid waste facility: premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.	≤100,000 tonnes per year

The Premises is not currently processing any oil, due to being on care and maintenance. All oil production wells have been shut in by closing all valves and positively isolating each well at the surface. All flowlines have been flushed with bore water and filled with treated bore water containing corrosion inhibitor and biocide. Oil processing and storage infrastructure remaining on the Premises is detailed in Table 4 below.

Some infrastructure, such as accommodation facilities, generators, beam pumps, storage tanks, separators, oil interceptor ponds and PFW evaporation ponds, have been decommissioned from the Premises in recent years. Should the Licence Holder recommence Category 10 operations in the future, alternative PFW management measures may need to be developed, and the suitability of some existing infrastructure may need to be reviewed, which will likely trigger the requirement for additional approvals under Section 53 of the EP Act.

4. Overview of Premises

4.1 Operational aspects

Historically, key activities at the Premises have included:

- extraction of oil reservoir fluids from wells;
- separation of oil and water via horizontal and vertical gravity separators;
- load out of crude oil to road tankers; and
- discharge of PFW to evaporation ponds.

Five known oil fields produced oil at the Premises, including Blina, Boundary, Lloyd, Sundown and West Terrace fields. Negligible levels of gas were produced from these oil fields. Operations were suspended in 2013 due to low oil production rates from the fields.

Wells in the Blina field produced into the Blina Battery where oil and PFW was separated and oil stored in two tanks. PFW was sent to two evaporation ponds while oil was transported via a 114mm, 29km buried pipeline (PL7 pipeline) to the Erskine truck loading terminal on Great Northern Highway. At Erskine, oil was stored in two tanks prior to loading out to road tanker.

The remaining fields produced oil via flowlines into the Meda Battery, which consisted of four storage tanks. Oil was loaded out from Meda Battery to road tankers.

Oil from Erskine Terminal and Meda Battery was transported by road tanker to Kwinana for refining.

4.2 Details of applicant initiated amendment

The Premises is currently licensed under the EP Act for oil and gas production operations (Category 10). The Licence Holder has requested approval to use two existing petroleum wells on the Premises for disposal of PFW from a number of the Licence Holder's exploration well sites, triggering Prescribed Premises Category 61 (liquid waste disposal). The Licence Holder wishes to retain Category 10 authorisation on the Licence as future prospects and options for the site are still being explored.

The West Terrace 1 and West Terrace 2 oil production wells are the preferred wells for PFW injection due to their expected ability to receive large volumes of water, and their accessibility. No construction operations are required to allow the PFW injection, as it is proposed for PFW to be pumped from a water truck directly into the well. Disposal is predicted to occur intermittently as determined by Licence Holder's exploration operations. It is estimated that disposal may occur every few months with disposal occurring an average of four times a year. The Licence Holder estimates that on each occasion, around 1,000kL of PFW may be disposed of by injection to the West Terrace wells. Disposal will be at the rate of approximately 10kL per hour.

Based on injection tests in other wells, the Licence Holder estimates that the West Terrace

wells will be able to receive around 83,000m^3 (approximately 85,000t) per year of PFW in total.

To undertake injection of PFW, a pump and generator will be located in portable bunding adjacent to the well. The pump will be used to pump PFW directly from the water truck to the well.

Disposal of PFW will be to the depleted oil reservoir in the Grant Formation, between 1,154 and 1,160m below ground level (BGL). Between 1985 and 2013, 39,383kL of oil was produced from the Grant Reservoir from the West Terrace 1 and West Terrace 2 oil wells. A further 1,434,829kL of PFW was produced along with the oil so the reservoir has had considerable fluid extracted over time. As a depleted oil reservoir, this is considered a low quality receiving environment.

The Grant Formation where the PFW will be injected is located approximately 1,000m below the brackish Canning-Erskine Aquifer, which is the deepest recognised aquifer in the region. The Grant Formation is separated from the Canning-Erskine Aquifer by the Noonkanbah Shale, which provides an effective seal as evidenced by the presence of oil in the Grant Formation which has been confined for millions of years.

4.3 Infrastructure

The Premises infrastructure, as it relates to Category 10 and 61 activities, is detailed in Table 4 and with reference to the Site Plan (attached in the Revised Licence).

Table 4: Blina Production Facility Category 10 and 61 infrastructure

	Infrastructure
	Prescribed Activity Category 10
Historically, the Licence Holder abstracted fluids from a series of production wells on the Premises that intercept a number of oil formations. The fluids were processed to separate crude oil and PFW. Crude oil was stored in tanks on the Premises prior to being exported off-site via tanker trucks. PFW was evaporated in a series of evaporation ponds (now decommissioned). The Primary Activities and remaining infrastructure related to the Category 10 activities are listed below.	
1	Blina battery: • 6 x petroleum production / PFW reinjection wells (Blina 1 – 6); • 1 x groundwater monitoring bore; • vertical and horizontal separator (capacity 600kL); • 2 x vertical oil storage tanks (capacity 300kL each); • 1 x skimmer tank; and • earthen (clay lined) bunded area around separator and storage tanks.
2	Sundown battery: • 2 x oil storage tanks (capacity 63kL each); and • 1 x groundwater monitoring bore (Sundown monitoring bore)
3	Meda battery: • 2 x petroleum production / PFW reinjection wells (West Terrace 1 and 2); • 2 x oil storage tanks (combined capacity 204kL); • Tanker truck oil load out facility; and • earthen (clay lined) bunded area around storage tanks and truck load out facility.
4	Erskine Terminal: •2 x oil storage tanks (capacity 300kL each); •1 x groundwater monitoring bore; and •Tanker truck oil load-out facility
5	Blina to Erskine Oil Pipeline (PL7) with sacrificial anode/cathodic protection system at 3km intervals

	Infrastructure
	along pipeline
6	Flowlines: • Oil and PFW flowlines across the premises including all pipework, hoses, pumps, valves and meters
	Prescribed Activity Category 61
The Licence Holder is proposing to use two existing petroleum wells for disposal of PFW from other operations. PFW will be pumped from a water truck directly into the wells. Infrastructure relating to the Category 61 activities is listed below.	
7	Petroleum production / PFW disposal wells: • West Terrace 1; and • West Terrace 2
8	Portable pump (fitted with Emergency Stop Device) and generator located within portable geotextile bunded liner which will meet permeability criteria (<1 x 10^{-9} m/s) and will be located adjacent to each well during injection.
9	2 x groundwater monitoring bores (WT1 and WT2 monitoring bores)

4.4 Exclusions to the Premises

The oil production and disposal wells on the Premises are regulated under the *Petroleum and Geothermal Energy Resources Act 1967* (PGER Act). As such, Department of Mines, Industry Regulation and Safety (DMIRS) regulates the construction, maintenance, integrity and monitoring of the production and disposal wells on the Premises.

In addition, the concentration of petroleum in PFW by discharge, injection or re-injection is regulated under Part 4 of the *Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 (WA)* (PGERE Regulations). The operator must also monitor and report to DMIRS, all emissions and discharges that occur during oil production operations in accordance with an Environment Plan approved by the (WA) Minister for Mines and Petroleum.

The oil production and disposal wells and concentration of petroleum in PFW injection activities are therefore regulated by DMIRS and will not be considered in this assessment.

5. Legislative context

Table 5 summarises approvals relevant to the assessment.

Table 5: Relevant approvals and tenure

Legislation	Number	Approval
Petroleum and Geothermal Energy Resources Act 1967 & Petroleum Pipelines Act 1969	Blina Oilfield Care and Maintenance Environment Plan (HSE-PLN-008)	The existing Blina Oilfield Care and Maintenance Environment Plan (HSE-PLN-008) requires revision to cover the planned injection operations. Revision 8 was submitted to DMIRS on 24/10/2019 and is currently under assessment by DMIRS.
	Production Licences PL6 and PL8	Approval issued 19/5/2006
	Onshore Pipeline Licence PL 7	Approval issued 9/5/2004

Legislation	Number	Approval
	Blina Oilfield Health and Safety Management System (HSE-SMS-004) Revision 2	Approval issued 16/7/2019
	Blina Pipeline Safety Case (HSE-SC-002) Revision 6	Approval issued 12/8/2019
Part V of the EP Act (WA)	Licence L6872/1994/11	Issued 3/2/2012, amended 28/01/2020 Approves Category 10 oil or gas production from wells and category 61 liquid waste facility

5.1 Other relevant approvals

5.1.1 Planning approvals

Advice was sought from Shire of Derby-West Kimberley (the Shire) on 22 November 2019 to determine if any planning approvals are in place for the Premises and to seek comment on the proposal to amend the Licence to allow category 61 activities. No comments were received from the Shire.

5.1.2 Department of Mines, Industry Regulation and Safety

The Premises is operated in accordance with the revised Blina Oilfield Care and Maintenance Environment Plan (HSE-PLN-008) which has been approved by DMIRS as a requirement of the PGERE Regulations. A revised Environment Plan (EP) has been submitted to DMIRS to manage environmental risks associated with the proposed injection of PFW. The revised EP is currently under assessment.

The PGERE Regulations require the EP implementation strategy to specifically consider the injection of PFW into wells, including specification of the maximum permissible concentration of petroleum in the PFW, and details regarding any chemicals or other substances that may be used in treatment fluids or introduced to the subsurface environment as a result of injection activities.

5.2 Part V of the EP Act

5.2.1 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

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

5.2.2 Licence history

Table 6 summarises the licence history for the premises over the last 10 years.

Table 6: Licence history

Instrument	Issued	Nature and extent of works approval, licence or amendment
L6872/19944/10	3/2/2009	Licence re-issued to Buru Energy Limited (formerly issued to Terratek Drilling Tools Pty Ltd) authorising category 10 operations
L6872/1994/11	3/2/2012	Licence re-issued to Buru Energy Limited authorising category 10 operations

L6872/1994/11	28/02/2020	Licence amendment to review category 10 operations and infrastructure, and assess proposal to inject PFW to West Terrace Wells 1 and 2 (category 61 operations).

6. Consultation

DWER sought comment from DMIRS regarding the proposed amendment to L6872/1994/11 on 22 October 2019. DMIRS advised that they were still assessing the proposal and that they require full chemical disclosure from the Applicant. DMIRS advised they were seeking clarification on location of groundwater monitoring bores and frequency of groundwater monitoring.

The Shire of Derby-West Kimberley was also contacted for comment on the proposed amendment on 22 November 2019. No comments were received

A copy of the draft Decision Report and Revised Licence were provided to the Licence Holder on 5 December 2019. Comments received from the Licence Holder included clarification / further information on particular aspects of the proposal as requested by the Delegated Officer and confirmation that the Licence Holder is happy to progress with the amendment as drafted.

7. Location and siting

7.1 Siting context

The Premises is located in a remote area on Blina Pastoral Station, accessible via the Gibb River Road or Blina Station Road. Land uses in the area are predominantly open range pasture grazing of beef stock, with some active and historical mining operations in the area (historical mine pits located over 20km east of the Premises).

7.2 Residential and sensitive Premises

The distances to residential and sensitive receptors are detailed in Table 7.

Table 7: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Mowanjum Aboriginal Community	23km west of Premises boundary
Jimbalakudunj Aboriginal Community	25km south of Premises boundary
Blina Station Homestead	40km southeast of Premises boundary

7.3 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at or Emissions and Discharges from the Premises. The distances to specified ecosystems are shown in Table 8. Table 8 also identifies the distances to other relevant ecosystem values which do not fit the definition of a specified ecosystem.

The table has also been modified to align with the *Guidance Statement: Environmental Siting.*

Table 8: Environmental values

Specified ecosystems	Distance from the Premises
Important wetlands – Western Australia	Camballin Floodplain (Le Lievre Swamp System)

	located approximately 8km south of Premises boundary (at Erskine Terminal)
Threatened Ecological Communities	Kimberley Vegetation Association located in the centre of Petroleum tenement L8 R1 and directly north of Premises boundary at L17.
Biological component	**Distance from the Premises**
Threatened/Priority Flora	There is no threatened or priority flora recorded on the Premises.
Threatened/Priority Fauna	A range of Priority fauna have been recorded within the Premises boundary including: • Erythrua gouldia (Gouldian finches); • Pandion cristatus (Eastern osprey); • Chlidonias leucopterus (White-winged tern): • Tringa nebularia (Common greenshank); • Crocydylus porosus (Saltwater crocodile); • Plegadis falcinellus (Glossy ibis); • Falco hypoleucos (Grey falcon); and • Hydromyus chyrsogaster (Rakali, or water rat).
Other relevant ecosystem values	**Distance from the Premises**
Land subject to inundation	Located in northern areas and extending beyond northern boundaries of EP129 R6 and L17.

7.4 Groundwater and water sources

The distances to groundwater and water sources are shown in Table 9.

Table 9: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental value
Public drinking water source area (PDWSA)	30km west of Premises boundary (Derby Water Reserve)	Priority 1 public drinking water source
May River and associated tributaries	The mainstream of May River flows from east to west through the northern portion of L17 and through the middle of EP129 R5.	Beneficial uses of freshwater rivers and streams in the Kimberley include creating important habitat for survival and breeding of flora / fauna found in a wide range of ecosystems.
The Premises is located within the Proclaimed (RIWI Act 1914) Canning Kimberley Groundwater Area. Two aquifers are within the Premises boundary, the unconfined Canning-Erskine and the unconfined Canning-Liveringa.	Depth to groundwater ranges across the Premises. The surface aquifer in the West Terrace region is the Erskine Sandstone, which is found around 17m BGL. Historical records indicate this is a low productivity minor aquifer with TDS of ~5,200 mg/L which can be described as moderately saline/ brackish (Buru 2019). The deeper Liveringa Formation occurs at a depth of ~360	The brackish nature of groundwater in the vicinity of the West Terrace wells suggests groundwater is unlikely to be suitable for livestock drinking water (beef cattle) which can safely consume brackish water up to 3,000mg/L TDS with no adverse health impacts (ANZECC / ARMCANZ, 2000). The

	m BGL and is similarly brackish, with TDS of approx. 14,000 mg/L recorded.	Licence Holder will construct two groundwater monitoring bores located ~50m downstream (northwest) of the West Terrace PFW disposal wells prior to PFW disposal occurring which will conform groundwater quality in the area.
Proclaimed (RIWI Act 1914) Surface Water Area – Fitzroy River and Tributaries; and Proclaimed (RIWI Act 1914) Camballin Irrigation District	17km south of Premises boundary; and 24km south of Premises boundary.	The Fitzroy River has significant and diverse ecological, cultural and heritage values. In addition to important environmental and cultural values, other beneficial uses include recreation, tourism, irrigation and pastoral purposes.

7.5 Soil type

Soils within the area of the Premises are predominantly clays and silts. The Premises is situated on black soil plains, commonly with clay pans. Table 10 details soil types and characteristics relevant to the assessment.

Table 10: Soil and sub-soil characteristics

Soils	Environmental Value
Outcrop plains with low lateritic rises and minor cracking clays	These soils types support mixed low woodlands, curly spinifex ribbon grass and Mitchell grass grasslands.

7.6 Meteorology

The closest Bureau of Meteorology (BoM) weather station to the Premises that has recorded statistics for rainfall and temperature is located at Derby Aero approximately 30km west. In the absence of any other weather data available for the Premises, a review of the meteorology data from Derby Aero station (BoM, 2019) is provided below.

7.6.1 Regional climatic aspects

The West Kimberley Region experiences a semi-arid climate. Like most parts of the Australian tropics, the Region has two seasons: a dry season and a wet season. The West Kimberley is susceptible to tropical cyclones and these, along with the equally unpredictable nature of summer thunderstorms, play a large part in the erratic nature of the rainfall received in the area. A high average daily evaporation rate of around 9.2mm per cubic metre (annual average) is experienced in Derby.

7.6.2 Rainfall and temperature

The dry season occurs from April to November with nearly every day clear and mean maximum temperatures averaging around 34°C. The wet season extends from December to March, with mean maximum temperatures of around 36°C, rather erratic tropical downpours and high humidity. Derby's annual rainfall average is 687.9mm, 89% of which falls from December to March. Figure 2 shows average maximum temperatures and rainfall for Derby Aero.

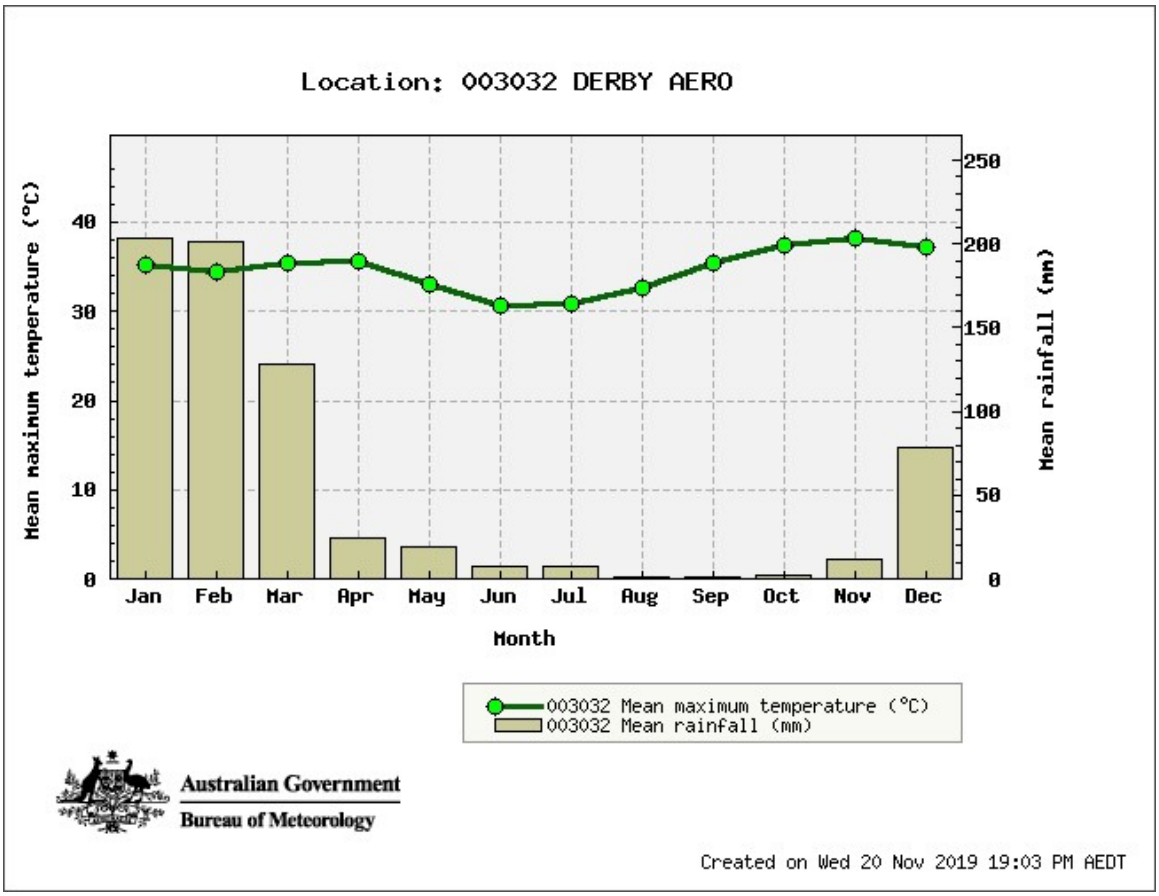

Figure 2: Climatic aspects for Derby Aero

8. Risk assessment

8.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DWER will identify all potential emissions pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other mechanisms such as Part IV of the EP Act, that emission will not be risk assessed further and will be screened out through Table 11.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Table 11 below.

Table 11: Identification of emissions, pathway and receptors during operation

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**		
Category 10: oil or gas production from wells	Operation of pumps and flowlines from wells to separator tanks	Discharge to land: spills / leaks of reservoir fluids (oil and PFW)	Soils and groundwater. Terrestrial ecosystems adjacent to processing and storage area Depth to groundwater is approximately 17m BGL.	Direct discharge to soils, seepage to groundwater	Contamination of soils. Reduction in groundwater quality / availability for dependent fauna / vegetation Soil contamination inhibiting vegetation growth and survival and health impacts to dependent fauna	Yes	See section 8.4
	Separation and storage of oil (bulk storage) and PFW; Use of injection treatment chemicals (biocides and corrosion inhibitors)	Discharge to land: spills or leaks of oil, PFW and injection chemicals; Contaminated stormwater from within bunded areas		Direct discharge to soils, seepage to groundwater			

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
Category 10: oil or gas production from wells	Abnormal operating conditions: major breach of containment facilities	Discharge to land: major release of oil or PFW	Soils and groundwater. Terrestrial ecosystems adjacent to processing and storage area Depth to groundwater is approximately 17m BGL.	Direct discharge to soils, seepage to groundwater	Contamination of soils. Reduction in groundwater quality / availability for dependent fauna / vegetation Soil contamination inhibiting vegetation growth and survival and health impacts to dependent fauna	Yes	See section 8.4
	Load out of crude oil to trucks at Tanker Load-out Facilities	Discharge to land: spills or leaks of oil; potentially contaminated stormwater	Soils and groundwater. Terrestrial ecosystems adjacent to Load-out facilities Depth to groundwater is approximately 17m BGL.	Direct discharge to soils, seepage to groundwater	Contamination of soils. Reduction in groundwater quality / availability for dependent fauna / vegetation	Yes	See section 8.4
	Operation of pumps and separators	Noise	None. Closest residence is 23km west.	Air / wind dispersion	None	No	The Delegated Officer considers that a sufficient separation distance exists between the Premises and any sensitive receptors for noise emissions to be negligible. The Noise Regulations apply to noise emissions.
Category 61: liquid waste facility	Spills / leaks of PFW at the well site	Discharge to land: spills / leaks of PFW	Soils and groundwater. Terrestrial ecosystems adjacent to well sites. Depth to groundwater is approximately 17m BGL.	Direct discharge	Contamination of soils. Reduction in groundwater quality / availability for dependent fauna / vegetation; Soil contamination inhibiting vegetation growth and survival and health impacts to dependent fauna	Yes	See section 8.5
	Injection well failure					No	This activity is regulated under the *Petroleum and Geothermal Energy Resources (Environment) Regulations 2012*

8.2 Consequence and likelihood of risk events

A risk rating will be determined for risk events in accordance with the risk rating matrix set out in Table 12 below.

Table 12: Risk rating matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

DWER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 13 below.

Table 13: Risk criteria table

Likelihood		Consequence		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		The following criteria has been used to determine the consequences of a Risk Event occurring:		
			Environment	Public health* and amenity (such as air and water quality, noise, and odour)
Almost Certain	The risk event is expected to occur in most circumstances	Severe	• **onsite impacts**: catastrophic • **offsite impacts local scale**: high level or above • **offsite impacts wider scale:** mid-level or above • Mid to long-term or permanent impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are significantly exceeded	• Loss of life • **Adverse health effects:** high level or ongoing medical treatment • Specific Consequence Criteria (for public health) are significantly exceeded • **Local scale impacts:** permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	• **onsite impacts**: high level • **offsite impacts local scale**: mid-level • **offsite impacts wider scale**: low level • Short-term impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are exceeded	• **Adverse health effects:** mid-level or frequent medical treatment • Specific Consequence Criteria (for public health) are exceeded • **Local scale impacts**: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	• **onsite impacts**: mid-level • **offsite impacts local scale**: low level • **offsite impacts wider scale**: minimal • Specific Consequence Criteria (for environment) are at risk of not being met	• **Adverse health effects:** low level or occasional medical treatment • Specific Consequence Criteria (for public health) are at risk of not being met • **Local scale impacts:** mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	• **onsite impacts**: low level • **offsite impacts local scale**: minimal • **offsite impacts wider scale**: not detectable • Specific Consequence Criteria (for environment) likely to be met	• Specific Consequence Criteria (for public health) are likely to be met • **Local scale impacts:** low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	• **onsite impact**: minimal • Specific Consequence Criteria (for environment) met	• **Local scale**: minimal to amenity • Specific Consequence Criteria (for public health) met

^ Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting.*

* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines.*

"onsite" means within the Prescribed Premises boundary.

8.3 Acceptability and treatment of Risk Event

DWER will determine the acceptability and treatment of Risk Events in accordance with the Risk treatment table 14 below:

Table 14: Risk treatment table

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable.	Risk Event will not be tolerated. DWER may refuse application.
High	May be acceptable. Subject to multiple regulatory controls.	Risk Event may be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.
Medium	Acceptable, generally subject to regulatory controls.	Risk Event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.
Low	Acceptable, generally not controlled.	Risk Event is acceptable and will generally not be subject to regulatory controls.

8.4 Risk Assessment – discharge of reservoir fluids causing contamination of soils and groundwater

8.4.1 Description of discharge of reservoir fluids

Containment infrastructure on the Premises includes a number of bulk oil and PFW storage tanks, separator tanks, bunded containment areas, bunded load out facilities, oil pipelines and PFW flowlines. A major failure of containment infrastructure related to production and processing of oil including bulk storage tanks and load-out areas may result in a significant release of hydrocarbons or PFW into the environment. Operation of pumps, flowlines and pipelines could result in discharges of smaller volumes of oil / PFW to the environment, from leaks or malfunctions of this infrastructure. Injection chemicals used during oil production operations include biocides and corrosion inhibiters. Any discharges of PFW to the environment may contain minor concentrations of these chemicals.

There is also the potential for stormwater to become contaminated by activities on the Premises which may be discharged to land if not appropriately stored, treated and disposed of. Bunded storage and truck load-out areas have the potential to generate contaminated stormwater should spills or leaks of hydrocarbons or PFW occur within these areas.

8.4.2 Identification and general characterisation of emission

Crude oil is a toxic substance, comprised mainly of hydrocarbons and other substances including heavy metals, Monocyclic Aromatic Hydrocarbons (including benzene, toluene, ethylene and xylene (BTEX)) and Polycyclic Aromatic Compounds (PAH). PFW typically contains lower concentrations of these substances, as well as high levels of Total Dissolved Solids (TDS). Stormwater that becomes contaminated with oil or PFW can carry lower concentrations of heavy metals, BTEX, PAH and sediment (suspended solids). Biocides and corrosion inhibitors are also considered pollutants if found in soils or waterways.

8.4.3 Description of potential adverse impact from the emission

Spills or leaks of hydrocarbons, PFW and injection chemicals as a result of abnormal operating conditions could potentially cause contamination of soils and infiltrate groundwater, degrading the quality of groundwater and impacting beneficial uses and dependent vegetation and / fauna.

Criteria for assessment

Relevant land and groundwater quality criteria relevant include:

- *Australian Water Quality Guidelines* (ANZECC & ARMCANZ 2000) provides fresh and marine water criteria (including livestock drinking water);
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* provides investigation levels for soil and groundwater when assessing site contaminated sites*;* and
- *Assessment and Management of Contaminated Sites* (DER 2014) provides ecological and human health assessment levels for soil and water.

8.4.4 Licence Holder controls

The Licence Holder has proposed controls to reduce and manage potential discharges to land which are set out in Table 15 below.

Table 15: Licence Holder infrastructure controls for discharge of reservoir fluids

Control	Description
Engineering	• All PFW tanks, oil stock tanks and chemical storage areas are bunded with compacted clay or soil liners of undetermined permeability. Bunds are sized to accommodate 110% of the capacity of the largest tank in the bund; • Tanker Truck Load-Out areas are PVC lined and bunded to capture any spills / leaks during load out operations; and • PFW flowlines are installed above ground and positioned along access tracks enabling leaks to be readily detected.
Management / Procedures	• Contaminated stormwater from within bunded storage areas is pumped into an appropriate container before being taken offsite for disposal at a licenced facility; • Any contaminated soil is removed and stored in an impervious bund or appropriate container, prior to being taken offsite for disposal at a licensed facility; • Storage tanks and bund integrity checks are performed monthly during oil production operations; • Cathodic protection surveys are performed on the Blina to Erskine pipeline PL7 annually; • Hydrocarbon storage tank wall thickness and integrity inspections are performed every two years; • PFW flowlines inspected daily during operations; • Spill kits are located on site to clean up any spills/leaks of hazardous materials; • Buru Energy Limited has the following relevant Operational Procedures to manage spills and stormwater:

Control	Description

	(i) Canning Basin Spill Response Plan (HSE-ER-015);
	(ii) Bund Maintenance and Stormwater Control Procedure (OP-PR-013); and
	(iii) Refuelling Procedure (HSE-PR-011); and
	• Quarterly groundwater monitoring is performed at the following locations to detect potential impacts on the Premises during oil processing operations.
	  • Blina monitoring bore;
	  • Sundown monitoring bore; and
	  • Erskine Terminal bore.

8.4.5 Consequence

The Delegated Officer considers that a failure of major containment infrastructure or release of hydrocarbon contaminated stormwater or injection chemicals could result in a moderate spill which will have the potential to result in localised soil contamination, impacting terrestrial vegetation and potentially groundwater impacts. Therefore, the Delegated Officer considers the consequence to be **moderate**.

8.4.6 Likelihood of Risk Event

The Delegated Officer has determined that the likelihood of failure of containment infrastructure or release of hydrocarbon contaminated stormwater or injection chemicals occurring will probably not occur in most circumstances. The Delegated Officer notes that all tanks are regularly inspected and are bunded with compacted clay liner of undetermined permeability.. The Premises is located on predominantly clayey soils and depth to groundwater is around 17m BGL. Therefore, the Delegated Officer considers the likelihood to be **unlikely**.

8.4.7 Overall rating of discharge of reservoir fluids

The Delegated Officer has compared the consequence and likelihood ratings described above for the Risk Criteria (Table 13) and determined that the overall rating for the risk of discharge of reservoir fluids or hydrocarbon contaminated stormwater or injection chemicals to sensitive receptors during operations is **medium**.

8.5 Risk Assessment – PFW discharges to land (during injection process) causing contamination of soils and seepage to groundwater

8.5.1 Description of PFW discharges to land / seepage to groundwater

During the injection of PFW to the West Terrace Wells, any spills, leaks or overflows of PFW may be discharged to land in the vicinity of the wells should adequate controls not be implemented. Cumulative or large discharges to land could contaminate local soils in the area and seep through to the surficial Erskine Aquifer, approximately 17m BGL.

Up to 1,000kL of PFW is expected to be reinjected to the West Terrace wells during each injection campaign, which the Licence Holder anticipates will be around four times per year. Injection chemicals used during oil production / exploration operations include biocides and corrosion inhibiters. Any discharges of PFW to the environment may contain minor concentrations of these chemicals.

8.5.2 Identification and general characterisation of emission

The Licence Holder has provided information on the typical characteristics of PFW to be injected via the West Terrace Wells. PFW is typically neutral to slightly alkaline, high in Total Dissolved Solids (particularly sodium and chloride ions), low in dissolved metals and contains levels of Total Recoverable Hydrocarbons at around 350mg/L.

Chemicals routinely injected with the PFW will include biocide and corrosion inhibitor (both at less than 1% concentrations). Other chemicals may be included in the PFW if required.

8.5.3 Description of potential adverse impact from the emission

Spills or leaks of PFW could potentially cause contamination of soils (with hydrocarbons, salts and injection treatment chemicals) impacting dependent vegetation and / fauna. Seepage to groundwater (the surficial Erskine aquifer approximately 17m BGL) could occur, causing contamination with the above mentioned pollutants.

8.5.4 Criteria for assessment

Relevant land and groundwater quality criteria relevant include:

- *Australian Water Quality Guidelines* (ANZECC & ARMCANZ 2000) provides fresh and marine water criteria (including livestock drinking water);
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* provides investigation levels for soil and groundwater when assessing site contaminated sites*;* and
- *Assessment and Management of Contaminated Sites* (DER 2014) provides ecological and human health assessment levels for soil and water.

8.5.5 Licence Holder controls

The Licence Holder has proposed controls to reduce and manage potential discharges of PFW during injection operations which are set out in Table 16 below.

Table 16: Licence Holder infrastructure controls for discharges to land (PFW)

Control	Description
Engineering	• The West Terrace 1 and West Terrace 2 wells have a design rating of 2,000psi. The wells have been constructed with two casing strings. The surface 244mm (9 5/8") diameter casing string is cemented in place to ~535m BGL while the 178mm (7") diameter casing shoe is cemented in place to ~1,225m BGL. These casing strings provide two independent barriers between the between the aquifer zone and the hydrocarbon zone; • Injection infrastructure and associated pipework will be located within a geotextile bunded liner with permeability criteria less than 1 x 10^{-9} $m.s^{-1}$ as specified in *Water Quality Protection Note 26: Liners for containing pollutants, using synthetic membranes* (DoW, 2013); • The bunded area will be 35m x 12m with a storage capacity of 63kL and will meet the requirements of AS 1940-2004 – *The storage and handling of flammable and combustible liquids;* • The injection pump is fitted with an emergency stop device which will allow the operation to be immediately shut down in the event that a spill or leak is identified during disposal operations.
Management / Procedures	• Injection operations will be manned 24/7 so that visual monitoring will be constant during injection operations;

Control	Description
	• the following equipment will be available on site during injection operations: ➢ 170L booms, oil absorbent granules, absorbent pads, shovels, rakes and plastic bags. ➢ Plastic sheeting ➢ Medical first aid kit ➢ 2 long handle shovels, ➢ Heavy duty plastic garbage bags with ties • In the unlikely event that spills occur outside of the bunded area, contaminated soil will be immediately scraped up and managed in accordance with the *Environmental Protection (Controlled Waste) Regulations 2014;* • Response to any spills will be in accordance with the Company's Canning Basin Spill Response Plan (HSE-ER-015) and the Meda, Boundary, Lloyd and West Terrace Site Specific Spill Response Plan; • Volumes of produced water injected into the West Terrace wells will be recorded in a log-sheet which is appended to the West Terrace Injection Well Work Instruction; • Groundwater monitoring will occur in the Erskine Sandstone which is the surficial aquifer in the region. The West Terrace monitoring bore will be constructed within 50m (downstream/ northwest) of the injection wells. This distance has been selected based on groundwater flow rates such that any impact will be detected within three months of occurring. Water quality monitoring will be undertaken quarterly and tested for the parameters pH, conductivity, total dissolved solids, hardness, cations (e.g. Ca, Mg, Na, K), anions (e.g. Cl, SO_4), total metals (e.g. Al, As, Ba, Cr, Pb, Zn, Hg) and hydrocarbons (e.g. TRH, PAH, BTEX); • Well integrity testing (pressure monitoring) will be conducted annually on the injection wells to ensure the integrity of the well casings remain effective; and • During injection operations, injection pressures will typically be limited to 1,000 psi. In some cases, injection pressures may be increased to 1,500 psi for injection of small volumes of fluid but this will be for short periods and small volumes of fluid (max of 4 kL of fluid). These injection pressures are well within the safe operating conditions of the West Terrace 1 and 2 wells.
Reporting requirements	All chemicals will be publicly disclosed under the Blina Care and Maintenance EP (or associated Bridging Document) prior to use. Existing Licence L6872/1994/11 also requires the Licence Holder to report (annually via the Annual Environmental Report (AER)) all volumes water treatment chemicals used on the Premises, which has been retained on the revised Licence. The Delegated Officer has also conditioned the requirement to monitor the volumes and quality of PFW to be injected to the West Terrace Wells for each PFW source (well or oil reservoir) that is received on the Premises for disposal.

8.5.6 Consequence

The Delegated Officer considers that a release of PFW during injection processes could result in a moderate spill of PFW which has the potential to result in mid level onsite impacts, such as localised soil contamination or the potential for groundwater contamination. Therefore, the Delegated Officer considers the consequence to be **moderate**.

8.5.7 Likelihood of Risk Event

The Delegated Officer has determined that the likelihood of PFW discharges to land causing soil ond / or groundwater contamination will probably not occur in most circumstances, as a result of controls that will be implemented by the Licence Holder. Therefore, the Delegated Officer considers the likelihood to be **unlikely**.

8.5.8 Overall rating of PFW discharges to land

The Delegated Officer has compared the consequence and likelihood ratings described above for the Risk Criteria (Table 13) and determined that the overall rating for the risk of discharges of PFW to land causing contamination of soils and / or groundwater during operation is **medium**.

8.6 Licence controls

8.6.1 Infrastructure and equipment

In accordance with the *Guidance Statement: Risk Assessments* (DER 2017b) the Licence Holder's controls in relation to management of oil and PFW discharges to land will be conditioned as they lower the assessed likelihood of the risk event.

The following environmental controls, infrastructure and equipment should be maintained and operated onsite for management of containment infrastructure:

Condition 1 of the Revised Licence outlines all authorised infrastructure on the Premises in relation to category 10 and category 61 operations. Table 1 of Condition 1 outlines operational requirements, including the requirement for existing earthen (clay lined) bunding to be maintained around separators, storage tanks and truck load out facilities. Table 1 also requires the Blina to Erskine PL7 Pipeline to have sacrificial anode/cathodic protection system at 3km intervals along pipeline.

In relation to PFW disposal operations by injection to the West Terrace Wells, Table 1 requires a bunded area to be installed at the disposal well location that meets the requirements of AS1940-2004 *The storage and handling of flammable and combustible materials* and has a storage capacity of 63kL. In addition, injection pumps associated with disposal of PFW must be fitted with an Emergency Stop Device.

Condition 2 of the Revised Licence outlines the design, construction and installation requirements for the groundwater monitoring bores to be constructed at the West Terrace PFW disposal site. This condition ensures that samples can be collected over the projected lifetime of the wells that are representative of groundwater conditions and that an accurate record is made regarding well installation to inform later interpretation of the sample test results.

Condition 3 requires submission of a bore construction report within 60 days of bores being installed as evidence of compliance with condition 2.

Conditions 4 and 5 of the Revised Licence outline requirements for spills of environmentally hazardous materials to be immediately recovered and stored within an impermeable container prior to disposal. Condition 6 requires the licence holder to take all reasonable and practicable measures to prevent stormwater run-off becoming contaminated by the Premises operations.

Condition 7 authorises the disposal of PFW by injection into the West Terrace 1 and 2 wells (approved discharge points).

8.6.2 Monitoring requirements

Conditon 8 requires regular inspections of infrastructure on the Premises, including:

- Continuous visual inspections of West Terrace Wells 1 and 2 (PFW disposal wells) to confirm no spills or leaks of PFW occurs during injection operations;
- Monthly visual inspection of bunded containment areas to detect and rectify any spills or leaks and confirm integrity is maintained;
- Daily visual inspections of flowlines (during category 10 operations) on the Premises to detect and rectify any leaks and confirm integrity is maintained;
- Weekly visual inspections of the Blina – Erskine Oil Pipeline PL7 weekly during operations to detect and rectify any leaks and confirm integrity is maintained;
- Annual Cathodic Protection System field inspection survey of the Blina – Erskine Oil Pipeline PL7 to ensure this leak detection equipment is working effectively; and
- Biennial (once every two years) tank wall thickness inspections of hydrocarbon storage tanks on the Premises to ensure the integrity of these tanks in maintained.

Condition 9 requires discharge monitoring of volumes of PFW disposed of to the West Terrace 1 and 2 disposal wells and also water quality analysis to allow any potential spills or leaks to be reasonably quantified and inform an accurate assessment of any impact. Condition 10 sets out ambient groundwater monitoring requirements of the West Terrace groundwater monitoring bores located 50m northwest of the disposal wells in order to detect any potential impacts to groundwater from the disposal of PFW by well injection. Condition 11 sets out acceptable intervals between monitoring events.

8.6.3 Record-keeping and monitoring reports

Standard conditions relating to maintenance of records are detailed in conditions 13 – 15.

Monitoring and compliance information required under licence conditions is required to be reported to DWER annually via an Annual Audit Compliance Report (AACR) and AER (Licence conditions 16 and 17). The AER requires reporting of monitoring results detailed in section 8.6.2 above as well as reporting of records of water treatment chemicals used on the Premises to DWER. Reporting of the results of monitoring is required to inform future risk assessments.

The Delegated Officer has also included the requirement to notify DWER six months in advance of recommencing category 10 oil and gas production operations (Condition 18) to allow DWER sufficient time to review the adequacy of existing infrastructure on the Premises, the conditions of the Revised Licence and ensure all potential risk events associated with oil production have been assessed. The Delegated Officer notes that it is likely the Licence Holder will need to construct new or upgrade existing infrastructure on the Premises to enable category 10 activities to recommence.

9. Decision

In assessing the requested changes to the Existing Licence outlined in section 4.2 and risk assessed in section 8, the Delegated Officer has determined that the licence amendment shall be granted with required controls implemented as conditions on the licence.

The Licence was scheduled to expire on 2 February 2020. The *Guidance Statement: Licence Duration* has been applied and the Amended Licence will be extended for a further 20 years (expiring on 2 February 2040).

DWER notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the licence under the EP Act.

10. Summary of amendments

The Revised Licence has been issued in a new format with additional standard conditions applied where required, and amendments to conditions in accordance with the revised risk assessment. Existing conditions not related to the subject of this amendment have been transferred, but not reassessed, to the new format. Where appropriate, some conditions have been removed, which are regulated under separate legislation, such as Existing Licence Conditions S1 and S2.

Table 17 provides a detailed description of amendments made to the conditions of the Amended Licence.

Table 17: Conversion map for Amended Licence

Existing Licence condition	Amended Licence condition	Description
G1	17	Annual Environmental Report Existing Licence condition G1 has been transferred to Revised Licence condition 17.
G2	16	Annual Audit Compliance Report Existing Licence condition G2 has been transferred to Revised Licence condition 16.
W1(a)	13(d)	Records of water treatment chemicals used on the Premises or discharged to the West Terrace Disposal Wells have been transferred to Condition 13(d).
W1(b)	17	Reporting of Water Treatment Chemicals used on the Premises or discharged to the West Terrace Disposal Wells are required to be reported in the AER via condition 17 (Table 7).
W2(a) and (b)	- Removed from Revised Licence	Management of PFW This condition is no longer valid as all PFW evaporation ponds on the Premises have been decommissioned. This condition has therefore been removed from the Revised Licence.
W3(a)	8 and 13(c)	Records of Flowline leaks Revised condition 8 requires daily visual monitoring of all operational flowlines, and Revised Licence condition 13(c) requires accurate recording of these.
W3(b)	1	Hydrocarbon storage infrastructure requirements are specified in Revised Licence condition 1 (Table 1: Infrastructure and equipment requirements)
W3(c)	8	Required inspections of bunded containment areas, cathodic protection systems and tank wall thickness have been transferred to Revised Licence condition 8.
W4	4	Clean up of spills of environmentally hazardous materials. Condition W4 has been transferred to Revised Licence condition 4.
S1	- Removed from Revised Licence	Toxic materials storage This condition has been removed from the Revised Licence as it duplicates existing legislation, namely the *Dangerous Goods Safety Act 2004* and associated regulations and Codes of Practice.
S2(a) and (b)	- Removed from Revised Licence	Solid Waste Management This condition has been removed as it is duplication of section 49A of the EP Act.
-	2	This Condition has been applied by the Delegated Officer to specify installation requirements for the groundwater monitoring bores to be constructed on the Premises.

Existing Licence condition	Amended Licence condition	Description
	3	This Condition has been applied by the Delegated Officer to require submission of a bore construction report within 60 days of bore installation
-	5	This condition aligns with Revised Licence condition 4 to ensure that any materials used for any cleanup of environmentally hazardous material is appropriately contained and disposed of.
-	6	Prevention of stormwater contamination: this standard condition is a regulatory control imposed by the Delegated Officer to reduce the likelihood of discharge of hydrocarbon contaminated stormwater to the environment.
-	7	Authorised discharge points: as per the Licence Holder's amendment application, the West Terrace 1 and 2 wells have been added as approved discharge points for PFW.
-	8	Inspections of infrastructure: in addition to the required inspections transferred from the Existing Licence, visual inspections of West Terrace wells have been included in Revised condition 6 during PFW injection operations.
-	9	Discharge monitoring: This condition has been included to require monitoring and recording of the volumes and quality of PFW discharged to the West Terrace disposal wells.
-	10	Ambient groundwater monitoring has been imposed under Revised Licence condition108, which was a Licence Holder control in the amendment application to detect potential impacts to groundwater from PFW disposal.
-	11	Monitoring frequency: this is a standard condition imposed to ensure an appropriate separation time occurs between monitoring events.
-	12	NATA accreditation: this is a QA/QC requirement in order to ensure accurate monitoring data is obtained.
-	13 and 14	Records and reporting: these conditions require maintenance of accurate and reliable records associated with the premises operations
-	15	Complaints: this condition has been imposed to ensure that any complaints received in relation to the Premises are recorded and reported to DWER.
-	18	Advance notification of commencing category 10 operations: this condition has been imposed by the DO to allow DWER time to review the adequacy of existing infrastructure on the Premises and the conditions of the Revised Licence. It is noted that the Licence Holder may need to apply for subsequent approvals under section 53 of the EP Act upon start-up of category 10 operations.
Schedule 1: Maps	Schedule 1: Maps	Premises maps have been updated to depict the boundary of the Prescribed Premises, infrastructure locations, authorised discharge points and the groundwater monitoring bore locations.

11. Applicant's comments

The Licence Holder was provided with the draft Decision Report and draft Revised Licence on 5 December 2019. The Licence Holder provided some outstanding information requested in the draft Decision Report and draft Revised Licence and did not provide any further comments.

12. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due

consideration of a number of factors, including the documents and policies specified in this Decision Report (summarised in Appendix 1).

Based on this assessment, it has been determined that the Revised Licence will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Caron Goodbourn
Manager, Process Industries
Delegated Officer
under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key documents

	Document title	In text ref	Availability
1.	Licence L6872/1994/11	L6872/1994/11	Accessed at www.der.wa.gov.au
2.	Application to amend licence Form (dated 1 May 2019) - L6872/1994/11 Blina Production Facility. Including • Attachment 2: Maps; • Attachment 6B: Example of Produced Formation Water Characteristics; and • Attachment 7: Siting and location maps	Application (Buru 2019)	DWER records: DWERDT156107
3.	DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.		Accessed at www.dwer.wa.gov.au
4.	DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.		
5.	DER, May 2016. *Guidance Statement: Publication of Annual Audit Compliance Reports*. Department of Environment Regulation, Perth.		
6.	DER, August 2016. *Guidance Statement: Licence duration.* Department of Environment Regulation, Perth.		
7.	DER, September 2016. *Guidance Statement: Environmental Standards*. Department of Environment Regulation, Perth.		
8.	DER, November 2016. *Guidance Statement: Environmental Siting*. Department of Environment Regulation, Perth.		
9.	DER, February 2017. *Guidance Statement: Land Use Planning.* Department of Environment Regulation, Perth.		
10.	DER, February 2017. *Guidance Statement: Risk Assessments.* Department of Environment Regulation, Perth.		
11.	DWER, June 2019. *Guideline: Decision Making.* Department of Water and Environmental Regulation, Perth.		
12.	DWER, June 2019. *Guideline: Industry Regulation Guide to Licensing.* Department of Water and Environmental Regulation, Perth.		

13.	DWER, June 2019. *Guideline: Odour emissions.* Department of Water and Environmental Regulation, Perth.	DWER 2019c	
14.	Australian Standard 1940-2004 *The storage and handling of flammable and combustible materials*	AS1940-2004	Accessed at: https://www.saiglobal.com/
15.	DoW August 2013. *Water Quality Protection Note 26: Liners for containing pollutants, using synthetic membranes* (DoW, 2013)	DoW 2013	Accessed at: http://www.water.wa.gov.au/search-publications/Series-Browse
16.	National Environment Protection Assessment of Site Contamination Measure (ASC NEPM)	ASC NEPM 1999	Accessed at: http://nepc.gov.au/nepms/assessment-site-contamination
17.	DER, 2014. Contaminated Sites Guideline: *Assessment and Management of Contaminated Sites.* Department of Environment Regulation, Perth	DER, 2014	Accessed at: www.dwer.wa.gov.au
18.	Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (ANZECC & ARMCANZ) (2000). Australian Water Quality Guidelines for Fresh and Marine Water Quality	ANZECC / ARMCANZ 2000	Accessed at: http://www.agriculture.gov.au/SiteCollectionDocuments/water/nwqmsguideline-4-vol1.pdf