

Bennett Resources Pty Ltd

EP 371 Well Care and Maintenance Environment Plan Summary

BNR_HSE_MP_009

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Terms / acronym	Definition / expansion
AHIS	Aboriginal Heritage Inquiry System
APPEA	Australian Petroleum Production and Exploration Association
BME	Black Mountain Exploration Pty Ltd
BNR	Bennett Resources Pty Ltd
BC Act	(WA) Biodiversity Conservation Act 2016
DAWE	(Commonwealth) Department of Agriculture, Water and the Environment
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DRF	Declared Rare Flora
DWER	Department of Water and Environmental Regulation
EP	Environment Plan
EP 371	Exploration Permit 371
EP Act	(WA) Environmental Protection Act 1986
EPBC Act	(Commonwealth) Environment Protection and Biodiversity Conservation Act 1999
HSE	Health, Safety and Environment
LOWC	Loss of Well Control
OSCP	Oil Spill Contingency Plan
PGER(E)R	Petroleum and Geothermal Energy Resources (Environment) Regulations 2012
TEC	Threatened Ecological Community
WA	Western Australia
WAC	Warlangurru Aboriginal Corporation
YAC	Yungngora Aboriginal Corporation

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1 Introduction

1.1 Background

Black Mountain Exploration Pty Ltd (BME) is a private oil and gas exploration and production company with an office in Perth, Western Australia (WA). Bennett Resources Pty Ltd (BNR) is the operator of exploration permit EP371, a wholly owned subsidiary of BME.

BNR is currently exploring for natural gas on its Exploration Permit 371 (EP 371) in the onshore Canning Basin in WA (Figure 1-1).

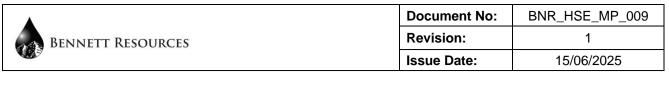
1.2 Scope

The Environment Plan (EP) has been prepared for the proposed care and maintenance activities for the Asgard 1, Valhalla North 1 and Valhalla 2 wells (the wells) and their associated infrastructure. The care and maintenance of a plugged and abandoned well site (Valhalla 1) and of a well pad undergoing progressive rehabilitation (Jannat 1) are also undertaken under the EP.

The care and maintenance activities proposed to be conducted, and thus covered by this EP summary, include:

- Site inspection,
- Maintenance and repair,
- Downhole well operations,
- Reinstatement and progressive rehabilitation.

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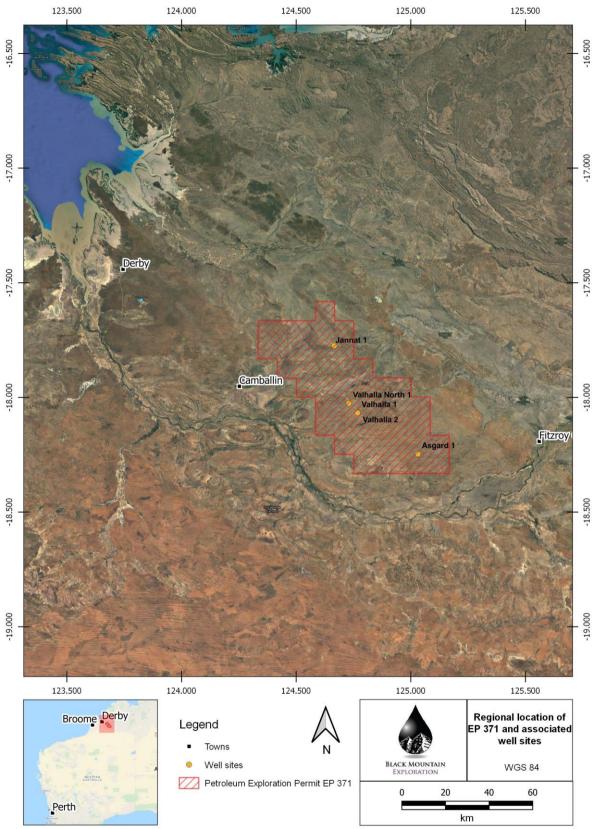


Figure 1-1: Regional Location of EP 371

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1.3 Nominated Operator

Contact details for the operator BNR are listed below in Table 1-1.

Table 1-1: Operator contact details

Name	Michael Laurent
Position	Chief Operating Officer
Organisation	Black Mountain Exploration Pty Ltd
Address	Level 4, 225 St. Georges Terrace, Perth WA 6000
Phone number	08-9200-1685

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2 Description of the Activities

2.1 Location

All assets are located within EP 371 (Figure 2-1), approximately 70 km south east of Derby from the nearest permit border, in the Shire of Derby-West Kimberley. EP 371 is located just within the Fitzroy River catchment area in Western Australia's Canning Basin. Access to these well sites is possible from the Great Northern Highway, smaller roads and existing access tracks.

The assets comprise well sites or hard-stands that contain a variety of idle infrastructure. The status of the assets is presented in Table 2-1.

Table 2-1: Asset status

				Well Infrastructure			
Well Name	Well Status	Drilled	Plugged	Wellhead	Xmas Tree	Cellar	
Asgard 1	Suspended	2012	N/A	Yes	No	Grating and fenced	
Jannat 1 ¹	N/A			N/A	N/A		
Valhalla North 1	Suspended	2012	N/A	Yes	Yes	Grating and fenced	
Valhalla 1	Plugged and abandoned (P&A)	2007	2007	N/A		Grating and fenced	
Valhalla 2	Suspended	2011	N/A	Yes	Yes	Grating and fenced	

¹ A well site was constructed for a prospective Jannat 1 well – however Jannat 1 was never drilled.

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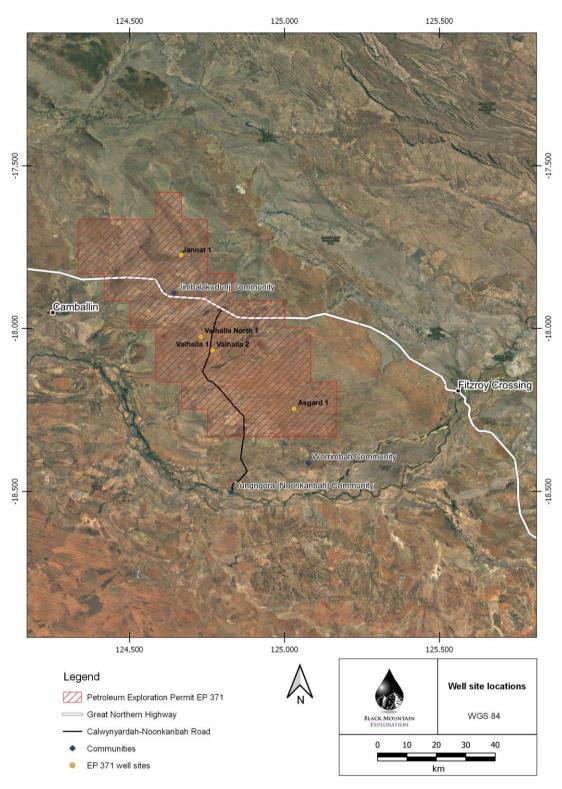


Figure 2-1: EP 371 well site locations

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2.2 Timeframes

The time required to complete the activities will depend on the design and details of the activities' specific operations. Table 2-2 below outlines the expected timing and typical estimated duration for each of the care and maintenance activities.

Activities	Typical Operations	Timing	Typical Duration
	BNR Inspection of infrastructure	6-monthly	< 0.5 day at each well site
Inspections	BNR Checklist inspections (including inspection of all lined ponds)	Monthly	< 0.5 day at each well site
Security Inspections		As above with monthly and six-monthly inspections, along with CCTV inspections.	N/A
	Infrastructure maintenance and repair	Annual, or as required	2-4 days
Maintenance and	Pond liner maintenance removal	Not expected	Not expected
Repair	Wellhead maintenance	As required	1-2 days
	Civil works	As required	4-7 days
	Well Intervention	As needed basis	1 week
Downhole well operations	Well Workover	As needed basis	1-2 weeks
	Integrity Tests ⁺	Annual	1 week

 Table 2-2: Planned timeframes of care and maintenance activities

+ Annual Integrity Tests used to check downhole or in-wellbore pressures are completed using the existing wellhead infrastructure.

2.3 Overview of Activities

2.3.1 Inspection, Maintenance and Repair

Currently, the assets within EP 371 are in a care and maintenance phase until decisions regarding the future of these assets are made. All assets including access tracks, well sites and suspended wells may prove useful in the future to support future field development activities within EP 371. An example of this may be using existing hardstands for exploration accommodation camps or re-completing existing wells and producing from these in the future. By not decommissioning these assets immediately, but maintaining their integrity, BNR has the flexibility to reduce its future environmental impacts through the reduction of clearing or disturbance activities.

To ensure the integrity of the assets is maintained, a variety of inspection, maintenance and repair activities may be undertaken for those assets described in the EP for the duration of the EP. inspection, maintenance and repair activities include the following:

- Site inspection:
 - o BNR inspections of site infrastructure and access tracks,
 - o Security inspections, and
 - Well integrity inspections and testing.
- Maintenance and repair:
 - o Infrastructure maintenance, repair and replacement,

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- Pond liner maintenance / removal (including testing),
- o Wellhead maintenance, and
- Well site and access track maintenance and repair.
- Downhole well operations²:
 - o Well intervention activities, and
 - Well workover operations.
- Reinstatement and progressive rehabilitation:
 - o Removal of redundant equipment and infrastructure for recycling or disposal at a licensed waste facility,
 - o Removal of pond liners offsite for disposal at a licensed waste facility,
 - o Sampling of soil beneath retention pond liners following their removal,
 - o Infilling of open excavations,
 - Respreading of topsoil and stockpiled vegetation,
 - Recovering gravel for reuse, as appropriate,
 - Ripping of over-compacted soils,
 - Contouring of sites (as required), and
 - Direct reseeding.

² Downhole well operations will be undertaken infrequently depending on the outcomes of surface integrity testing, or as directed by the inforce well management plans.

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3 Description of the Environment

Environment Aspects	Summary
Climate and Weather	The climate of the Canning Basin varies from semi-arid to dry tropical with distinct wet and dry periods. From April to November a pronounced dry-season occurs with on average, a total of 20 mm of rain. A summer wet season generally occurs between December and March in which approximately 85% of the annual rainfall occurs. Rainfall events exceeding 150 mm in 24 hours have been recorded at Broome during the wet
	season. These intense rain periods may occur with tropical cyclones or severe lows. The northwest Australian coastline between Broome and Exmouth is the most cyclone-prone region of the entire Australian coastline, having the highest frequency of coastal crossings. On average about five tropical cyclones occur during each tropical cyclone season over the warm ocean waters off the northwest coast between 105°E and 125°E (BOM, 2025).
	The sites within EP 371 are located within the 331 – North Fitzroy Plain Zone, ranging 17,925 km ² (Tille, 2006). The North Fitzroy Plain Zone is comprised of floodplains and sandplains (with alluvial plains and undulating plains) on Permian sedimentary rocks of the Canning Basin with self-mulching cracking clays, Red deep sands, Red sandy earths and Red / brown non-cracking clays. The locality surrounding the sites falls within five soil landscape systems which are described by the Government of Western Australia (Government of Western Australia, 2022a) as:
	 331Cm: Camelgooda System: Sandplains, swales and linear sand dunes supporting low pindan woodlands of acacias and low woodlands of bauhinia and bloodwood with curly spinifex and ribbon grass,
Landform and Soils	 331Cy: Calwynyardah System: Alluvial plains with scalded tracts downslope from lateritic remnants with yellowish loamy soils supporting patchy beefwood-bauhinia low woodlands with curly spinifex and ribbon grass; also minor hard spinifex grasslands,
	 331Dj: Djada System: Active floodplains with levees and levee back slopes supporting ghost gum open woodlands with frontage grasses, and cracking clay back plains supporting ribbon grass-blue grass and Mitchell grass grasslands,
	 331Wa: Wanganut System: Sandplains and linear dunes supporting pindan woodlands with acacias and bloodwoods and curly spinifex - ribbon grass, and broad low-lying swales supporting bloodwood-grey box woodlands with curly spinifex-ribbon grass, and
	 331Eg: Egan System: Outcrop plains with low lateritic rises supporting mixed low woodlands with curly spinifex-ribbon grass, also minor cracking clay plains with Mitchell grass grasslands.

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Environment Aspects	Summary
	The Canning Basin is considered the second largest groundwater resource in Australia after the Great Artesian Basin. It is a large sedimentary basin covering an onshore area of more than 450,000 km ² (DoW, 2012).
	The well sites are located within two surface water catchments: the Fitzroy River and Lennard River catchments. All well sites are located greater than 4 km from the closest surface water body.
Surface Water	The Fitzroy River catchment, which extends from near Halls Creek in the east, downstream to the coast near Derby in the west, spans almost 94,000 km ² which covers more than 20% of the Kimberley region. The Fitzroy River itself is on the Commonwealth National Heritage list as part of the West Kimberley National Heritage Place.
	Annual river discharge measured at Fitzroy Crossing varies from 300 gigalitres (in 1992) to 25,000 gigalitres (in 2000). The average flow is 8,000 gigalitres, which is the largest of any river in Western Australia. As of March 2018, around 3.3 gigalitres of groundwater and 6.1 gigalitres of surface water is allocated under water licences for commercial and public purposes (DWER, 2019).

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Environment Aspects	Summary						
	The major regional aquifer systems in the Canning Basin are (in order of decreasing age) the Grant Formation, Liveringa Formation, Wallal Sandstone and Broome Sandstone. These sandstone aquifers have very large stores of fresh to saline groundwater with variable total dissolved solids (TDS) content.						
	Surficial aquifer						
	The surficial (unconfined) aquifer in the Canning Basin is the Liveringa Aquifer, or Formation. The Liveringa Formation consists of interbedded sandstones, siltstones with lenses and minor beds of claystone and shale, varying in thickness between 320 m to 900 m (Harrington & Harrington, 2015). Salinities, where recorded in DWER's Water Information Reporting (WIR) database and by the previous operator, are generally less than 1,000 mg/L TDS in the Liveringa Formation but range from 500 to 12,400 mg/L TDS (Rockwater, 2016). Salinities for water bores within EP 371 that are screened in the Liveringa Formation range from 450 to 1,600 mg/L TDS. Monitored groundwater levels in the region surrounding the well sites indicate predominantly stable trends, suggesting that the groundwater system is in dynamic equilibrium. Seasonal variations in recorded water levels are observed within a 2-metre amplitude around a stable trend. Water table depths were recorded to be 30 m at Valhalla North and 36 m at Valhalla 1 (Rockwater, 2016).						
Groundwater	Groundwater recharge to the surficial Liveringa Group is believed to be mainly from rainfall on outcrop areas (Lindsay & Commander, 2005). Monitoring of the Liveringia Aquifer and surface alluvial waters associated to the Fitzroy River indicated a strong connection between the river and the aquifer. In particular, a groundwater response to high river flow events was observed. This, and comparatively low groundwater salinities measured in these piezometers compared with other regional bores, suggests some recharge to the aquifer by floodwaters.						
	Infiltration to the Liveringia Group (and subsequent aquifers) from rainfall will be retarded by clay, shale and siltstone layers, both above and below the water table. Water is likely to take between 70 and 300 days to travel from the ground surface to the water table (Rockwater, 2016).						
	Below the surficial Liveringa Formation are found a series of other aquifers.						
	Noonkanbah						
	Poole Sandstone						
	Grant Group						
	Reeves						
	Anderson						
	Laurel						
	More details for each of these formations relative to the wells is found in Table 3-2 of the EP under Section 3.2.3						

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Environment Aspects	Summary
	Based upon Beard (1979) and Shepherd <i>et al.</i> (2002), the well sites are located within three broadscale vegetation communities (predominant vegetation systems) (Government of Western Australia, 2022b). These are detailed below:
	 North Fitzroy_64 - Grasslands, tall bunch grass savannah with low trees; Boabs (Adansonia gregorii), Bauhinia (Bauhinia cunninghamii) and Beefwood (Grevillea striata) over Ribbon Grass (Chrysopogon species),
Vegetation	 North Fitzroy_699 - Shrublands, pindan; Acacia eriopoda shrubland with scattered low Bloodwoods (Corymbia spp.) over Soft Spinifex (Triodia pungens) and Curly Spinifex (Triodia bitextura) on sandplain, and
	 North Fitzroy_700 - Shrublands, pindan; Acacia eripoda shrubland with scattered low bloodwood and Eucalyptus setosa over soft and curly spinifex between dunes.
	Detailed flora and vegetation surveys undertaken between 2007 and 2021 (Table 3-1) have verified that the vegetation surrounding the Activity areas is reflective of these communities.
	Flora species that have been formally recognised as Threatened are protected under State legislation under Part 2 of the <i>Biodiversity Conservation Act 2016</i> (BC Act), or under Commonwealth legislation under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). Flora and vegetation surveys conducted within and in proximity to the well sites between 2007 and 2021 (Table 3-1) revealed that no Threatened flora species were identified. However, the surveys recorded six Priority flora taxa: • <i>Goodenia byrnesii</i> (P3),
	Goodenia sepalosa var. glandulosa (P3),
Flora	Goodenia virgata (P2),
	Nymphoides beaglensis (P3),
	Trianthema kimberleyi (P1), and
	Triodia acutispicula (P3).
	The previous flora and vegetation surveys and their outcomes are presented in Table 3-1.
Environmentally Sensitive Areas	Environmentally Sensitive Areas (ESA) are defined as landscape elements or places which are vital to the long-term maintenance of biological diversity, soil, water or other natural resources. ESAs are declared under section 51B of the EP Act 1986. The nearest ESA to the sites is the Camballin Floodplain, located ~40 km west of Valhalla North 1, which is associated to a Nationally Important Wetland, Le Lievre Swamp (Iljamalkarda) (DEC, 2009). The wetland area is a major breeding area for water birds as well as a migration stop-over area for shorebirds. The floodplain is contiguous with the Fitzroy River floodplain.
	Flora and vegetation surveys undertaken within the well sites and their surrounding regions have not identified the presence of any Threatened Flora or TEC to date within on or around the well sites

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Environment Aspects	Summary
	The Department of Agriculture, Water and the Environment Protected Matters Search Tool (PMST) desktop search identified that weed species may be present, listing three weeds as potentially occurring within a 5 km buffer around the well sites, being:
	Cenchrus ciliaris (Buffel Grass),
	Jatropha gossypifolia (Cotton-leaved Physic-nut, Bellyache Bush), and
	Parkinsonia aculeata (Parkinsonia, Jerusalem Thorn).
	The previous on-ground flora surveys undertaken in the Valhalla province (Table 3-1) identified several introduced species as being present within the surroundings the well sites, being:
	Calotropis procera (Rubber Bush, Calotrope) – Declared Pest
	Cenchrus ciliaris (Buffel Grass)
	Cenchrus setiger (Birdwood Grass)
	Cucumis spp. (C. argenteus and C. melo)
Introduced and Invasive Species	Malvastrum americanum (Spiked Malvastrum)
	Melochia pyramidata (Pyramid Flower)
	Portulaca oleracea (Common Purslane)
	Portulaca Pilosa (Pink Purslane)
	Parkinsonia aculeata – Declared Pest
	Sida cordifolia (Flannel Weed)
	Stylosanthes spp. (S. hamata and S. scabra)
	Trianthema pilosum
	• Vachellia farnesiana (Mimosa Bush).
	Of all the weeds recorded, <i>Parkinsonia aculeata</i> has been declared as a Weed of National Significance (WoNS). Both <i>Parkinsonia aculeata</i> and <i>Calotropis procera</i> are listed as Declared Pests under the <i>Biosecurity and Agriculture Management Act 2007</i> (WA).
Fauna	Fauna species that have been formally recognised as threatened with extinction or as having special conservation value are protected by International, Commonwealth and State legislation. At the national level fauna are protected under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (EPBC Act). Within Western Australia, Threatened and Priority fauna are listed under the <i>Biodiversity Conservation Act 2016</i> (BC Act) and the Biodiversity Conservation Regulations 2018. Fauna presence around the Activity areas is well understood given the numerous surveys that have been conducted for previous petroleum activities in EP 371. Previous studies and their outcomes are presented in Table 3-2.

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Environment Aspects	Summary
	The Canning Basin is covered by rangeland ecosystems, with cattle grazing the dominant land use. Most rangeland grazing properties are managed as pastoral leases on government owned land (crown land). The average size of cattle stations in the Kimberley is 230,406 ha (2,304 km ²) (DPIRD, 2019), with cattle typically grazing on native and introduced vegetation that is rarely cleared for pasture or cropping.
Land Use	The sites overlay two pastoral stations. The land is currently used for agricultural grazing purposes, which is largely leased by the Noonkanbah and Blina pastoral stations.
	All sites are remotely located from residential developments, local tourist attractions and main roads. The closest receptors to the sites include a few station homesteads and Aboriginal Communities, located at least 15 km away from the well sites.
Natural Heritage	A search of the InHerit Western Australia database did not identify any natural heritage sites within or adjacent to the sites (Heritage Council, 2025). No sites listed on the National Heritage List occur within EP 371 (DAWE, 2025). The nearest National Heritage List site is the West Kimberley (Heritage Place no. 18769) and is located approximately 25 km south of Asgard 1 well site. The West Kimberley is important due to its great biological richness and contains important geological and fossil evidence of Australia's evolutionary history. Given its distance to the sites, this heritage place has not been considered further.
World and Commonwealth Heritage	No World Heritage Sites or Commonwealth Heritage Sites occur within EP 371 (DAWE, 2025). One European site is the Heritage Place no. 4440 Walgidee Hills, located in Noonkanbah Pastoral Station, ~20 km south west of the Asgard 1 well site. Although it possesses no statutory heritage listing, the site is classified by the National Trust.
Native Title	The sites are overlapped by three registered Native Title groups. These are the Warlangurru People (claim application WAD509/2015, also known as the Warlangurru 1 Claim), the Yungngora (Noonkanbah) People (determination application WAD6229/1998, also known as the Yungngora Native Title Determination) and the Bunuba People (claim application WAD535/2018, also known as the Bunuba #2 Claim).
	A search of the Aboriginal Heritage Inquiry System (DPLH, 2025) identified two registered Aboriginal heritage sites;
Aboriginal Heritage	 Calwynyardah Prison Tree (Place ID: 12515), located ~2 km north west of the Valhalla North 1 well site.
	 Mt Hardman Creek (Place ID: 14229), located ~7.3 km south west of the Valhall 1 & 2 well site.

Table 3-1: Baseline Studies - Flora and Vegetation

Year	Consultant	Survey Name	Location	Survey Outcomes
2007	Woodman Environmental Consulting	Woodman Environmental Consulting (2007). Valhalla – 01 Well Site Flora and Vegetation Survey. Woodman Environmental	EP 371 687206m E 8000998m N (GDA 94, zone 51)	• Three Priority flora species were identified. <i>Triodia acutispicula</i> ³ (P1) was recorded and an additional survey revealed that this species is common in the surrounding vegetation. <i>Goodenia byrnesii</i> (P3) was recorded, with no additional plants of this species recorded outside of the well site area. <i>Goodenia sepalosa</i> var. <i>glandulosa</i> (P3) was collected and

³ At the time of writing this EP Summary, *Triodia acutispicula* is now listed as a P3 Priority species.

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Year	Consultant	Survey Name	Location	Survey Outcomes
		Consulting. July 2007. Report prepared for Arc Energy Limited.		 recorded in the areas adjacent to the proposed well site, No introduced weed species were recorded in the survey area, One structural plant community was recorded within the survey area: W1 – Woodland. The site was an open woodland of <i>Eucalyptus chlorophylla</i> and <i>Erythrophleum chlorostachys</i> with occasional <i>Corymbia dampierii</i> over Grassland of <i>Aristida holothera</i> var. <i>holothera</i> and <i>Eriachne obtusa</i> with occasional shrub and herbaceous species, No Threatened Ecological Communities (TEC) have been located within the survey area. The plant community described in this report extended outwards from the survey area in all directions and appears to not be restricted locally.
2011	Low Ecological Services	Low Ecological Services (2011a). Valhalla East-1 Exploration Well: Flora and Fauna Survey. September 2011. Report prepared for Buru Energy.	EP 371 691813m E 8002857m N (GDA 94, Zone 51).	 No Priority flora species were identified during the survey, One introduced weed species, <i>Stylosantheses hamata</i>, was found at the well site and along the access route, The vegetation associations are locally and regionally widespread and are very similar to those predicted using the vegetation maps produced by Shepherd <i>et al.</i> (2002), Neither of the vegetation types are a TEC or Priority Ecological Communities (PEC).
2011	Low Ecological Services	Low Ecological Services (2011b). Flora and Vegetation Survey: Valhalla North. October 2011. Report prepared for Buru Energy.	EP 371 683112m E 8006107m N (GDA 94, Zone 51)	 Only nine species from six families were able to be identified at Valhalla North-1, No introduced species were found at Valhalla North-1, <i>Calotropis procera</i> (Rubber Bush), a Declared Pest, was present along the main Calwynyardah Noonkanbah Road, <i>Sida cordifolia</i> (Flannel weed) and <i>Cenchrus ciliaris</i> (Buffel grass) were noted at a disused bore along the minor access track to the Valhalla North-1 site, The site was an open shrubland of primarily <i>Grevillea</i> spp, with the occasional Acacia sp. and scattered trees, over hummock grassland, The vegetation is unlikely to be a type classed as a TEC or PEC.
2012	Low Ecological Services	Low Ecological Services (2012a). Asgard-1 Exploration Well: Flora, Vegetation and Fauna Survey. Report prepared for Buru Energy.	EP 371 714726m E 7981294m N (GDA 94, Zone 51)	 The desktop review identified nine species of listed flora likely to be found within the site; however, none of these were identified during the survey, One introduced plant species, <i>Cucumis argenteus</i>, was recorded, The vegetation associations in the area were typical of Pindan vegetation associations. They are regionally widespread and are very similar to those predicted using the vegetation maps produced by Shepherd <i>et al.</i> (2002), None of these vegetation types are classified as a TEC or PEC.
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Year	Consultant	Survey Name	Location	Survey Outcomes				
2012	Low Ecological Services	Low Ecological Services (2012b). Asgard 2D Seismic Survey: Flora, Vegetation and Fauna Survey. Report prepared for Buru Energy.	EP 371 -18.255566, 125.055461 -18.284348, 125.135494 -18.104218, 125.044064 -18.145749, 124.951130 - 18.110725, 124.809457 - 18.332103, 124.981419 - 18.321484, 124.951740 - 18.295856, 124.906641 - 18.295847 - 18.290406, 124.895847 - 18.247001, 125.030820 (GDA 94, Zone 51)	 Flora surveys were conducted at a total of ten sites. Two listed species were identified. <i>Trianthema kimberleyi</i> (P1) was recorded along the Calwynyardah Noonkanbah Road. <i>Goodenia virgata</i> (P3) was recorded on one site, Seven introduced species were recorded at the survey sites, Each of the ten sites surveyed within the survey area differed in vegetation type. Several of these communities were very similar, only varying slightly in species composition, Vegetation associations in the area were locally and regionally widespread and were quite similar to those predicted using the vegetation maps produced by Shepherd <i>et al.</i> (2002), but varied in time since last burnt, suite of species and degree of cover. 				
2014	Buru Energy and Outback Ecology	Buru Energy and Outback Ecology (2014). Ophir, Paradise, Valhalla, Eden and Ellendale Flora, Vegetation and Fauna Survey Report. August 2014.	EP 371 681471m E 8003803m N 681532m E 8000656m N 686496m E 8004817m N 686141m E 8001639m N 695595m E 8003148m N 690276m E 7999424m N (GDA 94, Zone 51)	 No flora species of conservation significance were recorded in the survey area. However, Priority flora species have been recorded in the survey area during previous studies, and a further Priority species may be present based on suitable habitat that occurs within the survey area, One introduced flora species was recorded, <i>Stylosanthes</i> sp., Vegetation recorded broadly represented vegetation associations described and mapped by Beard (1979), Vegetation was dominated by open Acacia shrublands over tussock or hummock grasslands comprised of <i>Chryspogon fallax</i> or <i>Triodia</i> spp. with an overstorey of scattered <i>Corymbia</i> spp., None of the vegetation communities described during the survey were representative of a TEC or PEC. 				
2016	Eco Logical Australia	Eco Logical Australia (2016). Level 1 Vegetation, Flora and Fauna Survey of Kurrajong, Yakka Munga and Valhalla Central Well Sites.	EP 371 Valhalla Central: 694310m E 7992800m N and 8km access track	 One Priority flora species, <i>Pterocaulon intermedium</i>⁴ (P3), was recorded ~100 m from the Valhalla Central access track, No introduced weed species were identified, Although the Valhalla Central site is within the North Fitzroy Plains 700 vegetation association, vegetation 				

⁴ At the time of writing this EP Summary, *Pterocaulon intermedium*, is no longer threatened and thus no longer listed as a Priority species. ***Uncontrolled in Hardcopy Format* Printed: 20-Jun-25 Use Latest Revision**

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Year	Consultant	Survey Name	Location	Survey Outcomes
		Prepared for Buru Energy limited.	(GDA 94, Zone 51)	 recorded in the survey is more analogous to the Dampierland 64 vegetation association which is described as 'Grasslands, tall bunch grass savanna low tree; baobabs (<i>Adansonia gregorii</i>), bauhinia & beefwood (<i>Grevillea striata</i> over ribbon grass)', None of the vegetation communities were likely to represent any TEC or PEC.
2018	Eco Logical Australia	Eco Logical Australia (2018). Valhalla Central 4 Flora and Fauna Survey. August 2018. Prepared for Buru Energy Limited.	EP 371 689310m E 7998098m N	 No Threatened or Priority flora species were identified during the survey, One introduced species, <i>Stylosanthes scabra</i>, was recorded, The survey's vegetation association contains broad elements consistent with Beard's (1979) pre-European vegetation mapping of the area, described as Dampierland 699, None of the vegetation communities described during the survey were representative of a TEC or PEC.
2019	Low Ecological Services	Low Ecological Services (2019). Flora and Fauna Assessment – Odin 2D and 3D seismic survey, Fitzroy Basin, Western Australia. Report prepared for Bennett Resources. March 2020.	EP 371 17 sites relevant to the location of the well sites.	 I bree species of important indigenous bush foods
2021	Eco Logical Australia	Eco Logical Australia (2021). Valhalla Flora and Fauna Survey. Report prepared for Bennett Resources Pty Ltd.	EP 371 Access tracks, camp locations of proposed well pads Sites located in same vegetation systems and in broader surroundings to the EP 371 well sites.	 No Threatened flora species were identified during the survey, One Priority flora species, <i>Nymphoides beaglensis</i> (listed as Priority 3), was recorded, Nine introduced flora species recorded, None of the vegetation associations delineated within the Project Area were inferred to represent any known or potential listed conservation significant communities, Vegetation recorded within the Project Area ranged from Excellent to Poor, A total of 13 vegetation communities were delineated and mapped across the Valhalla Project Area (or broader EP 371 outside of the Operational Area), generally comprising broad mixtures of <i>Adansonia gregorii</i>, Corymbia and Eucalyptus spp., <i>Atalaya hemiglauca</i>, <i>Bauhinia cunninghamii</i> and <i>Erythrophleum chlorostachys</i> woodland over mixed Acacia, Grevillea, Hakea spp. shrubland over Triodia spp. hummock grassland and Aristida, Eriachne, Eragrostis and Sorghum spp. tussock grassland.

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Table 3-2: Baseline studies - Terrestrial fauna

Year	Consultant	Survey Name	Location	Survey Outcomes
2011	Low Ecological Services	Low Ecological Services (2011a). Valhalla East-1 Exploration Well: Flora and Fauna Survey. September 2011. Report prepared for Buru Energy.	EP 371 691813m E 8002857m N (GDA 94, Zone 51).	 Habitat at the proposed well site has the potential to
2011	Low Ecological Services	Low Ecological Services (Low Ecological Services, 2011b). Flora and Vegetation Survey: Valhalla North. October 2011. Report prepared for Buru Energy.	EP 371 683112m E 8006107m N (GDA 94, Zone 51)	 There was no evidence of utilisation (diggings, dung or prints) of the site by listed mammals such as the Bilby (<i>Macrotus lagotis</i>) (Threatened under the Biodiversity Conservation Act [BC Act], and Vulnerable under the Environment Protection and Biodiversity Conservation Act 1999 [EPBC Act]), The Rainbow Bee-Eater (<i>Merops ornatus</i>), listed as a migratory⁶ bird species under JAMBA, was observed at Vahalla North-1.
2012	Low Ecological Services	Low Ecological Services (Low Ecological Services, 2012a). Asgard-1 Exploration Well: Flora, Vegetation and Fauna Survey. Report prepared for Buru Energy.	EP 371 714726m E 7981294m N (GDA 94, Zone 51)	 No species of conservation significance were recorded at the Asgard-1 well site. Diggings were identified at the well site location, but these were identified as originating from a non-listed species (<i>Varanus</i> sp.).
2012	Low Ecological Services	Low Ecological Services (Low Ecological Services, 2012b). Asgard 2D Seismic Survey: Flora, Vegetation and Fauna Survey. Report prepared for Buru Energy.	EP 371 -18.255566, 125.055461 -18.284348, 125.135494 -18.104218, 125.044064 -18.145749, 124.951130 - 18.110725, 124.809457 - 18.332103, 124981419 - 18.321484, 124.951740 - 18.295856, 124.906641 - 18.290406, 124.895847	 Two species of conservation significance were recorded during the survey; the Australian Bustard (<i>Ardeotis australis</i>, P4)⁵, and the Rainbow Bee-eater (<i>Merops ornatus</i>) listed as a migratory⁶ and marine species under the EPBC Act 1999, A burrow observed with similar characteristics to that of a Greater Bilby (<i>Macrotis lagotis</i>) burrow. This could not be confirmed, as diggings scats or tracks were not observed in the surrounding area, Signs of non-native animals were widespread. As the project area was located on a pastoral station, cattle and their impact were present and widespread throughout area, especially near water sources. Horse, camel and dogs / dingo tracks were also observed, Within the project area, ten different vegetation types and the Calwynyardah-Noonkanbah Road were surveyed. This covered the majority of the habitat types in the area, missing only potential microhabitats that were not noted from the air, The habitats visited had the potential to support other species of conservation significance were present.

⁵ At the time of writing the EP, the Australian Bustard (*Ardeotis australis*) is no longer listed as a Priority species. ⁶ At the time of writing the EP, the Rainbow Bee-Eater (*Merops ornatus*) is no longer listed as a Migratory species. It is now only listed as a Marine species under the EPBC Act.

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Year	Consultant	Survey Name	Location	Survey Outcomes
2014	Buru Energy and Outback Ecology	Survey Name Buru Energy and Outback Ecology (2014) Ophir, Paradise, Valhalla, Eden and Ellendale Flora, Vegetation and Fauna Survey Report. August 2014.	- 18.247001, 125.030820 (GDA 94, Zone 51) EP 371 681471m E 8003803m N 681532m E 8000656m N 686496m E 8004817m N 686141m E 8001639m N 695595m E 8003148m N 690276m E 7999424m N	 Two conservation significant birds were recorded during the on-ground survey, Ardeotis australis (Australian Bustard (P4)⁵) and Merops ornatus (Rainbow Bee-eater (Migratory)⁶), Three introduced fauna species were recorded during the on-ground survey: <i>Bos taurus</i> (Cattle), <i>Felis catus</i> (Domestic Cat) and <i>Camelus dromedarius</i> (Dromedary camel), Five broad fauna habitats occur within the survey area. The habitats are widespread regionally and it is unlikely that conservation significant fauna is specifically reliant on habitats within the survey area.
2016	Eco Logical Australia	Eco Logical Australia (2016). Level 1 Vegetation, Flora and Fauna Survey of Kurrajong, Yakka Munga and Valhalla Central Well Sites. Prepared for Buru Energy limited.	(GDA 94, Zone 51) EP 371 Valhalla Central: 694310m E 7992800m N and 8 km access track (GDA 94, Zone 51)	 No Threatened or Priority fauna species were recorded from the study sites. One migratory⁶ bird species, <i>Merops ornatus</i> (Rainbow Bee-eater), was recorded at Valhalla Central well site. This species was observed opportunistically foraging at these sites, One introduced fauna species was recorded during the field survey, Bos Taurus (Cattle), Three major fauna habitats were described across the Valhalla Central site: <i>Corymbia</i> and <i>Adansonia</i> low open woodland over <i>Hakea</i> tall open shrubland over scattered
2017	Buru and Dawson S.J (Murdoch University PhD project)	Dawson, S.J. (2017). Disturbance of ecology of the Greater Bilby (<i>Macrotis lagotis</i>). PhD Thesis, School of Veterinary and Life Sciences, Murdoch University. A preliminary unpublished report was additionally prepared for Buru in 2016:	EP 371 694310m E 7992800m N (GDA 94, Zone 51)	 Within the Valhalla Central survey area, no sign of recent bilby activity was recorded, One burrow resembled an old bilby burrow (>2 years since used), which has since been occupied by a

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Year	Consultant	Survey Name	Location	Survey Outcomes
		Murdoch University. (2016). Targeted Bilby survey of proposed well site 'Valhalla Central' and immediate area. Report prepared by Murdoch University, September 2016.		
2018	Eco Logical Australia	Eco Logical (2018). Valhalla Central 4: Flora and Fauna Survey. Report prepared for Buru Energy Limited. August 2018.	EP 371 689310m E 7998098m N	 No Threatened or Priority fauna species were recorded, One introduced fauna species, <i>Bos Taurus</i> (Cattle), was recorded as occurring throughout the study area, One broad fauna habitat type was recorded in the study area: <i>Eucalyptus coolabah</i> and <i>Corymbia greeniana</i> open woodland over mixed sparse shrubland over <i>Triodia ?schinzii</i> open hummock grassland over <i>Sorghum stipoideum</i> and <i>Eriachne obtusa</i> tussock grassland on floodplain (not frequently active) with light brown sand-clay.
2019	Low Ecological Services	Low Ecological Services (2019). Flora and Fauna Assessment – Odin 2D and 3D seismic survey, Fitzroy Basin, Western Australia. Report prepared for Bennett Resources Pty Ltd. March 2020.	EP 371 17 sites relevant to the location of the well sites.	 A range of animal tracks, scats, diggings, burrows, and remains were recorded, and identified with the help of a Traditional Owner, Potential Greater Bilby foraging excavation could not be confirmed. Northern Quoll scats could not be confirmed, Observations of non-native species (and scats and tracks) were of mainly of cattle and feral cats, but some evidence of camel, dogs and / or dingoes was also recorded.
2021	Eco Logical Australia	Eco Logical Australia (2021). Valhalla Flora and Fauna Survey. Prepared for Bennett Resources Pty Ltd.	EP 371 Access tracks, camp locations of proposed well pads. Sites located in same vegetation systems and in broader surroundings to the EP 371 well sites.	 Two introduced fauna species, European Cattle (<i>Bos indicus</i>) and Dingo (<i>Canis familiaris dingo</i>), were directly observed in the Project Area, 54 conservation listed species were identified from
2024	Ecologia Environment	Ecologia Environment (2024) Bennet Resources Valhalla Project Targeted Greater Bilby Survey	EP 371 Sites located in same vegetation systems and in broader surroundings to	 Potential old Greater Bilby diggings were found, which does not confirm the presence of the species. No scats, active burrows or fresh tracks were found.

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Year	Consultant	Survey Name	Location	Survey Outcomes
			the EP 371 well sites.	 No rocky habitats considered critical for northern quolls or ghost bats were found, and no secondary evidence of either species was recorded.

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4 Environmental Management Strategies

A risk assessment of the aspects that will and may occur during operations was undertaken using BNR's risk assessment methodology which follows Australian Standard AS/NZS ISO 31000:2009: Risk Management – Principles and Guidelines. Hazards, their associated aspects and their associated management and mitigation measures are detailed bellow in Table 4-1.

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Table 4-1: Activity aspect scoping matrix

Aspect	Hazard	Management and Mitigation Measures
Physical Interaction – Soil and Vegetation	 Spreading of non-indigenous species (weeds), Unplanned disturbance to vegetation, and Damage to heritage sites / artefacts. 	 No clearing of previously undisturbed vegetation, Hygiene management requirements, Weed identification cheat sheets, Fill verified as having low weed risk, Induction, and Heritage artefact disturbance procedure.
Atmospheric Emissions	Disturbance to sensitive fauna / relevant stakeholders.	Emissions are monitored and reported, andManagement of Complaints.
Extraction of Groundwater	Damage to vegetation due to drawdown of shallow groundwater.	Ground water licences, andMeter calibration and monitoring.
Physical Interaction – Fauna	 Injury or fatality to terrestrial fauna. 	 Fauna exclusion and egress, Site inspections, Speed limits, and Induction.
Fire	 Habitat and vegetation loss, Fauna injury / fatality, and Contamination (in the event petroleum wells are damaged). 	 Emergency Response Plan, Permit to Work, Induction, Consultation, Maintain cleared areas, and Maintain firefighting equipment on site.
Erosion from Surface Water	 Unplanned disturbance to vegetation, and Inadequate rehabilitation. 	 HSE inspection and erosion management measures – well sites and access tracks, HSE inspection and erosion management measures – progressive rehabilitation, Water retention pond design, and Monitoring of Rehabilitation.

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Aspect	Hazard	Management and Mitigation Measures
Accidental Release of Solid Waste	 Attraction and / or injury of protected fauna species within the vicinity of the sites. 	 Appropriate rubbish bins and waste segregation, Appropriately licensed waste contractor, Emissions and Discharges Register, and Induction.
Accidental Release of Hydrocarbons or Hazardous Materials	 Contamination of soil / groundwater, and Contamination and subsequent toxic effects to vegetation. 	 Rig inspection, Site will be manned 24 hours a day, BNR's Refuelling Procedure, Chemical and hazardous liquid material storage, Chemical disclosure, Groundwater sampling, Induction, Spill kits, Oil Spill Contingency Plan, and Emergency Response Plan.
Accidental Release of Hydrocarbons – Loss of Well Control (LOWC)	 Atmospheric emissions, Contamination of soil / groundwater, and Contamination and subsequent toxic effects to vegetation. 	 Well Management Plan, Groundwater sampling, Induction, Spill kits, Oil Spill Contingency Plan, Blow out control equipment and expertise. Emergency Response Plan.

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5 Implementation Strategy

To meet the requirements of Regulation 15(1) of the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012, 'Implementation Strategy for Environment Plan', this section describes the implementation strategy - the systems, practices, and procedures used to ensure that the environmental impacts and risks of the activities are continuously reduced to 'As Low As Reasonably Possible', and the environmental performance objectives and standards are achieved. BNR will operate under its management system.

5.1 Management System Overview

BNR has implemented an integrated Health, Safety and Environment Management System (HSE Management System). This management system ensures a sound approach to risk management and compliance and includes a process of planning, implementation and review to ensure risks associated with operational activities, including environmental risks, are appropriately controlled, reported and monitored. This includes the development and implementation of standards, procedures and plans appropriate to the location and type of operations undertaken by BNR.

The HSE Management System establishes clear guidelines for personnel involved in these activities to achieve and maintain the standards set out in the EP. Further to this, BNR have implemented a Safety Case that specifically sets out the framework for the management of the health and safety aspects for planned well care and maintenance activities.

5.2 Oil Spill Contingency Plan

In accordance with Regulation 15(10) of the PGER(E)R, BNR's OSCP has been implemented as part of BNR's implementation strategy. The OSCP considers the four key aspects of prevention, preparedness, response and recovery of an unplanned hydrocarbon or chemical spill that has occurred as a result of care and maintenance activities conducted on EP 371 sites. The OSCP will manage the potential impacts and risks identified by the EP and cover loss of containment from well sites, loss of chemicals and diesel from storage and refuelling.

Other necessary emergency response documentation is in place for the activities and are to be used in conjunction with the OSCP. These include the Incident Management Plan, the Safety Case and the Emergency Response Procedure, which overall identify, assess and manage emergency situations including environmental emergencies, such as hydrocarbon and hazardous chemical spills.

5.3 Environment Plan Review

Regulation 18 of the PGER(E)R requires that BNR submit a proposed revision of the accepted EP:

- Before the commencement of a new activity,
- Or any significant modification, change of a new stage of an existing activity, and
- Before, or as soon as practicable after, the occurrence of any significant new environmental impact or risk, or significant increase in an existing environmental impact or risk which occurred or is to occur.

Additionally, prior to downhole well operations commencing, BNR will update the EP with the full chemical disclosure of the completion fluids to be used downhole, and submit the EP to the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS).

Regulation 20 of PGER(E)R requires that BNR submit a proposed revision of the EP five years from the date when the EP is accepted by the Minister.

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6 Consultation

Minimising and mitigating the potential environmental impacts associated with the care and maintenance activities for the sites and access tracks is assisted by the engagement of key stakeholders to ensure all issues are identified and addressed.

6.1 Stakeholder Identification

In accordance with Regulation 17 of PGER(E)R, BNR completed a scoping exercise to determine which authorities, persons and organisations were considered to be relevant.

Given the isolated location of the sites, limited stakeholders were identified and include:

- Department of Energy, Mines, Industry Regulation and Safety,
- Shire of Derby-West Kimberley,
- Buru Energy,
- Noonkanbah Traditional Owners and station pastoralists (YAC Yungngora Aboriginal Corporation),
- Bunuba #2 Traditional Owners,
- Warlangurru #1 Traditional Owners (WAC Warlangurru Aboriginal Corporation),
- Blina station pastoralists,
- Kimberley Pilbara Cattlemen's Association,
- KRED Enterprises, and
- Main Roads WA.

Error! Reference source not found. provides a summary of the consultation undertaken specific to activities covered under the EP.

6.2 Ongoing Consultation

Ongoing stakeholder consultation will take place throughout the life of the Project. BNR will continue to identify new relevant stakeholders prior to the Project commencing and during the activity. New stakeholders may be identified during ongoing consultation with stakeholders identified to date or direct approach by persons that have become aware of the Project. If additional stakeholders are identified, they will be contacted and provided with information in relation to the Project and invited to make comment.

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