

MERLINLEIGH-GASCOYNE GEOCHEMISTRY SURVEY ENVIRONMENT PLAN SUMMARY

STP-SPA-0111 (Byro)

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1 INTRODUCTION

ESHWA Pty Ltd (ESHWA) is applying for an Onshore Petroleum Special Prospecting Authority with Acreage Option (SPA/AO) in the Gascoyne and Mid West regions of Western Australia (WA).

ESHWA is proposing to carry out a field survey program to assess the possible generation and presence of hydrocarbons and helium (the Project) across the proposed SPA/AO application area (the Project Area).

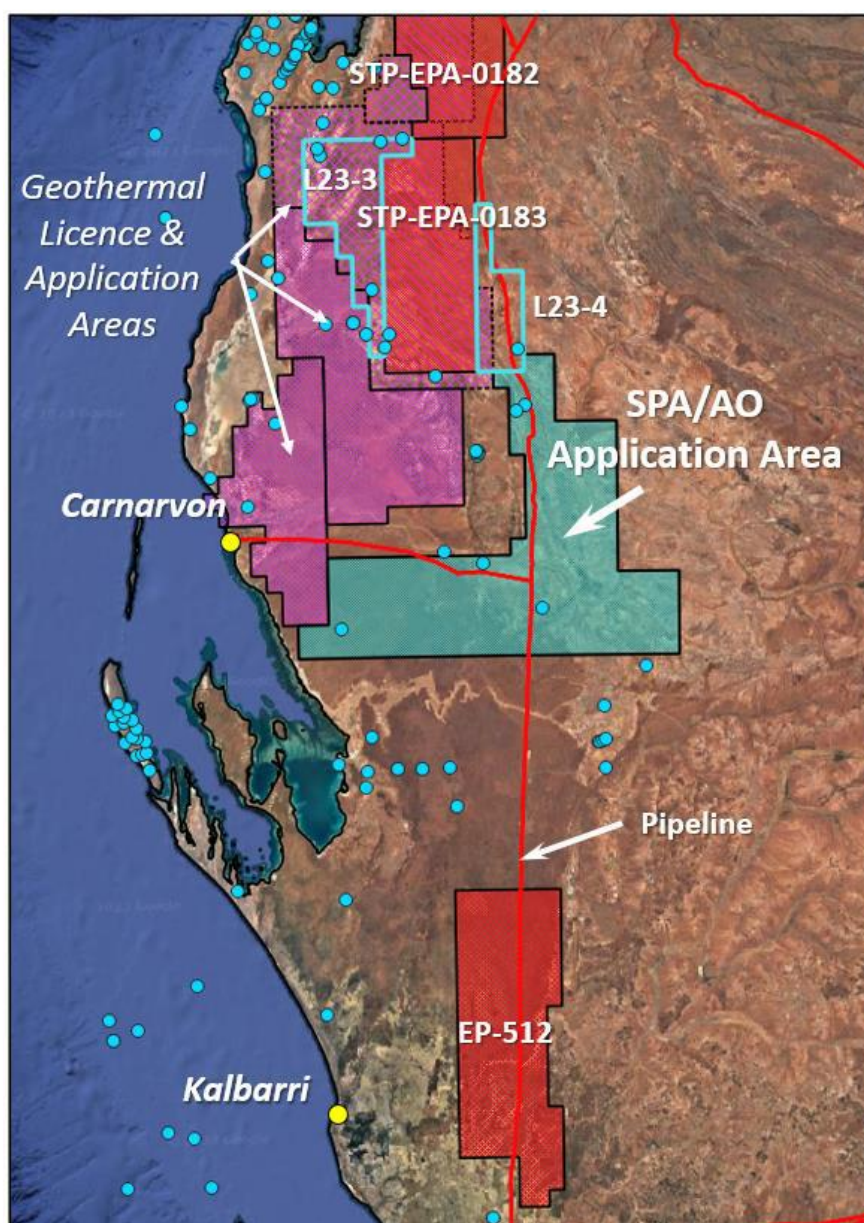


Figure 1-1 Location of the SPA/AO Application Area (Project Area)

1.1 Purpose

The purpose of the Environment Plan (EP) is to provide detail of the activities associated with the proposed field survey program, describing the environmental management measures to mitigate any potential environmental impacts and risks from those activities.

Under the WA *Petroleum and Geothermal Energy Resources Act 1967* (PGER Act), an EP is required to be prepared, approved and implemented for applicable activities. The objective of an EP is to reduce environmental risks and impacts of petroleum activities, to a level considered to be as low as reasonably practicable (ALARP).

The EP has been prepared in accordance with the DEMIRS 'Guideline for the Development of Petroleum, Geothermal and Pipeline Environment Plans in Western Australia' (DEMIRS 2022).

1.2 Nomination of Operator

Regulation 37 of the Petroleum Geothermal Energy Resources (Environment) Regulations 2012 (PGER(E)R) requires that there is an operator responsible for the overall management and operation of the activity at all times, and that the registered holders are required to notify the Minister of the nominated operator.

In accordance with the (PGER(E)R), contact details for the Operator are included in Table 1-1.

Table 1-1 Nominated Operator Contact Details

Company	ESHWA Pty Ltd
Name	David Biggs
Position	Managing Director
Address	15 Dunraven Avenue, Toorak VIC 3142
Telephone number	+61 (0)427 772 924
Email address	david.biggs@eshydrogen.com

2 DESCRIPTION OF ACTIVITY

The scope of the EP is limited to the field survey program within the Project Area. The activities covered by the EP include:

- site mobilisation;
- groundwater sampling and on-field testing; and
- all supporting operations.

2.1 Location

The Project Area (northwest point) is located approximately 50 km southeast of Carnarvon and (southwest point) approximately 250 km north of Kalbarri, enveloping directly north another SPA/AO application area (Figure 1-1).

2.2 Timeframes and Schedule

The commencement of mobilisation activities is largely dependent on approvals.

Project activities will occur as a single phase program.

- Survey Phase – groundwater geochemistry survey

The total duration of the proposed activity will be approximately one month. This duration accounts for some downtime to account for potential delays due to unforeseeable weather or operational circumstances. It is expected that the groundwater geochemistry sampling within the Project Area will be undertaken between July to August 2025 (subject to SPA approval timing). Survey activities cannot be undertaken during summer months for health and safety reasons.

2.3 Proposed Work Program

ESHWA is proposing to conduct a hydrocarbon and helium focussed groundwater geochemistry survey in the Project Area. ESHWA investigations have identified 44 water bores for sampling within the Project Area. These bores range in drilled depth from 15 m to 460 m with most between 50 m and 200 m. It is anticipated that the shallower bores will encounter at least one aquifer, while deeper wells may penetrate multiple water-bearing intervals. The coordinates for the proposed bore locations are provided in Table 2-1.

Table 2-1 Proposed bore location coordinates

Bore ID	Longitude	Latitude
MM1	114.3596	-25.3653
MM2	114.3990	-25.4896
MM3	114.4792	-25.4946
MM4	114.8380	-25.0121
MM5	114.9413	-25.1300
MM6	114.9682	-25.0413
MM7	115.0287	-25.1435
MM8	115.1007	-25.3020
MM9	115.0927	-25.3379
MM10	115.1182	-25.3003
MM11	115.1282	-25.0441
MM12	115.2082	-25.0512

The proposed work program will be restricted to pre-existing access tracks and no environmental or social sensitivities will be impacted during the sampling of groundwater bores.

2.4 Supporting Operations

2.4.1.1 Vehicles / Personnel

The proposed work program requires supporting vehicles to access all viable groundwater bores within the Project Area.

It is expected that two light vehicles will be required to complete the survey. All vehicles will use diesel fuel onsite.

The Project will only require a small number of personnel to undertake the field survey, i.e. 2 to 3 only.

2.4.1.2 Accommodation

Accommodation will be provided within existing commercial accommodation facilities at one of the towns in close vicinity to the Project Area. The construction of a camp is not required for the duration of the Project. Given the remote location of the Project Area, personnel may be required to camp overnight using rudimentary camping equipment only, i.e. a swag or tent. This mobile camp would be restricted to suitable roadside sites.

2.4.1.3 Laydown location

There is no requirement for the laydown of equipment. All equipment will be stored in vehicles until demobilised from site at the completion of the field survey.

2.4.1.4 Fuel Storage and Refuelling

There will be no bulk chemicals or hazardous materials stored on site, i.e. diesel. Refuelling will take place offsite.

2.4.1.5 Waste

The only planned waste generated during the Project will be general waste, including food, plastics and other packaging products.

Waste management / disposal requirements are described in Table 2-2.

Table 2-2 Disposal methods for waste products

Waste Product	Method of Dsposal
General - food, plastics, rubber, empty non-hazardous containers, etc.	Placed into dedicated waste receptacles (containers or bags) within each vehicle used for the Project for disposal in dedicated facilities (i.e. bins) at an offsite accommodation.
Contaminated soil	Segregated and removed from site for disposal at appropriately licenced facility.

2.5 Site Reinstatement & Rehabilitation

Given the nature of the Project, there is no requirement for site reinstatement or rehabilitation activities. There are no clearing activities associated with this Project and no fixed infrastructure of any kind being installed. All equipment (inclusive of vehicles and sampling tools) will be demobilised from site at the conclusion of the survey program.

3 EXISTING ENVIRONMENT

A summary of the environment within the Project Area is described in Table 3-1.

Table 3-1 Existing environment summary

Environmental Aspect	Summary
Climate	The Project Area intersects the Carnarvon bioregion, which has a climate of arid, semi-desert to sub-tropical with variable summer and winter rainfall. Cyclonic systems may affect the coast and hinterland annually.
Landform & Soil Systems	The Project Area intersects two IBRA regions namely Carnarvon and Gascoyne. The Project Area overlays 31 different soil landscape systems.
Hydrology	The Project Area intersects 16 named watercourses. The nearest bore to a major watercourse (Gascoyne River) is MM11, which is approximately 450 m to the southwest. The Project Area lies over the proclaimed Gascoyne Groundwater Area and traverses the following aquifers: <ul style="list-style-type: none"> • Carnarvon Basin of Birdrong Sandstone on the west part and Tumblagood Sandstone on the east part, comprised of Mesozoic sediments and Palaeozoic meta-sediments and volcanics respectively • Paleovalley in the Upper Tertiary Fluvial sediment aquifer; and • Basement. The Priority 2 Gascoyne Junction Water Reserve, is located in the centre of the Project Area.
Conservation Areas	The Kennedy Range National Park was determined to lie outside the Project Area, however, a future addition to its boundaries was found to intersect the Project Area. Although its gazettal as addition to the National Park is still in progress, it is listed as an Environmentally Sensitive Area. None of the proposed potential water bore sample sites are located within these conservation areas, and therefore will not require access for the proposed Project activities. The nearest bore to a conservation area is MM9, which lies approximately 7 km northeast of the Pimbee conservation area. The nearest bore to the Kennedy Range National Park is MM6, which lies approximately 8 km to the south.
Vegetation & Flora	61 vegetation associations are associated with the Project Area. 5 species conservation significant flora were identified as having the potential to occur or have habitat within the Project Area. Introduced weed species are known to be present within the region.
Fauna	27 species conservation significant fauna were identified as having the potential to occur or have habitat within the Project Area. Introduced fauna species are known to be present within the region.
Aboriginal Heritage	The Native Title determinations across the Project Area were identified as being registered to the Nganhurra Thanardi Garrbu Aboriginal Corporation, Yinggarda Aboriginal Corporation, Woodgoomungoooh Aboriginal Corporation, Kulyamba Aboriginal Corporation and Wajarri Yamaji Aboriginal Corporation. 66 registered sites have been identified within the Project Area. Bores MM11 and MM12 intersect with the Registered Aboriginal Heritage Site associated with the Gascoyne and Lyons River (Site ID: 39200). All registered heritage places that intersect bores do so on already existing roads / township areas that are already heavily disturbed. The use of these heavily disturbed areas for monitoring is unlikely to have any detrimental impacts to the Aboriginal heritage places listed.
Socio-economic	The Local Government Authority boundaries traversed by the Project Area are Shire of Carnarvon and Shire of Upper Gascoyne. The Dampier-to-Bunbury Natural Gas Pipeline bisects the Project Area and has an associated corridor boundary.

4 ENVIRONMENTAL RISK ASSESSMENT & METHODOLOGY

The risk assessment process applied to the Environment Plan is based on, and in line with the principles of AS/NZA ISO 31000:2018 Risk Management – Principles and Guidelines and HB203:2012. Aspects, hazards and their associated management measures are detailed below in Table 4 1.

Table 4-1 Risk assessment summary

Aspect	Hazard	Management Measures
Physical Interaction – Soil and Landform	<ul style="list-style-type: none"> Land degradation due to spread of weeds Loss, damage or disturbance to Aboriginal heritage areas or values Disturbance to local landowners associated with dust emissions. 	<ul style="list-style-type: none"> Hygiene Management measures will be implemented Vehicle movements will be restricted A Land Access Agreement will be in place prior to accessing any bores Aboriginal Heritage monitors A complaints management system will be implemented Speed limits will be implemented
Physical Interaction – Fauna	<ul style="list-style-type: none"> Injury or fatality to terrestrial fauna 	<ul style="list-style-type: none"> An induction will be provided to all operational staff Speed limits will be implemented Vehicle movements will be restricted Project activities will be undertaken during daylight hours only
Accidental Release of Waste / Hydrocarbons	<ul style="list-style-type: none"> Environmental pollution (soil contamination) Attraction and / or injury of fauna species that interact with the waste. 	<ul style="list-style-type: none"> An induction will be provided to all operational staff Waste management Spill Kits will be provided in vehicles Spill management procedures will be implemented in the event of a spill and an Oil Spill Contingency Plan will be in place
Fire	<ul style="list-style-type: none"> Habitat and vegetation loss fauna injury / fatality. 	<ul style="list-style-type: none"> An induction will be provided to all operational staff An Emergency Response Plan will be in place Fire-fighting equipment will be provided for in vehicles

5 IMPLEMENTATION STRATEGY

To meet the requirements of Regulation 15(1) of the PGER(E)R, Implementation Strategy for the EP, an Implementation Strategy describes the systems, practices, and procedures used to ensure that the environmental impacts and risks of the activities are continuously reduced to ALARP, and the environmental performance objectives and standards detailed in Section 4 are achieved.

5.1 Stakeholder Engagement

ESHWA will ensure that there is appropriate and timely consultation with relevant authorities and interested organisations and individuals in line with the requirements of the PGER(E)R and the DMP EP Guidelines.

5.1.1 Stakeholder Identification

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

Given the isolated location of the bore locations, limited stakeholders were identified but include:

- Local and State government entities;
- Corporate entities;
- Native Title holders; and
- Landowners.

5.1.2 Ongoing Consultation

Access to proposed bore locations will be determined through ongoing consultation with identified relevant stakeholders for the duration of the Project. ESHWA will persist with engaging with relevant stakeholders as investigations into bore access continues during the Project.

5.2 EP Review

Regulation 18 of the PGER(E)R requires that ESHWA 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, Regulation 20 of PGER(E)R requires that ESHWA submit a proposed revision of this EP five years from the date when this EP is accepted by the Minister. However, noting the scope of this EP, it is expected to be closed prior to requiring a five-year review.