
PART B – ENVIRONMENTAL OUTCOMES, PRESCRIPTIONS AND OBJECTIVES

B1 Inland waters

B1-1 The proponent must ensure the implementation of the proposal achieves the following environmental **outcomes**:

- (1) groundwater drawdown does not exceed the **predicted drawdown extent**;
- (2) no **detectable** decrease in groundwater quality of the **Liveringa Aquifer** and the **Grant Poole Aquifer**, compared to **baseline**;
- (3) proposal-induced fractures must remain within the **Laurel Formation**;
- (4) no movement of **HFS fluids**, hydrocarbons or saline groundwater into the **Liveringa Aquifer** or the **Grant Poole Aquifer** as a result of well integrity failure, fracture propagation or activation of hydrogeological faults;
- (5) all **wastewater** must remain contained within **water retention pond(s)**; and
- (6) no **detectable** decrease in the health of groundwater dependent vegetation as a result of **groundwater abstraction** at the Midgard or Muspelheim well pads as shown in Figure 1.

B1-2 Prior to the commencement of drilling, the proponent must prepare:

- (1) a micro seismic monitoring program that includes monitoring prior to, during and after **HFS** activities;
- (2) an early warning system based on a ‘traffic light scheme’ suitable to prevent adverse geo-mechanical events reaching a size of any consequence to land or hydrogeology for geomechanical events;
- (3) a procedure for the completion of geomechanical risk assessment for each proposed well, that includes incorporation of geological data collected during drilling;
- (4) a program for well design, construction and testing to be assessed by an independent certified well examiner;
- (5) a site water audit program to account for water produced, evaporated and disposed, such that significant leakage of fluids can be detected and remedied.

B1-3 The elements in condition B1-2 must be prepared to contribute to the achievement of the environmental **outcomes** in condition B1-1 and be informed

- (a) the finding has been notified to the **CEO** and **DBCA**; and
- (b) either:
 - (i) the individual(s) have been relocated by a licensed **fauna handler** to **similar habitat**; or
 - (ii) the individual(s) have been observed by the **fauna spotter** to have moved on from the area to adjoining **similar habitat**; or
 - (iii) the **fauna spotter** considers that the individual(s) no longer occur in the area to be cleared.

B3 Rehabilitation

B3-1 The proponent must ensure the implementation of the proposal achieves the following environmental **outcomes**:

- (1) rehabilitated vegetation and fauna habitat are **self-sustaining**;
- (2) soil and water within rehabilitated areas is of a quality that is suitable to support post closure landuses;
- (3) supporting infrastructure including **water retention pond(s)** is dismantled and removed and either disposed of at a licensed landfill or otherwise reused/recycled;
- (4) rehabilitated areas are consistent with the species diversity, abundance and function of native vegetation within comparative **reference sites**; and
- (5) rehabilitated landforms are stable and do not cause **pollution** or **environmental harm**.

B3-2 The proponent must revegetate all areas of native vegetation cleared but not reasonably expected to be required for **operations** in a **progressive manner** until the **outcomes** required by condition B3-1 are achieved or as otherwise agreed by the **CEO**.

B4 Aboriginal cultural heritage

B4-1 The proponent must implement the proposal to meet the following environmental **outcomes**:

- (1) no disturbance of **Aboriginal sites** or to **Aboriginal cultural heritage** in the proposal disturbance footprint other than where consent is granted for the use of the land under the *Aboriginal Heritage Act 1972*; and

- (2) subject to reasonable health and safety requirements, no interruption of ongoing access to land utilised for traditional use or custom by the **native title party/ies**.

B4-2 The proponent must implement the proposal to meet the following environmental **objective**:

- (1) avoid, and where unavoidable, minimise adverse impacts to **Aboriginal cultural heritage** within and surrounding the **development envelope**.

B4-3 The proponent must undertake ongoing consultation and engagement with the **native title party/ies** about the achievement of the **outcomes** in condition B1-1, condition B2-1, condition B3-1 and condition B4-1 and the **objective** in condition B4-2 the life of the proposal.

B5 Greenhouse gas emissions

B5-1 The proponent must:

- (1) take reasonable measures to minimise the **flaring** of **condensate** and natural gas produced during **well testing**;
- (2) take reasonable measures to implement **reduced emissions well completions**;
- (3) avoid **cold venting**, unless necessary to maintain safe operating conditions or in emergency situations;
- (4) ensure **flaring** of hydrocarbons during **well testing** achieves a minimum combustion efficiency of 98%.

B5-2 The proponent must notify the **CEO** in writing within one month of it becoming aware that implementation of the proposal will not be or is not expected to be regulated under the **Safeguard Legislation** as a designated large facility (*the notifiable event*) and such notice must briefly describe the reasons for and expected duration of the notifiable event.

B5-3 The proponent must, if requested in writing by the **CEO**, provide the **CEO** with a report on the implications for the proposal of any amendment or proposed amendment to the **Safeguard Legislation**, or a decision or proposed decision made under the **Safeguard Legislation** that is specified in the **CEO's** request.

B5-4 The report required by condition B5-2 must:

- (1) be submitted to the **CEO** within three months of the date of the **CEO's** request or such longer period as the **CEO** agrees to in writing; and
- (2) explain the implications that the specified amendment or decision has had or is expected to have on:

- (a) the obligation to reduce net **Scope 1 greenhouse gas emissions** from implementation of the proposal under the **Safeguard Legislation**; and
- (b) the quantity of actual and net **Scope 1 greenhouse gas emissions** likely to result from the future implementation of the proposal.

B6 Environmental Performance Reporting

B6-1 The proponent must submit an Environmental Performance Report to the **CEO** within six (6) months of the completion of **well testing** of:

- (1) the first one (1) **exploration well**;
- (2) the first four (4) **exploration wells**; and
- (3) the first ten (10) **exploration wells**,

or such other times as may be approved by the **CEO**.

B6-2 Each Environmental Performance Report must:

- (1) report on the measures implemented to reduce the **flaring** of natural gas and **condensate** during **well testing** for all wells tested during the preceding period, including:
 - (a) the status and commercial availability of equipment and relevant technology for the reduction of **flaring** in the Australian context;
 - (b) the quantity and proportion of natural gas and **condensate** diverted from **flaring** and an estimate of the resulting reduction in **Scope 1 greenhouse gas emissions**; and
 - (c) identifying and describing measures available to the proponent to reduce **flaring** of natural gas and **condensate** during **well testing**, including the adoption of proposed technologies and methods, and specifically the timeframe within which each technology or method will be implemented.
- (2) report on the effectiveness of mitigation measures implemented to achieve the environmental **outcomes** in condition B1-1, including:
 - (a) the implementation of and effectiveness of the measures listed in condition B1-2 to mitigate the potential impacts of the proposal;
 - (b) consistency of the proposal implementation with the recommendations of the **HFS Inquiry**; and

- (c) identification of available **adaptive** management and continuous improvement strategies that may be implemented, including improvement in monitoring undertaken to demonstrate achievement of the **environmental outcomes** in condition B1-1.

B6-3 The Environmental Performance Report required by condition B6-1 is to be accompanied by a peer review carried out by an independent person or independent persons with relevant expertise determined by the **CEO**, that provides:

- (1) an assessment of whether the conclusions provided in the Environmental Performance Report are supported by evidence;
- (2) recommendations, where applicable, for any revision of the environmental management plan required by condition B1-6; and
- (3) recommendations, where applicable, for any measures that should be implemented to reduce flaring.

PART C – ENVIRONMENTAL MANAGEMENT PLANS AND MONITORING

C1 Environmental Management Plans: Conditions Related to Commencement of Implementation of the Proposal

C1-1 The proponent must not undertake:

- (1) drilling of **exploration wells** until the **EPA**, on advice of **DMPE and DWER**, has **confirmed** in writing that the environmental management plan required by condition B1-6 meets the requirements of that condition and condition C4;

C2 Environmental Management Plans: Conditions Relating to Approval, Implementation, Review and Publication

C2-1 Upon being required to implement an environmental management plan under Part B, or after receiving notice in writing from the **EPA** under condition C1-1 that the environmental management plan(s) required in Part B satisfies the relevant requirements, the proponent must:

- (1) implement the most recent version of the **confirmed** environmental management plan; and
- (2) continue to implement the **confirmed** environmental management plan referred to in condition C2-1(1), other than for any period which the **CEO** confirms by notice in writing that it has been demonstrated that the relevant requirements for the environmental management plan have been met, or are able to be met under another statutory decision-making process, in which case the implementation of the environmental management plan is no longer required for that period.

C2-2 The proponent:

- (1) may review and revise a **confirmed** environmental management plan provided it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan;
- (2) must review and revise a **confirmed** environmental management plan and ensure it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan, as and when directed by the **CEO**;
- (3) must review and revise the **confirmed** environmental management plan required by Condition B1-6 and submit to the **CEO** for approval within three (3) months of each Environmental Performance Report required to be submitted under Condition B6-1;

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- (4) the review and revision of the environmental management plan required under condition C2-2(3) must include:
- (a) learnings and findings of the environmental performance reports required under condition B6-2(2), including any identified adaptive management and continuous improvement strategies;
 - (b) revised conceptualisation of the hydrological and hydrogeological processes within the **development envelope**; and
 - (c) recommendations made under condition B6-3(2).
- (5) must revise and submit to the **CEO** the **confirmed** Environmental Management Plan if there is a material risk that the **outcomes** or **objectives** it is required to achieve will not be complied with, including but not limited to as a result of a change to the proposal.
- C2-3 Despite condition C2-1, but subject to conditions C2-4 and C2-5, the proponent may implement minor revisions to an environmental management plan if the revisions will not result in new or increased **adverse impacts** to the environment or result in a risk to the achievement of the limits, **outcomes** or **objectives** which the environmental management plan is required to achieve.
- C2-4 If the proponent is to implement minor revisions to an environmental management plan under condition C2-3, the proponent must provide the **CEO** with the following at least twenty (20) business days before it implements the revisions:
- (1) the revised environmental management plan clearly showing the minor revisions;
 - (2) an explanation of and justification for the minor revisions; and
 - (3) an explanation of why the minor revisions will not result in new or increased **adverse impacts** to the environment or result in a risk to the achievement of the limits, **outcomes** or **objectives** which the environmental management plan is required to achieve.
- C2-5 The proponent must cease to implement any revisions which the **CEO** notifies the proponent (at any time) in writing may not be implemented.
- C2-6 **Confirmed** environmental management plans, and any revised environmental management plans under condition C2-4(1), must be published on the proponent's website and provided to the **CEO** in electronic form suitable for on-line publication within twenty (20) business days of being implemented, or being required to be implemented (whichever is earlier).

C3 Conditions Related to Monitoring

C3-1 The proponent must undertake monitoring capable of:

- (1) substantiating whether the proposal limitations and extents in Part A are exceeded; and
- (2) **detecting** and substantiating whether the environmental **outcomes** identified in Part B are achieved (excluding any environmental **outcomes** in Part B where an environmental management plan is expressly required to monitor achievement of that **outcome**).

C3-2 The proponent must submit as part of the Compliance Assessment Report required by condition D2, a compliance monitoring report that:

- (1) outlines the monitoring that was undertaken during the implementation of the proposal;
- (2) identifies why the monitoring was capable of substantiating whether the proposal limitation and extents in Part A are exceeded;
- (3) for any environmental **outcomes** to which condition C3-1(2) applies, identifies why the monitoring was scientifically robust and capable of **detecting** whether the environmental **outcomes** in Part B are met;
- (4) outlines the results of the monitoring;
- (5) reports whether the proposal limitations and extents in Part A were exceeded and (for any environmental **outcomes** to which condition C3-1 (2) applies) whether the environmental **outcomes** in Part B were achieved, based on analysis of the results of the monitoring; and
- (6) reports any actions taken by the proponent to remediate any potential non-compliance.

C4 Environmental Management Plans: Conditions Relating to Monitoring and Adaptive Management for Outcomes Based Conditions

C4-1 The environmental management plan required under condition B1-6 must contain provisions which enable the substantiation of whether the relevant **outcomes** of those conditions are met, and must include:

- (1) **threshold criteria** that provide a limit beyond which the environmental **outcomes** are not achieved;
- (2) **trigger criteria** that will provide an early warning that the environmental **outcomes** are not likely to be met;

- (3) monitoring parameters, sites, control/reference sites, methodology, timing and frequencies which will be used to measure **threshold criteria** and **trigger criteria**. Include methodology for determining alternate monitoring sites as a contingency if proposed sites are not suitable in the future;
- (4) **baseline** data;
- (5) data collection and analysis methodologies;
- (6) adaptive management methodology;
- (7) **contingency measures** which will be implemented if **threshold criteria** or **trigger criteria** are not met; and
- (8) reporting requirements.

C4-2 Without limiting condition C3-1, failure to achieve an environmental **outcome**, or the exceedance of a **threshold criteria**, regardless of whether threshold **contingency measures** have been or are being implemented, represents a non-compliance with these conditions.

C4-3 The environmental management plan required under condition B1-6 must:

- (1) provide for the collection of a minimum of twelve (12) months of baseline groundwater monitoring data from the **Liveringa Aquifer** for each **exploration well** prior to drilling of the **exploration well**;
- (2) provide for the revision of groundwater modelling for each well site prior to the drilling of the **exploration well**, based on **hydraulic parameters** measures at or proximal to each well site;
- (3) include a program of groundwater monitoring that is capable of detecting potential **preferential groundwater drawdown** towards Mount Hardman Creek associated with **groundwater abstraction** at the Muspelheim well pad shown in Figure 1;
- (4) be informed by and, where relevant, be consistent with the findings and recommendations of the **HFS Inquiry**; and
- (5) be informed by and, where relevant, be consistent with any regulatory requirements, guidance or policy outcomes associated with the delivery of the **implementation plan**.

PART D – COMPLIANCE, TIME LIMITS, AUDITS AND OTHER CONDITIONS

D1 Non-compliance Reporting

D1-1 If the proponent becomes aware of a potential non-compliance, the proponent must:

- (1) report this to the **CEO** within seven (7) days;
- (2) implement **contingency measures**;
- (3) investigate the cause;
- (4) investigate environmental impacts;
- (5) advise rectification measures to be implemented;
- (6) advise any other measures to be implemented to ensure no further impact;
- (7) advise timeframe in which **contingency measures**, rectification and other measures have and/or will be implemented; and
- (8) provide a report to the **CEO** within twenty-one (21) days of being aware of the potential non-compliance, detailing the measures required in conditions D1-1(1) to D1-1(7) above.

D1-2 Failure to comply with the requirements of a condition, or with the content of an environmental management plan required under a condition, constitutes a non-compliance with these conditions, regardless of whether the **contingency measures**, rectification or other measures in condition D1-1 above have been or are being implemented.

D2 Compliance Reporting

D2-1 The proponent must provide an annual Compliance Assessment Report to the **CEO** for the purpose of determining whether the implementation conditions are being complied with.

D2-2 Unless a different date or frequency is approved by the **CEO**, the first annual Compliance Assessment Report must be submitted within fifteen (15) months of the date of this Statement, and subsequent reports must be submitted annually from that date.

D2-3 Each annual Compliance Assessment Report must be endorsed by the proponent's Chief Executive Officer, or a person approved by proponent's Chief Executive Officer to be delegated to sign on the Chief Executive Officer's behalf.

D2-4 Each annual Compliance Assessment Report must:

- (1) state whether each condition of this Statement has been complied with, including:
 - (a) exceedance of any proposal limits and extents;
 - (b) achievement of and/or progress towards the achievement of environmental **outcomes**;
 - (c) achievement of and/or progress towards the achievement of environmental **objectives**;
 - (d) requirements to implement the content of environmental management plans;
 - (e) monitoring requirements;
 - (f) implement **contingency measures**;
 - (g) requirements to implement adaptive management; and
 - (h) reporting requirements;
- (2) include the results of any monitoring (inclusive of any raw data) that has been required under Part C in order to demonstrate that the limits in Part A, and any **outcomes** or any **objectives** are being met;
- (3) provide evidence to substantiate statements of compliance, or details of where there has been a non-compliance;
- (4) include the corrective, remedial and preventative actions taken in response to any potential non-compliance;
- (5) be provided in a form suitable for publication on the proponent's website and online by the Department of Water and Environmental Regulation; and
- (6) be prepared and published consistent with the latest version of the Compliance Assessment Plan required by condition D2-5 which the **CEO** has **confirmed** by notice in writing satisfies the relevant requirements of Part C and Part D.

D2-5 The proponent must prepare a Compliance Assessment Plan which is submitted to the **CEO** at least six (6) months prior to the first Compliance Assessment Report required by condition D2-2, or prior to implementation of the proposal, whichever is sooner.

D2-6 The Compliance Assessment Plan must include:

- (1) what, when and how information will be collected and recorded to assess compliance;

- (2) the methods which will be used to assess compliance;
- (3) the methods which will be used to validate the adequacy of the compliance assessment to determine whether the implementation conditions are being complied with;
- (4) the retention of compliance assessments;
- (5) the table of contents of Compliance Assessment Reports, including audit tables; and
- (6) how and when Compliance Assessment Reports will be made publicly available, including usually being published on the proponent's website within sixty (60) days of being provided to the **CEO**.

D3 Contact Details

D3-1 The proponent must notify the **CEO** of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty-eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

D4 Time Limit for Proposal Implementation

D4-1 The proposal must be substantially commenced within five (5) years from the date of this Statement.

D4-2 The proponent must provide to the **CEO** documentary evidence demonstrating that they have complied with condition D4-1 no later than thirty (30) days after the substantial commencement.

D4-3 If the proposal has not been substantially commenced within the period specified in condition D4-1, implementation of the proposal must not be commenced or continued after the expiration of that period.

D5 Public Availability of Data

D5-1 Subject to condition D5-2, within a reasonable time period approved by the **CEO** upon the issue of this Statement and for the remainder of the life of the proposal, the proponent must make publicly available, in a manner approved by the **CEO**, all validated environmental data collected before and after the date of this Statement relevant to the proposal (including sampling design, sampling methodologies, monitoring and other empirical data and derived information products (e.g. maps)), environmental management plans and reports relevant to the assessment of this proposal and implementation of this Statement.

D5-2 If:

- (1) any data referred to in condition D5-1 contains trade secrets; or
- (2) any data referred to in condition D5-1 contains particulars of confidential information (other than trade secrets) that has commercial value to a person that would be, or could reasonably be expected to be, destroyed or diminished if the confidential information were published,

the proponent may submit a request for approval from the **CEO** to not make this data publicly available and the **CEO** may agree to such a request if the **CEO** is satisfied that the data meets the above criteria.

D5-3 In making such a request the proponent must provide the **CEO** with an explanation and reasons why the data should not be made publicly available.

D6 Independent Audit

D6-1 The proponent must arrange for an independent audit of compliance with the conditions of this statement, including achievement of the environmental **outcomes** and/or the environmental **objectives** and/ or environmental performance with the conditions of this statement, as and when directed by the **CEO**.

D6-2 The independent audit must be carried out by a person with appropriate qualifications who is nominated or approved by the **CEO** to undertake the audit under condition D6-1.

D6-3 The proponent must submit the independent audit report with the Compliance Assessment Report required by condition D2, or at any time as and when directed in writing by the **CEO**. The audit report is to be supported by credible evidence to substantiate its findings.

D6-4 The independent audit report required by condition D6-1 is to be made publicly available in the same timeframe, manner and form as a Compliance Assessment Report, or as otherwise directed by the **CEO**.

Table 1: Abbreviations and definitions

Acronym or abbreviation	Definition or term
Aboriginal cultural heritage	Means the tangible and intangible elements that are important to the Aboriginal people of the state, and are recognised through social, spiritual, historical, scientific or aesthetic values, as part of Aboriginal tradition to the extent they directly affect or are affected by physical or biological surroundings.
Aboriginal site(s)	As defined in section 4 and 5 under the <i>Aboriginal Heritage Act 1972</i> .
Adaptive	Means having the ability or tendency to adapt in response to evidence in a manner which is most effective at achieving the specified outcomes.
Adverse impact(s)	<p>Negative change that is neither trivial nor negligible that could result in a reduction in health, diversity or abundance of the receptor/s being impacted, or a reduction in environmental value. Adverse impacts can arise from direct or indirect impacts, or other impacts from the proposal.</p> <p>In relation to Aboriginal cultural heritage, includes but is not limited to, hydrological change, structural damage, introduction or spread of non-indigenous flora and/or fauna, alteration of fauna behaviour, dust, light, and noise emissions.</p>
Baseline	Initial conditions measured before disturbance associated with the proposal, which is used for comparison with data collected during and after disturbance to identify and measure changes in conditions.
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the <i>Environmental Protection Act 1986</i> , or the CEO's delegate.
Clearing	Has the same meaning as in section 51A of the <i>Environmental Protection Act 1986</i> .
CO₂-e	Carbon dioxide equivalent
Cold venting	The intentional release of uncombusted gases, primarily methane, directly into the atmosphere from oil and gas operations without flaring or combustion.
Condensate	Also referred to as 'natural gas condensate, is a light liquid hydrocarbon mixture that is produced from natural gas reservoirs when the pressure and temperature drop as the gas flows to the surface.
Confirmed	In relation to a plan required to be made and submitted to the CEO , means, at the relevant time, the plan that the CEO

	<p>confirmed, by notice in writing, meets the requirements of the relevant condition.</p> <p>In relation to a plan required to be implemented without the need to be first submitted to the CEO, means that plan until it is revised, and then means, at the relevant time, the plan that the CEO confirmed, by notice in writing, meets the requirements of the relevant condition.</p>
Construction activities	<p>Activities that are associated with the substantial implementation of a proposal including but not limited to, earthmoving, civil works, vegetation clearing, grading or construction of right of way. Construction activities do not include geotechnical investigations (including potholing for services and the installation of piezometers) and other pre-construction activities where no clearing of vegetation is required.</p>
Contingency measures	<p>Planned actions for implementation if it is identified that an environmental outcome, environmental objective, threshold criteria, or management target are likely to be, or are being, exceeded. Contingency measures include changes to operations or reductions in disturbance or adverse impacts to reduce impacts and must be decisive actions that will quickly bring the impact to below any relevant threshold criteria, management target and to ensure that the environmental outcome and/or objective can be met.</p>
DBCA	<p>The Department responsible for administration of the <i>Biodiversity Conservation Act 2016</i>, which at the time of writing is the Department of Biodiversity, Conservation and Attractions.</p>
DWER	<p>The Department responsible for administration of the <i>Rights in Water and Irrigation Act 1914</i>, which at the time of writing is the Department of Water and Environmental Regulation.</p>
Detecting/ detectable	<p>The smallest statistically discernible effect size that can be achieved with a monitoring strategy designed to achieve a statistical power value of at least 0.8 or an alternative value as determined by the CEO.</p>
Development envelope	<p>The maximum area within which the proposal will be located, and consistent with the Proposal Content Document for the proposal as referred to in the Introduction to this Statement.</p>
Disturb/ disturbance	<p>Means directly has or materially contributes to the disturbance effect on health, diversity or abundance of the receptor/s being impacted or on an environmental value.</p> <p>In relation to flora, vegetation or fauna habitat, includes to result in the death, destruction, removal, severing or doing substantial damage.</p> <p>In relation to fauna, includes to have the effect of altering the natural behaviour of fauna to its detriment.</p>

Disturbance footprint	The location within which the physical proposal elements will occur.
DMPE	The Department responsible for administration of the <i>Petroleum and Geothermal Energy Resources Act 1967</i> , which at the time of writing is the Department of Mines, Petroleum and Exploration.
Emergency response vehicles	Vehicles responding to an emergency, as defined by section 5 of the <i>Emergency Management Act 2005</i> .
Environmental harm	Has the meaning provided by section 3A(2) of the <i>Environmental Protection Act 1986</i> .
Environmental monitoring	Installation of equipment or monitoring infrastructure, and associated monitoring activity required for confirming compliance with ministerial conditions.
Environmental value	A beneficial use, or ecosystem health condition.
EPA	The Environmental Protection Authority, as established under section 7 of the <i>Environmental Protection Act 1986</i> .
Exploration well(s)	A well drilled and constructed to target the Laurel Formation for the purposes of determining the presence of or appraising the size, composition, and commercial potential of a petroleum resource/reservoir.
Fauna habitat type 2	The habitat type as described in the Valhalla Gas Exploration and Appraisal Program Environmental Review Document, Version 4, Dated 21 June 2024).
Fauna handler	A person who is qualified and has attained the appropriate licence/s and authorisation/s under section 40 of the <i>Biodiversity Conservation Act 2016</i> and the Biodiversity Conservation Regulations 2018.
Fauna spotter	A person who is suitably trained in species identification, who does not perform any handling of animals where a licence to do so is required.
Flaring	The controlled burning or combustion of petroleum hydrocarbon fluids (such as natural gas and condensate) extracted from the ground as part of well testing operations.
Grant Poole Aquifer	The combined hydrogeological unit housed within the Poole Sandstone geologic unit with Stratigraphic Number 27680 and the Grant Group geologic unit with Stratigraphic Number 7696 as described in the Geoscience Australia Stratigraphic Units Database - Australian Stratigraphic Units Database Geoscience Australia (accessed 12 September 2025).
Greenhouse gas	Has the meaning given by Section 7A of the <i>National Greenhouse and Energy Reporting Act 2007</i> (Cth) or, if that definition is amended or repealed, the meaning set out in an Act, regulation or

	instrument concerning greenhouse gases as specified by the Minister.
Greenhouse gas emissions	Greenhouse gas emissions expressed in tonnes of CO₂-e as calculated in accordance with the definition of 'carbon dioxide equivalence' in Section 7 of the <i>National Greenhouse and Energy Reporting Act 2007</i> (Cth), or, if that definition is amended or repealed, the meaning set out in an Act, regulation or instrument concerning greenhouse gases as specified by the Minister.
Ground disturbing activities	Any activity or activities undertaken in the implementation of the proposal, including any clearing , civil works or construction.
Groundwater abstraction	The process of taking water from a ground source.
ha	Hectare(s).
HFS	Hydraulic fracturing simulation means the underground petroleum extraction process that involves the injection of fluids under high pressure into low permeability rock to induce fractures for the purpose of increasing the rock's permeability.
HFS fluids	Fluid made up of water, proppant and chemical additives used in the HFS process.
HFS Inquiry	Means the independent Scientific Inquiry carried out in 2018 to understand the risks associated with extracting petroleum products using HFS and to protect the State's environment from those risks. Final report of the inquiry - https://frackinginquiry.wa.gov.au/sites/default/files/final_report.pdf (accessed 11 July 2025)
Hydraulic parameters	Includes but is not limited to: <ul style="list-style-type: none"> - Hydraulic conductivity - Transmissivity - Storativity - Specific Yield - Aquifer thickness
Implementation plan	The Western Australian Government's response to the HFS Inquiry, including the actions to implement the governments' policy and HFS Inquiry recommendations - https://www.hydraulicfracturing.wa.gov.au/wp-content/uploads/2019/07/Implementation-Plan.pdf (accessed 11 July 2025)
Industry best practices	The use of the most effective and widely accepted methods, technologies, and management systems in the petroleum industry that deliver high standards of environmental performance, are supported by current scientific and technical knowledge, and are continually improved as better approaches become available.
km/hr	Kilometre(s) per hour.

Laurel Formation	The geological formation with Stratigraphic Number 25727 as described in the Geoscience Australia Stratigraphic Units Database - Australian Stratigraphic Units Database Geoscience Australia (accessed 12 September 2025).
Liveringa Aquifer	A hydrogeological formation housed within the Liveringa Group geologic unit with Stratigraphic Number 25997 as described in the Geoscience Australia Stratigraphic Units Database - Australian Stratigraphic Units Database Geoscience Australia (accessed 12 September 2025).
m	Metre(s).
Management actions	The identified actions implemented with the intent of to achieving the environmental objective .
Management target	A type of indicator to evaluate whether an environmental objective is being achieved.
ML	Megalitres or million litres.
Native title party/ies	As defined in section 18(1AA) under the <i>Aboriginal Heritage Act 1972</i> .
Night-time hours	The period between sunset and sunrise on any given day.
Objective(s)	A proposal-specific desired state for an environmental factor/s to be achieved from the implementation of management actions
Occupied greater bilby burrow	As outlined in <i>The conservation and management of the bilby (Macrotis lagotis) in the Pilbara</i> (Department of Biodiversity, Conservation and Attractions, 2018).
Operations	Activities associated with the implementation of the proposal, including drilling and construction of exploration wells and well testing , but not including construction activities .
Outcome(s)	A proposal-specific result to be achieved when implementing the proposal.
Petroleum management documents	The Environment Plan, Safety Management System, or Well Management Plan, where applicable, required under the <i>Petroleum and Geothermal Energy Resources Act 1967</i> or subsidiary legislation, and required to be submitted for approval to DMPE .
Pollution	Has the meaning provided by section 3A(1) of the <i>Environmental Protection Act 1986</i> .
Pre-clearance surveys	Surveys designed to identify the presence or evidence of threatened fauna listed under the <i>Biodiversity Conservation Act 2016</i> prior to ground disturbing activities .
Predicted drawdown extent	The modelled groundwater drawdown extent as depicted in Figure 2 and defined by the geographic coordinates in Schedule 1.

Preferential groundwater drawdown	The non-uniform reduction in groundwater levels due to groundwater abstraction causing water level declines to propagate more rapidly or more deeply along zones of relatively higher hydraulic conductivity, anisotropy, or structural connectivity, compared with surrounding aquifer materials.
Reasonable steps to consult	As outlined in the EPA's <i>Technical Guidance Environmental impact assessment of Social Surroundings – Aboriginal cultural heritage</i> , as amended from time to time.
Reduced emissions well completion	Also known as a 'green completions', is a practice used in the oil and gas industry to minimise the release of natural gas and hydrocarbons into the atmosphere during well completions and workovers. This involves capturing the gas that would otherwise be flared or vented during the cleanup process after HFS and directing it for processing and storage or distribution, or on-site use.
Reference site	A natural area in good ecological condition that serves as a benchmark against which rehabilitation outcomes are compared. It provides a clear example of the desired vegetation structure, species composition, and ecosystem function.
Safeguard legislation	The Commonwealth <i>National Greenhouse and Energy Reporting Act 2007</i> and associated National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.
Scope 1	Scope 1 emissions of greenhouse gas , in relation to a facility, means the release of greenhouse gas into the atmosphere as a direct result of one or more activities, which are part of the proposal, that generate greenhouse gas emissions .
Self-sustaining	Refers to vegetation that can survive (continue indefinitely) without on-going management actions such as watering, weed control or in-fill planting.
Significant fauna	Threatened fauna species listed under the <i>Biodiversity Conservation Act 2016</i> and Priority fauna listed by the DBCA .
Similar habitat	Habitat not subject to any proposal related disturbance that shares characteristics like climate, vegetation, water availability, and soil type making it suitable as habitat for significant fauna .
Threshold criteria	The indicators that have been selected to represent limits of impact beyond which the environmental outcome is not being met.
Trigger criteria	Indicators that have been selected for monitoring to provide a warning that, if exceeded, the environmental outcome may not be achieved. They are intended to forewarn of the approach of the threshold criteria and trigger response actions.
Wastewater	the fluid that returns to the surface after HFS , including flowback water (HFS fluids returning shortly after injection) and produced formation water (naturally occurring formation water brought up

	during well testing or production), typically containing salts, chemicals, hydrocarbons, and other contaminants.
Water retention pond(s)	Engineered basin designed to temporarily store water used in drilling and HFS operations, including management of flowback and produced formation water. For the purposes of condition B1-1(5) this is also includes any alternative wastewater containment equipment or infrastructure that may be implemented, such as enclosed tanks.
Well testing	Occurs after HFS . The process of temporarily producing fluids (gas, condensate , water) from an exploration or appraisal well to evaluate the reservoir's properties, such as pressure, flow rate, permeability, and fluid composition.

Figures (attached)

- Figure 1 Valhalla Gas Exploration and Appraisal Program location and development envelope (This figure is a representation of the co-ordinates referenced in Schedule 1)
- Figure 2 Valhalla Gas Exploration and Appraisal Program development envelope and predicted groundwater drawdown extent (This figure is a representation of the co-ordinates referenced in Schedule 1)

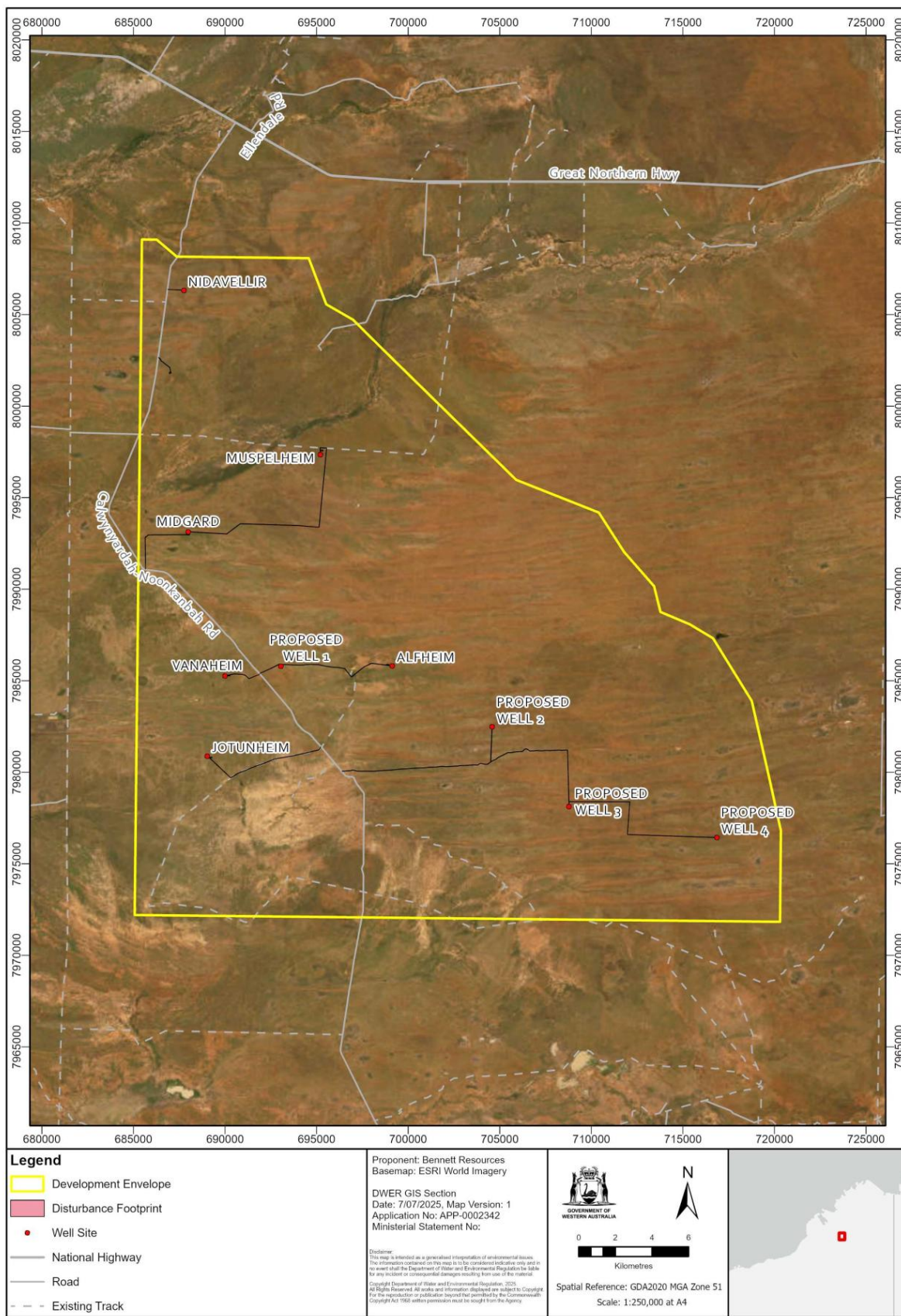


Figure 1 Valhalla Gas Exploration and Appraisal Program location and development envelope

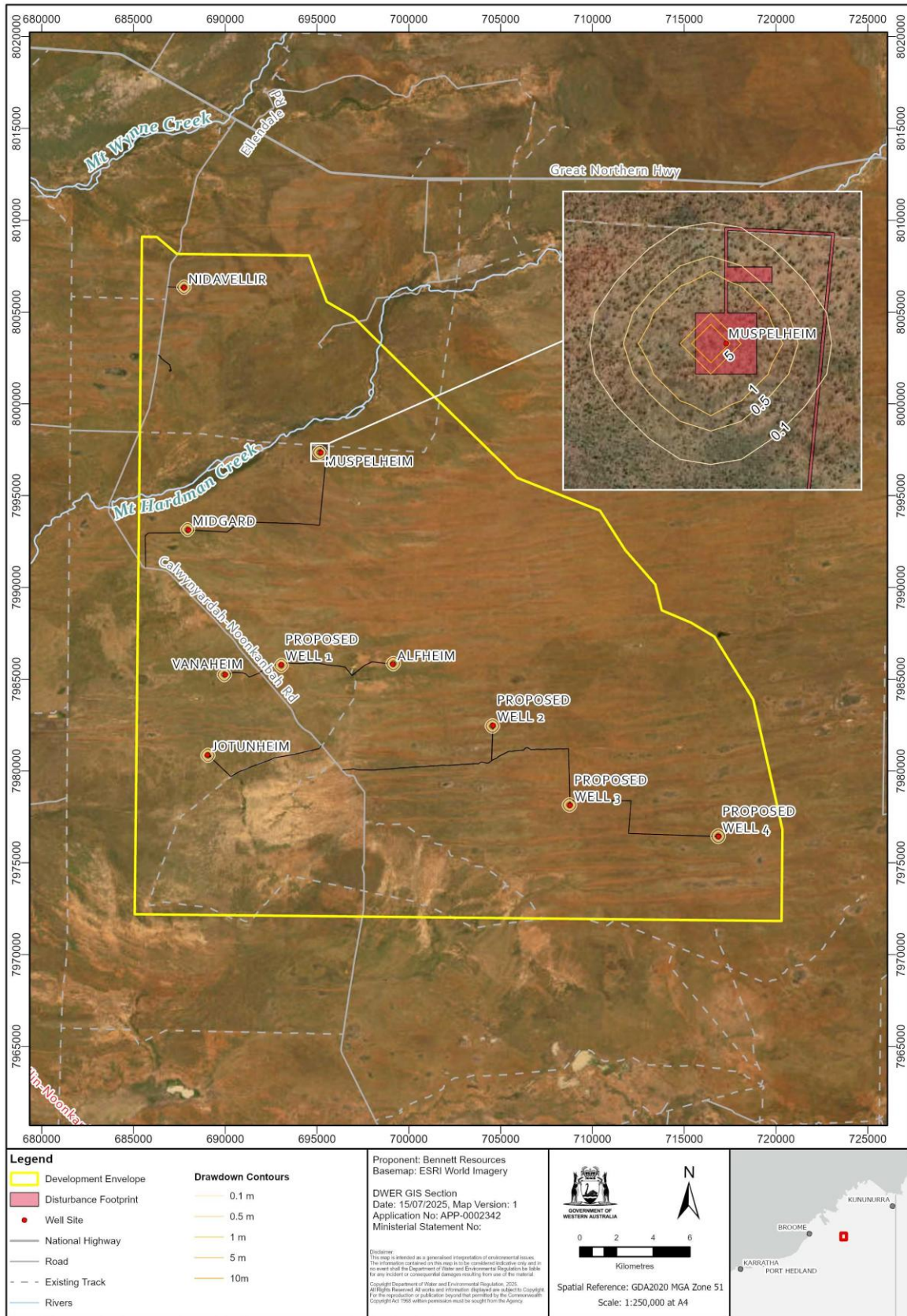


Figure 2 Valhalla Gas Exploration and Appraisal Program predicted groundwater drawdown extent

Schedule 1

All co-ordinates are in metres, listed in Map Grid of Australia Zone 50 (MGA Zone 50), datum of Geocentric Datum of Australia 2020 (GDA2020).

Spatial data depicting the figures are held by the Department of Water and Environmental regulation. Record no. APP-0002342.

Appendix B: Decision-making authorities

Table B1: Identified relevant decision-making authorities for the proposal

Decision-Making Authority	Legislation (and approval)
1. Minister for Aboriginal Affairs	<i>Aboriginal Heritage Act 1972</i> - section 18 consent to impact a registered Aboriginal heritage site)
2. Minister for Environment	<i>Biodiversity Conservation Act 2016</i> - section 40 authority to take or disturb threatened species and
3. Minister for Water	<i>Rights in Water and Irrigation Act 1914</i> - groundwater abstraction licence - licence to construct bores
4. Chief Executive Officer, Department of Mines, Petroleum and Exploration	<i>Petroleum and Geothermal Energy Resources Act 1967</i> Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 - Environment plan - Oil spill contingency plan Petroleum and Geothermal Energy Resources (Resource Management and Administration) Regulations 2012 - Well management plan Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010 - Safety Management System
5. Chief Executive Officer, Department of Biodiversity, Conservation and Attractions	<i>Biodiversity Conservation Act 2016</i> - authority to take flora and fauna (other than threatened species)
6. Chief Dangerous Goods Officer, Department of Local Government, Industry Regulation and Safety	<i>Dangerous Goods Safety Act 2004</i> - storage and handling of dangerous goods
7. Chief Executive Officer, Department of Water and Environmental Regulation	<i>Environmental Protection Act 1986</i> - Part V works approval and licence - Part IV compliance (Ministerial statements)
8. Chief Executive Officer, Shire of Derby-West Kimberley	<i>Planning and Development Act 2005</i> - Development /planning approval <i>Building Act 2011</i> - Building permit <i>Public Health Act 2016</i> - treatment of sewage
9. Secretary, Radiological Council	<i>Radiation Safety Act 1975</i> - permit to transport radioactive materials

Appendix C: Regulation under other statutory processes

Table C1: Identified relevant decision-making authorities for the proposal

Statutory decision-making process	Environmental outcome
<i>Aboriginal Heritage Act 1972</i>	No disturbance to Aboriginal heritage sites unless consent is granted to disturb that place under the and has involved reasonable steps to consult with relevant Traditional Owners.
<i>Biodiversity Conservation Act 2016</i>	The taking of threatened flora, fauna and ecological communities does not result in any species or community being listed under a higher conservation status.
<i>Contaminated Sites Act 2003</i>	Contamination of soil or water is reported, investigated, and where necessary, remediated and managed to ensure that there is no unacceptable risk to human health or the environment.
<i>Dangerous Goods Safety Act 2004</i>	Regulating the storage, handling, and transport of hazardous substances to prevent spills, leaks, and accidents that could contaminate land, air, or water.
<i>Environmental Protection Act 1986</i> Part V Division 2 (Prescribed premises, works approvals and licences)	<p>Part V, Division 2 provides for the regulation of emissions and discharges such that potential risks are assessed and managed through enforceable conditions to prevent or minimise environmental harm.</p> <p>The proposal's activities may trigger the thresholds specified in Schedule 1 of the Environmental Protection Regulations 1987 (e.g. Category 10, oil or gas production from wells). Where triggered, the proposal becomes a prescribed premises and will require a works approval and licence.</p> <p>Relevant emissions and discharges associated with the proposal that may be regulated under Part V include management of wastewater/flowback water, air emissions from flaring, and noise and dust emissions during construction and operations.</p>
<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>	The EPA has recommended conditions in relation to impacts on listed threatened species protected by the EPBC Act. The Department of Climate Change, Energy, the Environment and Water may impose additional conditions under the EPBC Act.
<i>Public Health Act 2016</i>	Regulation of sewage treatments systems such that risks to public health are mitigated.
<i>National Greenhouse and Energy Reporting Act 2007 (Commonwealth)</i>	The reduction of scope 1 GHG emissions to meet Australian emission targets of 43% below 2005 levels by 2030 and net zero by 2050.

	<p>The potential environmental effects of the proposal associated with the emissions of scope 1 GHG emissions are likely to be mitigated to achieve consistency with the environmental factor objective for GHG emissions through the obligations required under the <i>National Greenhouse and Energy Reporting Act 2007</i> and the Commonwealth Safeguard Mechanism.</p>
<i>Petroleum and Geothermal Energy Resources Act 1967</i>	<p>Regulation of well design and construction, drilling, hydraulic fracturing activities, well testing, decommissioning and related activities such that risks to health, safety, and the environment be reduced to a level that is as low as reasonably practicable (ALARP). Potential impacts are required to be systematically identified, assessed, and minimised through statutory plans including an Environment Plan and Well Management Plan.</p>
<i>Radiation Safety Act 1975</i>	<p>Regulating the safe disposal and management of wastes classified as radioactive substances. This may include management of pond sediment in the event that radionuclides are present at concentrations exceeding exemption levels.</p>
<i>Rights in Water and Irrigation Act 1914</i>	<p>The abstraction of groundwater is regulated such that the drawdown and taking of groundwater is ecologically sustainable, and potential impacts to nearby groundwater users are monitored to ensure there are no adverse impacts.</p> <p>Construction of monitoring and abstraction bores is conducted in a manner that ensures the integrity of the resource is not unduly compromised.</p> <p>Activities that modify the bed and banks of watercourses are regulated to maintain the natural flow of water and avoid or minimise impacts to other water users and protect environmental values.</p>

Appendix D: Environmental Protection Act principles

Table D1: Consideration of principles of the *Environmental Protection Act 1986*

EP Act principle	Consideration
<p>1. The precautionary principle</p> <p><i>Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</i></p> <p><i>In application of this precautionary principle, decisions should be guided by –</i></p> <p>(a) <i>careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and</i></p> <p>(b) <i>an assessment of the risk-weighted consequences of various options.</i></p>	<p>The EPA has considered the precautionary principle in its assessment and has had particular regard to this principle in its assessment of inland waters, terrestrial fauna, social surroundings, and greenhouse gas emissions.</p> <p>The proponent has undertaken studies and investigations to provide scientific information on the environmental values likely to be present. The EPA acknowledges that in some instances the availability of local data was limited. The EPA considered that it had sufficient information to progress the assessment with confidence in the likelihood of significant impacts occurring. In doing so, the EPA also had regard to the function and controls provided by recommended conditions and other statutory decision-making processes to ensure that additional site-specific data is collected during implementation for monitoring and further mitigate the potential impacts of the proposal.</p> <p>The EPA notes that the proponent has considered alternatives in designing the proposal to avoid, where practicable, impacts on the environment. This includes:</p> <ul style="list-style-type: none"> • 'locking' the disturbance footprint • conducting baseline and targeted fauna surveys across the entire disturbance footprint • conducting pre-clearance surveys prior to clearing of native vegetation • monitoring of groundwater level and quality. <p><u>Greenhouse gas emissions</u></p> <p>The EPA notes that climate change as a result of cumulative GHG emissions has the potential to cause serious damage to WA's environment. The specific impacts of any single proposal's GHG emissions are not able to be known with certainty at this time. However, the EPA has not used this as a reason for postponing assessment of the proposal's contribution to the State's GHG emissions or recommending practicable conditions to reduce emissions in order to minimise the risk of environmental harm associated with climate change.</p> <p>The EPA notes that the proposal will result in residual scope 1 emissions that will be emitted prior to the proponent reaching net zero. The EPA considers that the</p>

EP Act principle	Consideration
	<p>Commonwealth's Safeguard Mechanism represents an as far as practicable reduction of the proposal's GHG emissions. The EPA has recommended condition B5 that requires the proponent to notify the State of a substantial change to its obligations under the Safeguard Mechanism. Further, the EPA has recommended condition B5-1 to minimise the generation of emissions, which includes limits on flaring and cold venting.</p>
<p>2. The principle of intergenerational equity</p> <p><i>The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.</i></p>	<p>The EPA has considered the principle of intergenerational equity in its assessment and has had particular regard to this principle in its assessment of inland waters, terrestrial fauna, social surroundings, and greenhouse gas emissions.</p> <p>The EPA notes that the proponent has considered this principle by:</p> <ul style="list-style-type: none"> - monitoring groundwater quality for the life the proposal - consulting with the Traditional Owners, the Yungngora and Warlangurru People, on the potential impacts to social and cultural values - committing to progressively rehabilitating and ensuring all disturbance is rehabilitated to an appropriate standard upon closure. <p>The EPA considers consistency with this principle could be achieved with the implementation of its recommended conditions, which require the proponent to:</p> <ul style="list-style-type: none"> - ensure there is no detectable decrease in the level and/or quality of groundwater aquifers - ensure wastewater is appropriately contained - ensuring ongoing access to land used for traditional use or custom by the Traditional Owners - maintain levels of ecological protection through limits on the extent of disturbance to terrestrial fauna habitat - rehabilitate landforms, vegetation, and fauna habitat to an appropriate state. <p>The EPA has concluded that the environmental values will be protected, and the health, diversity, and productivity of the environment will be maintained for the benefit of future generations.</p> <p><u>Greenhouse gas emissions</u></p> <p>The EPA has noted that GHG emissions pose a risk to future generations, however, also notes the proponent's obligations under the Commonwealth's</p>

EP Act principle	Consideration
	<p>Safeguard Mechanism to net zero emissions by 2050 consistent with the Paris Agreement and IPCC 1.5 report, and to use offsets should these targets not be met by continuous improvement. The EPA has recommended condition B5-2 which requires the proponent to report to the CEO of DWER if obligations change under the <i>National Greenhouse and Energy Reporting Act 2007</i> (NGER Act) and Safeguard Mechanism. Further, the potential impacts from greenhouse gas emissions will be minimised through the measures included in recommended condition B5-1, such as the avoidance of cold venting.</p>
<p>3. The principles of the conservation of biological diversity and ecological integrity</p> <p><i>Conservation of biological diversity and ecological integrity should be a fundamental consideration.</i></p>	<p>The EPA has considered the principle of conservation of biological diversity and ecological integrity in its assessment and has had particular regard to this principle in its assessment of terrestrial fauna.</p> <p>The EPA notes that proponent will not clear any critical habitat types and will avoid disturbance of any occupied greater bilby burrows. The proponent's decision to 'lock' the disturbance footprint will also minimise potential impacts.</p> <p>To ensure biodiversity and ecological integrity of terrestrial fauna values are maintained, the EPA has recommended conditions including a disturbance limit on Fauna habitat type 2 and speed limits of vehicles and machinery.</p> <p>The EPA has concluded that the recommended conditions would likely ensure that environmental outcomes are achieved. The application of limits on disturbance and any associated conditions are to ensure there is no significant residual impact on the biodiversity diversity and ecological integrity of these values.</p>
<p>4. Principles relating to improved valuation, pricing and incentive mechanisms</p> <ul style="list-style-type: none"> • <i>Environmental factors should be included in the valuation of assets and services.</i> • <i>The polluter pays principle — those who generate pollution and waste should bear the cost of containment, avoidance or abatement.</i> • <i>The users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes.</i> • <i>Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to</i> 	<p>In considering this principle, the EPA notes that the proponent will bear the costs relating to implementing the proposal to achieve environmental outcomes, and management and monitoring of environmental impacts during construction, operation and decommissioning of the proposal. The EPA has had particular regard to this principle in considering inland waters, terrestrial fauna, social surroundings, and greenhouse gas emissions.</p> <p>The EPA notes that the proponent has pursued these principles by:</p> <ul style="list-style-type: none"> • undertaking surveys to identify and confirm environmental values within the disturbance footprint • committing to pre-clearance surveys prior to clearing of native vegetation • ensuring costs associated with emissions and waste is incorporated into project planning • minimising clearing to the extent required

EP Act principle	Consideration
<p><i>maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems.</i></p>	<ul style="list-style-type: none"> progressively rehabilitating throughout the life of the proposal. <p><u>Greenhouse gas emissions</u></p> <p>The proponent will be responsible for bearing the costs of implementing measures to reduce and offset GHG emissions, including the costs of adopting advances in process management and other measures in the future to further reduce and offset GHG emissions to achieve net zero along a linear trajectory to net zero by 2050.</p>
<p>5. The principle of waste minimisation</p> <p><i>All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.</i></p>	<p>The EPA has considered the principle of waste minimisation in its assessment and has had particular regard to this principle in its assessment of inland waters, terrestrial fauna, social surroundings, and greenhouse gas emissions.</p> <p>The proponent has considered the principle of waste minimisation in designing the proposal, such as:</p> <ul style="list-style-type: none"> utilising existing access tracks where possible evaluating waste streams and adopting management measures to minimise impacts from flooding and waste disposal prior to disposal at a licensed facility, waste will be stored in such a way to prevent contamination through flood events. <p>The EPA notes the recommended conditions (B1-1) would ensure wastewater is appropriately managed and is not discharged into the environment.</p> <p>The EPA notes that the proposal involves the flaring of a substantial volume of petroleum gas and condensate during well testing. The EPA has considered that best practice waste minimisation would involve the capture of produced gas and condensate for beneficial use, such as in energy production. The EPA has recommended conditions limiting the flaring of condensate (condition B5-1), which is readily captured, and requiring periodic performance reporting in respect of reasonably practicable options for the capture and use of gas (condition B6-2).</p>

Appendix E: Other environmental factors

Table E1: Evaluation of other environmental factors

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
Land			
Flora and vegetation	Clearing of up to 110 ha of native vegetation, including 101 ha in 'very good' condition or better (North Fitzroy Plains vegetation unit).	<p><u>Public comments</u></p> <ul style="list-style-type: none"> • General concerns over the extent of clearing of vegetation in 'very good' condition within a 'pristine' landscape. • Deficiencies in the flora and vegetation survey effort and extent, particularly in areas outside of the disturbance footprint, and the lack of targeted surveys • Potential disturbance of vegetation associated with future development/production activities and related, but separate, activities such as sand mining to source 'proppant' material. <p><u>Agency comments</u></p> <ul style="list-style-type: none"> • DMPE advised that potential impacts to flora and vegetation can be regulated through the Environment Plan required under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012. However, also advised that rehabilitation of vegetation may not be able to be regulated under the Petroleum and Geothermal Energy Resources (Environment) Regulations 	<p>Flora and vegetation was identified as a preliminary key environmental factor when the EPA decided to assess the proposal; however, the EPA considers it to not be a key factor at the conclusion of its assessment. Having regard for:</p> <ul style="list-style-type: none"> • no identified threatened flora species being recorded in the disturbance footprint (Bennet Resources 2024) • no identified priority or threatened ecological communities being recorded in the disturbance (Bennet Resources 2024) • the general adequacy of survey effort within the disturbance footprint, being proportional to the anticipated scale and nature of impacts to flora and vegetation • the limitation on the extent of clearing consistent with recommended condition A1 • the effects of historic and current grazing pressure on flora and vegetation values • siting of the disturbance footprint to avoid identified priority flora species within the development envelope, in conjunction with the proponent's commitment to 'lock' the disturbance footprint, reflected through recommended condition A1

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
		<p>2012 if the clearing of that vegetation is authorised under Part IV of the EP Act.</p>	<ul style="list-style-type: none"> • the relatively small extent of the vegetation units proposed to be cleared, in the context of the high local and regional extent of the units remaining (more than 99% of pre-European extent) • considerations regarding significance of impacts, as set out in the Statement of environmental principles, factors, objectives and aims of the EPA (EPA 2023b) <p>The EPA considers it unlikely that the proposal would have a significant impact on flora and vegetation.</p> <p>The EPA also had regard for the mitigation provisions that are expected to be applied and enforced through the Environment Plan under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012.</p> <p>Potential indirect impacts to vegetation, such as through spills and leaks, and groundwater drawdown effects on groundwater-dependent vegetation, are addressed through the EPA's consideration of the Inland Waters factor.</p> <p>As discussed in Section 2.4, the EPA has considered the value of flora and vegetation in the context of it providing important habitat for terrestrial fauna, including critical habitat for the greater bilby (vulnerable). Noting the limitations under the Environment Plan under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 in relation regulation to rehabilitation, the EPA has recommended condition B3 to ensure that flora and vegetation is rehabilitated to mitigate impacts to fauna habitat.</p>

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			<p>The EPA notes that impacts associated with third-party suppliers of raw materials (e.g. proppant) are outside the scope of this proposal. Any such activities would require separate approval from the relevant decision-making authority (e.g. local government or under Part V of the EP Act) or prior assessment by the EPA.</p> <p>Given the above, the EPA did not consider flora and vegetation to be a key environmental factor at the conclusion of its assessment.</p>
Subterranean fauna	The disturbance of subterranean fauna habitat, such as through groundwater drawdown, and/or subterranean fauna individuals is likely to be minor.	<p><u>Public comments</u></p> <ul style="list-style-type: none"> • Lack of detailed on-ground subterranean survey information to inform the assessment. • The adequacy of management strategies in the absence of adequate local survey data. • The current lack of knowledge of subterranean fauna biodiversity in the Kimberley region. • Potential impacts to stygofauna habitat given the volume of groundwater abstraction required, and potential contamination of groundwater. <p><u>Agency comments</u></p> <ul style="list-style-type: none"> • DWER advised that potential impacts to subterranean fauna are expected to be low given the nature, scale, and duration of the proposal. 	<p>Subterranean fauna was identified as a preliminary key environmental factor when the EPA decided to assess the proposal; however, the EPA considers it to not be a key factor at the conclusion of its assessment. The EPA acknowledges the limited survey or local data available to understand the potential richness of subterranean fauna communities within the proposal area. However, having regard for:</p> <ul style="list-style-type: none"> • the proponent's subterranean fauna desktop assessment (Bennelongia 2023) that concluded there was a little likelihood of impact to subterranean fauna irrespective of the biodiversity that may be present in the area • advice received from DWER that further surveys are not warranted given the likelihood and scale of expected impacts to subterranean fauna • impacts to stygofauna habitat and individuals are not expected to be significant given the small magnitude and short duration of groundwater drawdown, reinforced through recommended condition B1-1(1) • impacts to troglofauna habitat and individuals are not expected to be significant given the relatively

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			<p>small scale of direct habitat disturbance through drilling and well construction</p> <ul style="list-style-type: none"> the likely extent, magnitude and significance of impacts for potential subterranean fauna populations that may occur within the locality of the proposal site, as set out in the Statement of environmental principles, factors, objectives and aims of the EPA (EPA 2023b) <p>The EPA concluded that it had sufficient information available to it, proportional to the risk and expected impact of the proposal, and did not consider subterranean fauna to be a key environmental factor at the conclusion of its assessment.</p>
Landforms	Potential impacts to landforms typically include reduced landform diversity and aesthetic impacts through visual amenity. Impacts to landforms from the proposal are not expected.	<p><u>Public comments</u></p> <p>One public submission noted that landforms should be considered in the context of their role in surface water flows and the potential movement of contaminants associated with the proposal.</p> <p>No comments were received by technical agencies in relation to landforms.</p>	<p>Landforms were not identified as a preliminary key environmental factor when the EPA decided to assess the proposal; however, landforms were raised in some public submissions. The EPA considers landforms not to be a key factor at the conclusion of its assessment. Having regard for:</p> <ul style="list-style-type: none"> the general absence of prominent or unique landforms within or proximal to the disturbance footprint the small scale of physical disturbance the landscape encountered in the proposal area being ubiquitous in the wider region. <p>The EPA considers it is unlikely that the proposal would have a significant impact on landforms as the significant criteria of variety, integrity, ecological importance, scientific importance, rarity and social importance were not met and that the impact to this factor is negligible.</p>

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			<p>The matters raised in public submissions relating to surface water flows and the potential movement of contaminants are addressed through the EPA's consideration of the Inland Waters factor.</p>
<p>Terrestrial environmental quality</p>	<p>The primary risk of impact to terrestrial environmental quality is through contamination of soils from surface spills and leaks of potential contaminants, including fuels, chemicals, petroleum hydrocarbon liquids, and wastes, including flowback water.</p> <p>Minor impacts may also occur from erosion and scouring associated with civil construction works, and compaction of soils inhibiting effective rehabilitation.</p>	<p><u>Public comments</u></p> <ul style="list-style-type: none"> • General concerns regarding risk of impacts from chemicals used in HFS activities and lack of ecological risk assessment for chemicals. • Concerns regarding the adequacy of regulatory controls for protecting against environmental impacts from HFS chemicals. • The potential for contaminant migration to the Fitzroy River via the alluvial aquifer due to the sand soils in the area. <p><u>Agency comments</u></p> <ul style="list-style-type: none"> • DMPE advised that potential impacts to flora and vegetation can be regulated through the Environment Plan required under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012. 	<p>Terrestrial environmental quality was identified as a preliminary key environmental factor when the EPA decided to assess the proposal; however, the EPA considers it to not be a key factor at the conclusion of its assessment. Having regard for:</p> <ul style="list-style-type: none"> • the proponent's mitigation measures in relation to the management and containment of wastewater, including flowback water, and the expected chemical composition of produced water (refer to section 2.1.9), including containment in engineered and lined ponds • standard industry controls that will be applied in relation to the storage and handling of fuels and chemicals, including secondary containment and drip trays, • the requirement under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 to disclose all chemicals intended for use • the use of a HFS fluid system that has been previously utilised for HFS activities in the area, and which has been subject to ecotoxicity testing and found to have very low toxicity (Buru Energy 2018) • the requirement to develop and implement an Oil Spill Contingency Plan including spill kits and immediate response actions to contain and clean up spills

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			<ul style="list-style-type: none"> • site reinstatement activities including ripping to address soil compaction prior to rehabilitation • the proponent's monitoring program, including soil quality monitoring (Bennett Resources 2024b) <p>the EPA considers it unlikely that the proposal would have a significant impact on terrestrial environmental quality.</p> <p>The EPA also had regard for the direct and indirect mitigation provisions relevant to terrestrial environmental quality that are expected to be applied and enforced through the Environment Plan under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012, as well as the indirect provisions through the Well Management Plan required under the PGER (Resource Management and Administration) Regulations, and the Safety Case required under the Work Health and Safety (Petroleum and Geothermal Energy Operations) Regulations 2022.</p> <p>Potential impacts to terrestrial environmental quality area also addressed in more detail through the EPA's consideration of the Inland Waters factor.</p> <p>Accordingly, the EPA did not consider terrestrial environmental quality to be a key environmental factor at the conclusion of its assessment.</p>
Air			
Air quality	The proposal will result in generation of dust emissions during construction activities which can impact the amenity of nearby receptors. Dust emissions can also have an indirect impact on flora and	<u>Public comments</u> <ul style="list-style-type: none"> • General concerns over the potential impacts to air quality from HFS activities, including from flaring. • Air quality impacts to the West Kimberley National Heritage Place. 	<p>Air quality was identified as a preliminary key environmental factor when the EPA decided to assess the proposal; however, the EPA considers it to not be a key factor at the conclusion of its assessment. Having regard for:</p> <ul style="list-style-type: none"> • the separation distance between the disturbance footprint (from the nearest proposed well site) and

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
	<p>vegetation and terrestrial fauna values.</p> <p>Flaring during well testing can result in emissions (including volatile organic compounds) that can impact local air quality.</p>	<ul style="list-style-type: none"> Human health risks from silica dust emissions from proppant, and volatile organic compounds from flaring and fugitive emissions. Release of radon gas and associated radiation impacts. <p><u>Agency comments</u></p> <ul style="list-style-type: none"> DWER provided review and comment on the proponent's baseline air quality monitoring. The Department of Health reviewed the human health risk assessment (Bennett Resources 2022c) and advised that public health impacts are highly unlikely to occur due to the distance from fixed locations, and the infrequent exposure of non-fixed populations (such as pastoral station workers and traditional owners). 	<p>the nearest community (Noonkanbah) is approximately 28 km</p> <ul style="list-style-type: none"> the separation distance between the disturbance footprint (from the nearest proposed well site) and the nearest fixed sensitive receptor (Quanbun Downs homestead) is approximately 21 km management measures proposed during construction including dust suppression temporary nature of dust generating activities during construction and the natural prevalence of airborne dust in the region during dry season conditions proposed use of pilot flame during well testing to ensure the flare flame is maintained to minimise likelihood of 'cold venting' <p>the EPA considers it unlikely that the proposal would have a significant impact on air quality.</p> <p>The EPA also had regard for the direct and indirect mitigation provisions relevant to air quality that are expected to be applied and enforced through the Environment Plan under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012, as well as the Well Management Plan required under the PGER (Resource Management and Administration) Regulations, and the Safety Case required under the Work Health and Safety (Petroleum and Geothermal Energy Operations) Regulations 2022.</p> <p>It is not likely that the proposal will have a significant impact on air quality, and the proposal is likely to be consistent with the EPA factor objective. Accordingly, the EPA did not consider air quality to be a key environmental factor at the conclusion of its assessment.</p>

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
People			
Human health	<p>Consistent with the EPA's factor guideline for human health (EPA 2016b), impacts to human health are explicitly information through the EPA's assessment of other factors (such as Inland Waters and Air Quality). Accordingly, the EPA's consideration here is limited to possible impacts to human health arising from the emission of radiation.</p> <p>The proposal has the potential to impact human health due to radiation associated with elevated levels of radionuclides (naturally occurring radioactive material [NORM]) in formation water that is returned to the surface during exploration activities, and in the release of radon gas associated with formation gases.</p>	<p><u>Public comments</u></p> <ul style="list-style-type: none"> Concerns that HFS activities will increase the release of radioactive substances into the atmosphere (including radon gas and uranium progeny) The presence of NORM in produced formation water The adequacy of the human health risk assessment and its consideration of radionuclides <p><u>Agency comments</u></p> <ul style="list-style-type: none"> The Department of Health reviewed the human health risk assessment (Bennett Resources 2022c) and advised that public health impacts are highly unlikely to occur due to the distance from fixed locations, and the infrequent exposure of non-fixed populations (such as pastoral station workers and traditional owners). 	<p>Human Health was identified as a preliminary key environmental factor when the EPA decided to assess the proposal; however, the EPA considers it to not be a key factor at the conclusion of its assessment. Having regard for:</p> <ul style="list-style-type: none"> the separation distance between the disturbance footprint (from the nearest proposed well site) and the nearest community (Noonkanbah) is approximately 28 km human health impacts associated with occupational exposure are comprehensively regulated by other agencies and is not a consideration for the EPA's assessment the separation distance between the disturbance footprint (from the nearest proposed well site) and the nearest fixed sensitive receptor (Quanbun Downs homestead) is approximately 21 km analysis of produced water from the target Laurel Formation indicating levels of radionuclides may exceed drinking water levels in flowback water, but are unlikely to result in a significant risk to human health taking into account the management of flowback water, the proximity to receptors, and the lack of credible exposure pathways that would result in an unacceptable risk regulation of transport and disposal of wastes under the <i>Radiation Safety Act 1975</i> if applicable, should flowback pond sediment analysis indicate elevated levels of radionuclides exceeding specified exemption quantities

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			<ul style="list-style-type: none"> • the proponent's monitoring program includes potential radioactive species, including radon • the HFS Inquiry finding that risks associated with NORM in produced fluids are likely to be low in the context of how flowback fluids are contained and managed (refer to section 2.1.9) • the likelihood of radon gas (or methane) migrating from the subsurface, such as via fractures or faults, is low (refer to section 2.1.9) <p>the EPA considers it unlikely that the proposal would have a significant impact on human health.</p> <p>The EPA also had regard for the direct and indirect mitigation provisions relevant to human health and radiation exposure that are expected to be applied and enforced through the Environment Plan under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012, as well as the Well Management Plan required under the PGER (Resource Management and Administration) Regulations, and the Safety Case required under the Work Health and Safety (Petroleum and Geothermal Energy Operations) Regulations 2022.</p> <p>It is not likely that the proposal will have a significant impact on human health, and the proposal is likely to be consistent with the EPA factor objective. Accordingly, the EPA did not consider human health to be a key environmental factor at the conclusion of its assessment</p>

Appendix F: List of submitters

7-day comment on referral

Organisations and public

- 457 submissions were received from individuals and organisations.

Government agencies

- Department of Mines, Industry Regulation and Safety.

Public review of proponent information

Organisations and public

- 8,124 submissions were received from individuals and organisations, of which approximately 75% of which were proforma style submissions.

Government agencies

- Department of Water and Environment Regulation
- Department of Biodiversity, Conservation and Attractions.

Appendix G: Assessment timeline

Date	Progress stages	Time (weeks)
3 February 2021	EPA decided to assess – level of assessment set	
4 August 2021	Environmental Scoping Document released for public review	26
1 September 2021	Public review period for Environmental Scoping Document closed	4
8 November 2021	EPA approved Environmental Scoping Document	10
21 June 2024	EPA received final Environmental Review Document	136
30 July 2024	EPA accepted Environmental Review Document	5
12 August 2024	Environmental Review Document released for public review	2
7 October 2024	Public review period for Environmental Review Document closed	8
24 July 2025	EPA considers assessment at EPA Board meeting	41
12 November 2025	EPA accepted proponent's Response to Submissions	16
16 January 2026	EPA provided report to the Minister for Environment (following EPA member meeting)	25
20 January 2026	EPA report published	3 days
10 February 2026	Appeals period closed	3

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

The EPA must give the Assessment report to the Minister so far as practicable no later than 6 weeks after the EPA completed its assessment or reassessment (s.44(2b)).

In this case, the EPA did not meet its timeline objective to complete its assessment and provide a report to the Minister. This was due to the complexity of the assessment and ensuring that the proposal received adequate consideration and time to complete the assessment.

Appendix H: Relevant policy, guidance, procedures and references

The EPA had particular regard to the policies, guidelines and procedures listed below in the assessment of the proposal.

Bennelongia 2023, *Valhalla Gas Exploration and Appraisal Program Subterranean Fauna Desktop Assessment*, [appendix S of Bennett Resources 2024]

Bennett Resources 2022a, *Valhalla Gas Exploration and Appraisal Program – Proposal Content Document*, [Attachment 2 to s43A Amendment Notice: [CMS17936 - S43A Notice - 060522.pdf](#)]

Bennett Resources 2022b, *Valhalla Gas Exploration and Appraisal Program Geotechnical Risk Analysis*, 10 January 2022 [appendix B of Bennett Resources 2024]

Bennett Resources 2022c, *Human Health Risk Assessment - Valhalla Gas Exploration and Appraisal Program*, 10 January 2022 [appendix N of Bennett Resources 2024]

Bennett Resources 2024a, *Valhalla Gas Exploration and Appraisal Program, Section 38 Assessment – Environmental Review Document, EPA Assessment Number 2281*, 21 June 2024

Bennett Resources 2024b, *Valhalla Gas Exploration and Appraisal Program – Valhalla Monitoring Plan*, 26 April 2024 [appendix E of Bennett Resources 2024a]

Bennett Resources 2025a, *Valhalla Exploration Drilling Response to Public Submissions – EPA Assessment No. 2281*, 10 June 2025

Bennett Resources 2025b, *Valhalla Gas Exploration and Appraisal Program – Groundwater Management Plan*, 29 May 2025 [appendix 7 of Bennett Resources 2025a]

Bennett Resources 2025c, *Valhalla Gas Exploration and Appraisal Program Greenhouse Gas Environmental Management Plan*, 23 May 2025

Bureau of Meteorology 2012, *National Groundwater Dependent Ecosystems Atlas. Bioregional Assessment Source Dataset*. Viewed July 2025, [GDE Atlas Home: Water Information: Bureau of Meteorology](#)

Buru Energy and Outback Ecology 2014, *Ophir, Paradise, Valhalla, Eden and Ellendale Flora, Vegetation and Fauna Survey Report*

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DCCEEW 2023b, *Conservation Advice for Tiliqua scincoides intermedia (northern blue-tongue skink)*, Canberra, Australia.

DCCEEW 2024, *State and territory greenhouse gas inventories: annual emissions*. DCCEEW, Canberra, ACT.

<https://www.dcceew.gov.au/climatechange/publications/national-greenhouse-accounts-2022/state-and-territorygreenhouse-gas-inventories-annual-emissions>

Department of Energy, Mines, Industry Regulation and Safety 2024, *Guideline for the development of Petroleum, Geothermal and Pipeline Environment Plans in Western Australia*, November 2024

Department of Energy, Mines, Industry Regulation and Safety 2016, *Guidelines to Petroleum and Geothermal Energy Resources (Resource Management and Administration) Regulations 2015 and Petroleum (Submerged Lands) (Resource Management and Administration) Regulations 2015*, Revision 6 September 2016.

Department of Mines and Petroleum 2016, *Guideline for the Development of an Onshore Oil Spill Contingency Plan*, July 2016.

Department of Water (DoW) 2012, *West Canning Basin groundwater allocation limit report*, Department of Water Report no. 52, Water Allocation and Planning Series.

Department of Water and Environmental Regulation (DWER) 2020, *Use of operating strategies in the water licensing process*, Policy document, October 2020

Department of Water and Environmental Regulation (DWER) 2023a, *Fitzroy Valley groundwater investigations 2015–2018*, Kimberley, Western Australia, Hydrogeological record series, report no. HG69.

Department of Water and Environmental Regulation (DWER) 2023b, *Environmental and heritage values and the importance of water in the Fitzroy*, Western Australia, Environmental water report series, report no. 33, October 2023.

Department of Water and Environmental Regulation (DWER) 2023c, *Aquatic GDE in the Fitzroy Water Planning Area (DWER-126)* Western Australia, Geospatial data layer accessed via SLIP, Last updated 19 December 2023.

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EPA 2016a, *Technical guidance – Sampling of short range endemic invertebrate fauna*, Environmental Protection Authority, Perth, WA.

EPA 2016b, *Environmental factor guideline – Human health*, Environmental Protection Authority, Perth, WA.

EPA 2018, *Environmental factor guideline – Inland waters*, Environmental Protection Authority, Perth, WA.

EPA 2020, *Technical guidance –Terrestrial vertebrate fauna surveys for environmental impact assessment*, Environmental Protection Authority, Perth, WA.

EPA 2021a, *Environmental impact assessment (Part IV Divisions 1 and 2) procedures manual*, Environmental Protection Authority, Perth, WA.

EPA 2021b, *Environmental impact assessment (Part IV Divisions 1 and 2) administrative procedures*, Environmental Protection Authority, Perth, WA.

EPA 2023a, *Environmental factor guideline – Greenhouse gas emissions*, Environmental Protection Authority, Perth, WA.

EPA 2023b, *Statement of environmental principles, factors, objectives and aims of EIA*, Environmental Protection Authority, Perth, WA.

EPA 2024, *Environmental factor guideline – Greenhouse gas emissions*, Environmental Protection Authority, Perth, WA.

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Gemec 2023, *Re: Targeted Soil & Groundwater Works – Valhalla Gas Exploration & Appraisal Program*, 20 October 2023. [Appendix G of the environmental review document]

Government of Western Australia 2019, *Implementation Plan - Implementation of the Government's response to the Independent Scientific Panel Inquiry into Hydraulic Fracture Stimulation in Western Australia*, Government of Western Australia, July

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Government of Western Australia 2021, *Monitoring, mitigation and offsetting of Greenhouse Gas Emissions for hydraulic fracturing proposals in Western Australia, Position Paper*, Government of Western Australia, Perth, WA.

Government of Western Australia 2023, *Water allocation planning in the Fitzroy, Policy Position Paper*, Government of Western Australia, Perth, WA.

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Herring Storer Acoustics 2021, *Valhalla Gas Exploration and Appraisal Program – Environmental Acoustic Impact Assessment*. [Appendix P of the environmental review document]

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Intera 2024, *Revised modelling of drawdown impacts from proposed rig supply bores in the Bennett Resources Valhalla Gas Development Project*, Technical Memorandum, 16 May 2024 [Appendix L of the environmental review document]

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Rockwater 2016, *Hydrogeological Assessment of Paradise – Valhalla – Asgard Project Areas, Report for Buru Energy*, 28 September 2016 [Appendix B of Bennett Resources 2024]

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Appendix I: Action 7.3 of the HFS Implementation Plan

Table I1: Checklist of assessment issues identified in Action 7.3 of the HFS Implementation Plan

Assessment matter	Addressed in assessment?
<p>Action 7.3: Finalise update of administrative procedures and processes to ensure all onshore hydraulic fracture stimulation exploration and production proposals will be assessed under Part IV of the EP Act considering, among other things:</p>	
<p>cumulative impacts from hydraulic fracture stimulation exploration and production on public ecosystem fragmentation;</p>	<p>Yes, the cumulative impacts on ecosystem fragmentation were considered by the proponent in the ERD in the context of flora and vegetation and habitat for terrestrial fauna (Bennett Resources 2024).</p> <p>The EPA recognises that there has been a long history of petroleum exploration activities within the region that has contributed to the cumulative impacts on ecosystem fragmentation. However, the EPA considered that the nature and scale of past and present (including the proposal) activities in the region is unlikely to result in a significant incremental impact to ecosystem fragmentation.</p> <p>The EPA notes the significant public concern associated with cumulative impacts, including to ecosystem fragmentation, that may occur in the region in the event that a large scale petroleum production industry develops in the Canning Basin. The EPA has provided 'other advice' on this matter in section 5. Whilst the EPA recognises that this proposal has the potential to be an enabler of future petroleum exploration and production in the region, at the time of the EPA's assessment there were limited reasonably foreseeable petroleum proposals in the region, besides low impact exploration activities (e.g. seismic surveys).</p>
<p>the suitability of chemicals used in hydraulic fracture stimulation and their approval for use in Australia, including;</p> <ul style="list-style-type: none"> - a presumption against approval of Benzene, Toluene, Ethylbenzene and 	<p>Yes, Section 2.1.9 discusses the management of wastewater, including flowback water and the composition of HFS fluids.</p> <p>The proponent has confirmed that BTEX will not be included in HFS fluids. All chemical additives proposed for use have been declared and related 'Material Safety Data</p>

<p>Xylene (BTEX) for use as drilling and hydraulic fracturing fluids;</p> <ul style="list-style-type: none"> - recommending the minimisation or avoidance of the use of known or suspected carcinogens, mutagens, developmental toxicants and endocrine disruptors in drilling and hydraulic fracture fluids; - the cumulative, short and long-term public health risk from chemicals used in onshore hydraulic fracturing exploration and production and chemicals expected to be present in produced and flow-back water; 	<p>Sheets' (MSDS) provided in Appendix A of the proponent's ERD (Bennett Resources 2024).</p> <p>Ecotoxicity testing of the proposed HFS Fluid has demonstrated that the fluid combination has a very low toxicity to aquatic fauna (Bennett Resources 2024).</p> <p>The human health risk assessment, reviewed by the Department of Health, demonstrated that public health impacts from the proposal are high unlikely to occur (Bennett Resources 2022c).</p>
<p>the requirement for peer-reviewed, site-specific human health, air quality and noise risk assessments;</p>	<p>The human health risk assessment, reviewed by the Department of Health, demonstrated that public health impacts from the proposal are high unlikely to occur (Bennett Resources 2022c).</p> <p>The EPA's considered of air quality impacts is detailed in Appendix E – Other Environmental Factors. The EPA considered it unlikely that the proposal would have a significant impact on air quality. The EPA's consideration of air quality impacts was informed by technical advice provided by subject matter experts within the Department of Water and Environmental Regulation.</p> <p>The EPA's consideration of noise impacts is detailed in section 2.3.8 in the context of amenity. Given the sparsely populated location of the proposal, and the nearest population centre being 18 km from the development envelope, significant noise impacts are not expected and therefore a peer-reviewed noise risk assessment was not considered warranted for the assessment of this proposal.</p>
<p>baseline and routine surveillance groundwater quality monitoring, including methane concentrations;</p>	<p>Yes, the EPA's assessment of inland waters was informed by groundwater monitoring data for a comprehensive list of analytes in groundwater, including methane. The EPA concluded that sufficient information was available for the EPA to complete its assessment, and noted that the proponent has committed to undertaking baseline and surveillance groundwater monitoring prior to and during implementation. Baseline and</p>

	surveillance groundwater monitoring is set out in the proponent's Groundwater Management Plan (Bennett Resources 2025b). The EPA has recommended a condition that will require revision of the plan in consultation with DWER and DMPE, and for drilling of exploration wells not to occur until the plan has been approved by the CEO of DWER.
the comprehensive list of analytes in groundwater, likely in produced and flow-back water, including geogenic chemicals and radon;	Yes, the management of potential impacts from flowback water is discussed in section 2.1.9, along with the expected composition of the flowback water, and likely radionuclides. The proponent's Groundwater Management Plan sets out a comprehensive list of analytes to be tested for as part of baseline and surveillance groundwater monitoring, including radon, uranium, dissolved gases (e.g. methane) and geogenic chemicals (Bennett Resources 2025b). The EPA has recommended a condition that will require revision of the plan in consultation with DWER and DMPE, and for drilling of exploration wells not to occur until the plan has been approved by the CEO of DWER.
the requirement for a site water balance, accounting for water produced, evaporated and disposed, to enable detection of significant leakage of fluids and determine whether remedial action to track any contaminants is warranted;	Yes, the proponent provided a site water balance in section 2.4.5 of the ERD (Bennett Resources 2024). The EPA has recommended a condition that will require the proponent to prepare a site water audit program to account for water produced, evaporated and disposed, such that significant leakage of fluids can be detected and remedied (condition B1-2).
impacts on Traditional Owners' cultural heritage;	Yes, the potential impacts to Aboriginal cultural heritage are discussed in section 2.3.5 and assessed in section 2.3.8. The EPA has also considered in detail the potential indirect impacts to cultural heritage values through impacts to water-related environmental values, including groundwater and the Fitzroy River.
the acceptability of the Aboriginal Heritage Management Plan;	<p>The EPA's consideration of the mitigation of impacts to cultural heritage is set out in section 2.3.8. At the time of the EPA's assessment, cultural heritage management plans were no longer a requirement specified through Part IV of the EP Act. It is noted that cultural heritage management plan may be considered by the Department of Planning, Lands and Heritage under the <i>Aboriginal Heritage Act 1972</i>.</p> <p>It is noted that the proponent has an Indigenous Land Use Agreement in place with the Yungngora people and a 'Land Access and Use Agreement' in place with the Warlangurru People.</p>

separation of 2,000 metres between any hydraulic fracture stimulation activity and gazetted Public Drinking Water Source Areas;	<p>Yes, section 2.1.9 includes consideration for the 2,000 m separation distance between HFS activities and bores used for public drinking water.</p> <p>The nearest proclaimed water reserves are more than 50 km from the development envelope, and the nearest groundwater bore for potable community supply is more than 17 km away.</p>
in the absence of a local health risk assessment indicating otherwise, separation of 2,000 metres between any hydraulic fracture stimulation activity and sensitive receptors, such as residences, schools and settlements;	<p>Yes, the EPA's consideration of the proximity of the proposal to sensitive receptors is detailed in section 2.3 as part of the assessment of impacts to social surroundings. The proposal is in sparsely populated area and HFS activities are proposed to occur far away (far greater than 2,000 metres) from sensitive receptors such as residences, schools and settlements.</p>
proposed national parks and places of iconic natural heritage;	<p>The West Kimberley National Heritage Area (WKNHA) is approximately 7.5 kms to the south of the development envelope. The WKNHA is related to the Fitzroy River and potential impacts to this area have been considered in section 2.3.8.</p>
baseline and ongoing air quality monitoring conditions over the lifecycle of the wells;	<p>Yes, the proponent undertook baseline air quality monitoring and has proposed ongoing air quality and methane monitoring as part of the Valhalla Monitoring Plan (appendix E of the ERD [Bennett Resources 2024]). Given the distance of the proposal from sensitive receptors, the EPA considered that air quality impacts are unlikely to be significant. The EPA considered that air quality monitoring could be administered under the Environment Plan under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012.</p>
a social impact analysis, documenting potential impacts to social surroundings;	<p>Yes, the proponent undertook an assessment of impacts to social surroundings, including Aboriginal cultural heritage and amenity, as documented in the ERD (Bennett Resources 2024). This included Aboriginal heritage surveys, human health risk assessment, noise modelling assessment, and baseline traffic monitoring data.</p> <p>The EPA's consideration of impacts to social surroundings matters is set out in section 2.3.8.</p>
baseline monitoring for GHG prior to assessment;	<p>Yes, the proponent conducted baseline methane monitoring within the proposal area between June and November 2021 as part of the baseline air quality monitoring program (Appendix H.1). The proponent has committed to undertaking continued</p>

	methane monitoring as part of the Valhalla Monitoring Plan (appendix E of the ERD [Bennett Resources 2024]).
cumulative impacts of noise from hydraulic fracture stimulation and associated activities on places within proximity to people and domestic animals	Yes, the potential impacts from noise emissions are discussed in section 2.3.8. The proposal is not in proximity to sensitive human receptors and cumulative impacts are not expected given the absence of current and reasonably foreseeable proposals in the area.
cumulative impacts by volatile organic compounds and dust from hydraulic fracture stimulation exploration and production on local and regional ecosystems and public health;	<p>Yes, the EPA considered the cumulative impacts on air quality, including dust, as part of the consideration of air quality impacts (Appendix E – Other Environmental Factors). The potential impacts of dust emissions on amenity values is also discussed in section 2.3.8 in the context of social surroundings.</p> <p>At the time of the EPA’s assessment, and in the context of the current status of petroleum industry in the Canning Basin, the EPA considered that cumulative impacts to air quality from the release of volatile organic compounds and dust are unlikely to be significant. The EPA has recommended conditions that require the implementation of measures to minimise GHG emissions that will also have the effect of mitigating VOC emissions (condition B5-1).</p>
proposed measures to minimise the generation of dust throughout all operations when compared to baseline monitoring;	Yes, the proponent has proposed a dust monitoring program (Appendix H.1 of the ERD [Bennett Resources 2024]) and will implement dust minimisation measures, such as water carts for dust suppression. The EPA’s consideration of dust generation is provided in the context of the air quality factor in Appendix E – Other Environmental Factors.
baseline road use statistics, periodic monitoring and impacts; and	Yes, baseline road use data was provided as part of the proponent’s ERD (Appendix Q of Bennett Resources 2024) and was considered as part of the EPA’s assessment, as discussed in section 2.3.8. The EPA considers that the increase in traffic movements may adversely impact other road users for brief periods during mobilisation, however this is likely to be limited to residents and visitors to the Noonkanbah community. The EPA considered that the traffic impacts are unlikely to be significant and can be mitigated through ongoing consultation with the Yungngora people through the ILUA. Periodic monitoring during implementation was not considered warranted for this proposal.

<p>acquisition of baseline information and developing processes to ensure the documentation and systematic monitoring of matters relating to amenity, aesthetics and sense of place in assessments.</p>	<p>The EPA notes that this item responds to Recommendation 24 of the HFS Inquiry, which recommended that baseline information on amenity should be collected. As noted in Recommendation 24, amenity and 'sense of place' is best determined by the people who live in communities proximate to HFS activities. In this case of this proposal the activities are proposed to occur in a remote area that has a long history of pastoral landuses. It is noted that the community whose amenity values are most at risk of being adversely impacted by the proposal are the members of the Noonkanbah community, who, via the Yungngora Aboriginal Corporation, are broadly supportive of the proposal and have previous experience and involvement with petroleum activities on their land.</p> <p>The EPA's consideration of impacts to amenity values are discussed in section 2.3.8. It is considered that impacts to aesthetics and amenity values are unlikely to be significant for this proposal. The EPA recognises that adverse impacts to amenity and 'sense of place' would require further consideration in the event that petroleum exploration and production activities in the Canning Basin intensify. The EPA has provided other advice in relation to the consideration of cumulative impacts associated with the development of the Canning Basin.</p>
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