



Government
of South Australia

Department for
Energy and Mining

8 December 2023

Mr Jason Cherry
Principal Exploration Geologist
Boss Uranium Pty Ltd
Lvl 14, 33 King William Street
ADELAIDE SA 5000

Email: jason@bossenergy.com

Dear Mr Cherry,

Approval Notification - Exploration Program for Environment Protection and Rehabilitation (EPEPR2017-1332) Review EL6510 and EL6081

The program review for EL6081 and EL6510, final version submitted on 24 November 2023 to incorporate a number of administrative changes to the original approved EPEPR at Honeymoon Uranium Project, has been approved in accordance with Section 70B(5) of the *Mining Act, 1971 (the Act)*.

In accordance with section 70B(7a)(b) of the Act, the approved program is subject to the conditions listed in the attached notice.

You are reminded that:

1. You must at all times implement and comply with the approved EPEPR.
2. The approved EPEPR will be made publicly available on the Mining Register.
3. Exploration operations on "native title land" (as defined in the *Native Title (South Australia) Act, 1994*) must be conducted in accordance with Part 9B of the Act.
4. In accordance with Section 70C of the Act, the licensee must review the EPEPR on request of the Minister's Delegate within a time specified in the request and submit the revised EPEPR for approval.
5. As the operator for the approved EPEPR you must take all reasonable and practical measures to avoid undue damage to the environment and meet all the approved outcomes (when measured against the approved criteria) listed within the EPEPR.
6. In accordance with regulation 78 of the *Mining Regulations 2020* and Terms of Reference 012 (TOR 012), the licensee must submit an Exploration Compliance Report to the Mineral Exploration Branch each year, within 60 days after the anniversary of the date the licence was granted, and 60 days after the expiry or surrender of the EL, or in accordance with joint reporting requirements agreed to with the Minister.
7. In accordance with regulation 16(4) of the *Mining Regulations 2020*, drillhole and geological samples must be kept in accordance with guidelines issued by the Department for the term of the relevant tenement and for 7 years after the expiry, surrender, cancellation or forfeiture of the tenement to which the sample relates. Furthermore, samples must be retained by the tenement holder, or provided to the Director, in accordance with those guidelines (unless the Minister has authorised, on application by

Mineral Exploration

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the tenement holder in a manner and form set out in the guidelines, the destruction or disposal of the samples).

8. The EPEPR is approved for the term of Exploration Licence(s): EL6081 and EL6510

This approval does not constitute endorsement of the systems that you have in place to manage your exploration operations in compliance with the Act and licence conditions. In granting the approval, the EPEPR and your capacity to undertake the proposed activities have been considered. However, responsibility for compliance with the Act and the licence conditions, remains at all times with the licensee.

This approval relates only to the requirements of the Act. Other legislation relevant to this application includes the *South Australian Work Health and Safety Act, 2012* and Regulations. For example, Chapter 10 of the *Work Health and Safety Regulations, 2012* (SA) introduced new requirements for mine operators in South Australia. The new requirements include a notification for mining operations and the establishment of a Safety Management System. For further information on your responsibilities, including a guide to Chapter 10 and the Mine Operator Notification Form, contact SafeWork SA on 08 8303 0255 or via its website at www.safework.sa.gov.au.

The proposed program may be subject to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Mineral exploration industry-specific information is contained in an appendix in the EPBC Matters of National Environmental Significance – Significant impact guidelines 1.1. This document is available on the Australian Government's Department for Agriculture, Water and the Environment website at <http://www.environment.gov.au/resource/significant-impact-guidelines-11-matters-national-environmental-significance>. For further information, contact the Department for Agriculture, Water and the Environment, or visit its website at www.environment.gov.au/.

Proposed changes to exploration operations stated in the approved EPEPR may require a *PEPR review* to be submitted for assessment. Where a *PEPR review* is required, implementation of the operational changes can only occur after the revised EPEPR is approved. Further information on when an exploration PEPR review is required can be found in Departmental guideline [MG22 Conducting mineral exploration](#).

If you require any further information, please contact Jason Perry on 8177 3413 or Simon Constable on 8429 2516 or email DEM.exploration@sa.gov.au.

Yours sincerely



Simon Constable
**A/DIRECTOR EXPLORATION & LICENCING
REGULATION & COMPLIANCE**

In accordance with delegated
Ministerial powers and functions

The Department's Regulatory Guidelines, Ministerial Determinations and Information Sheets are available at: http://energymining.sa.gov.au/minerals/knowledge_centre

Notice of Approval Conditions – EPEPR2017-1332

In accordance with section 70B(7a)(b) of the Act, the approved program is subject to the following conditions:

1. Prior to conducting exploration operations, a Program Notification must be submitted to the Department for Energy and Mining in accordance with the approved PEPR, 21 days prior to commencement of operations. Forward all Program Notifications to Mineral Exploration Branch – Attn: Exploration Regulation, email: DEM.exploration@sa.gov.au.

APPLICATION

Mining Act 1971 and Mining Regulations 2020



Government of South Australia
Department for Energy and Mining

EXPLORATION PROGRAM FOR ENVIRONMENT PROTECTION AND REHABILITATION (PEPR)

USE THIS TEMPLATE TO: Apply to conduct mineral exploration operations not covered by the Generic PEPR (Adopted Program) for an ongoing period on one or more exploration licences (ELs), retention leases (RLs) or mineral claims (MCs) in South Australia.

Refer to the Exploration PEPR [Terms of Reference](#) and to [Minerals Regulatory Guidelines MG22](#) when completing this application. Further information on exploration requirements in South Australia is available on the Department for Energy and Mining (DEM) Minerals website www.energymining.sa.gov.au.

SECTION A – GENERAL DETAILS

Operational approval period	<p>Ongoing approval period.</p> <p>A program notification is required to be provided to DEM 21 days prior to the start date of each new program of works (PEPR program notification template is available from the DEM Minerals website). All rehabilitation is to be completed within 3 months after the expiry of each program notification.</p>
Tenement details	EL6081 & EL6510
Tenement holder(s) (for each tenement)	Boss Uranium Pty Ltd
Operating company	Boss Uranium Pty Ltd & FQM Exploration (Australia) Pty Ltd (Joint Operators)
Agency agreement (if applicable)	N/A
PEPR prepared by	<p>Jason Cherry, Principal Exploration Geologist Boss Energy Ltd Lvl 14, 33 King William Street, Adelaide, SA, 5000. Ph. 0409 889 985 E. jason@bossenergy.com</p>
Project supervisor/contact person(s)	<p>Jason Cherry (see contact details above). B.Sc. (Geology), M.Sc (Geology). ~17 years experience.</p> <p>Hannah Goswell – District Geologist Australia (First Quantum Minerals)</p>
Project/prospect name	Honeymoon Uranium Project
Location details	<p>The Honeymoon uranium project is located 75km NW of Broken Hill, in the Curnamona Region of South Australia. The project area is located approximately 410km northeast of Adelaide (Figure 1).</p>
Project description, commodity type and mineralisation model	<p>The purpose of this EPEPR review is to incorporate a number of administrative changes to the original approved EPER, including the following:</p> <ul style="list-style-type: none"> • Updates to the proposed operation of diamond drilling programs, including site preparation updates, potential 24 hour drilling operations, potential use of Solids Removal Units (SRU's) during diamond drilling operations and larger drill pad sizes required for this drilling method. • Potential use of a temporary exploration camp site immediately north of the Honeymoon Mine. • Addition of Groundwater Dependant Ecosystem (GDE) review. • Update of the Exploration scope and machinery/equipment and personnel requirements. • Update of Exploration Radiation Management Plan (ERMP). • Updated figures/maps to reflect changes since the original EPEPR submission in 2017. • Update to stakeholder engagement section regarding these changes. • Exclusion of the Boolcoomata Conservation Reserve (BCR) from the EPEPR. This comprises the area of the tenements covered by the Boolcoomata Pastoral Lease (see Figure 3). <p>Uranium is the primary commodity being sought by Boss Energy in this project area. Sampling, geophysical investigations and exploration drilling for other commodities, such as gold, zinc and copper will also be carried out where appropriate over the wider project area.</p> <p>The Honeymoon Uranium Project is located in the southern part of the Callabonna subbasin in South Australia. Uranium mineralisation within the project area is contained within the Tertiary Yarramba palaeovalley (Figure 1) which consists of Palaeogene age palaeovalleys filled by a sequence of inter-bedded sand, silt and clay. The palaeochannels reach a maximum of 55m thick, with their base approximately 120m below ground surface.</p> <p>The uranium mineralisation represents a classic sediment-hosted uranium model (both the tabular and roll front styles are likely present). This model implies the movement of oxidised fluid through a largely reduced aquifer, with mineralisation occurring at the redox front of the fluid. A geochemical zonation is associated with the redox front, including oxidation of the sands upstream (orange and yellow limonite)</p>

and abundance of pyrite/marcasite and organic matter downstream. Mineralisation is associated with discreet accumulations of organic matter and pyrite within the palaeovalley sequence.

Distribution of the uranium accumulations within the palaeochannels is controlled by fluid pathways that have transported the dissolved uranium and the distribution of organic matter which served as reductants causing precipitation of uranium. Interplay of these two main factors has created a stacked geometry of redox fronts commonly distributed as elongate pods along the strike of the palaeovalley. This style of mineralisation is similar to that seen in the Shinarump, Monitor Butte and Moss Back members of the Upper Triassic Chinle formation in the White Canyon areas of the uranium mining districts of South Eastern Utah, USA.

The primary exploration technique will be through the application of rotary mud drilling. Each hole will be drilled through the zone of interest (Eyre Formation) until basement is intersected (average depth to basement ~120m). The recovered chips will be collected and lithologically logged. Downhole geophysical logging is also carried out immediately following completion of the drill hole including Magnetic Resonance (MR), total gamma, induction, resistivity, calliper, formation density, neutron porosity and Prompt Fission Neutron (PFN). Other drilling techniques will also be applied where applicable, including Sonic Core (vibra-core) drilling, diamond core drilling, RC drilling and aircore/RAB drilling.

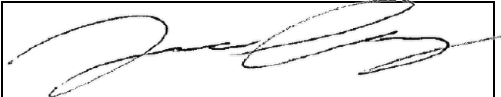
Many areas within the exploration tenements remain highly prospective for uranium mineralisation, and drill hole locations at 1 km spacings (regional exploration targets) and, as targets are better defined, at more detailed drilling spacings down to 40m across strike - may be conducted at any location within the tenement group. Drill line density will not need to be greater than 80m apart during any exploration phase of drilling activities.

Geophysical surveys, both land based and airborne, will be conducted as an aid to the targeting of drillholes. It is not expected that the geophysical techniques applied will require special approval under the licence conditions. The Geophysical techniques applied will be low impact and of the type which would otherwise be covered by a generic PEPR.

The geographic extent of the area covered by the PEPR is outlined in the attached figures, which incorporate a general locality plan with tenement details, landowner boundaries, and areas with environmental sensitivities. The tenements (EL6081 & EL6510) host the Brooks Dam Extension and Jason's deposits, and also enclose ML6109 which contains the Honeymoon, East Kalkaroo and Brooks Dam deposits. There are no Land Use areas identified within the tenement boundaries that contain specific environments/aspects that would exclude or restrict mineral exploration.

DECLARATION

I, the tenement holder, declare under regulation 84 of the Mining Regulations 2020, that I have taken reasonable steps to review the information in this PEPR/revised PEPR to ensure its accuracy.

Name	Jason Cherry	Signature (digital allowed)	
Position	Principal Exploration Geologist	Date	24/11/2023

Copy and paste the above table if there is more than 1 tenement holder.

Note: An authorised representative from each tenement holder must sign the declaration (eg in accordance with the Corporations Act 2001).

SECTION B – PROGRAM PREPARATION AND ACCESS TO LAND

Work undertaken in preparing the proposal

Summarise the research and fieldwork undertaken in preparing the proposal including:

- desktop reviews of existing information
- field visits for reconnaissance
- contractor consultation (i.e. equipment scale, type)
- other information used when planning the proposed program.

Work completed in preparing the PEPR proposal included:

- Desktop review of the numerous previous exploration programmes undertaken on the current exploration project areas;
- Desktop review of previously approved work plans for the exploration project areas;
- Contact made with appropriately qualified and experienced drilling and geophysical logging contractors, and initial equipment lists have been prepared.
- Boss Resources completed a 77-hole exploration program in December 2016 and January 2017 (75 mud rotary holes and 2 sonic holes for 8,882m). The program focused on the central portion of the Jasons Deposit located in the northern end of the Yarramba palaeochannel, and assessed continuity of mineralisation trends and verified historical grade data. The program covered 3km of the 12km trend that makes up the Jasons region. This work led to an updated JORC 2012 Mineral Resource at the Jasons Deposit.
- Other recent work undertaken includes review of the geology of the Honeymoon deposit and the installation of wells for a Field Leach Trial.

Consultation (r. 64)

Using the table below, provide a summary of the individual or group of similarly affected persons and summarise the results of consultation that has been undertaken on the proposed operation. Types of interested or affected parties include residents, council, government agencies etc (exclude native title groups and defence owned or controlled lands – refer to relevant sections below).

Tenement	Stakeholder	Land tenure	Land use	Date and type of NOE served	Type of exempt land	Date waiver obtained	Date consultation/access agreement and/or permits signed/authorised	Stakeholder concerns raised and how addressed
EL6081, EL6510	Yarramba Pastoral Lease	Pastoral	Grazing	Form 21B 15/03/2023			Email correspondence on 17/03/2023 & face-to-face meeting on 27/03/2023	<i>Requested barrier mesh erected around sumps, no issues with 24/7 diamond drilling operations. Also avoid stock watering points as per usual.</i>
EL6510	Lake Dismal / Mutooroo Pastoral Co.	Pastoral	Grazing	Form 21B 22/03/2023			Email correspondence on 22/03/2023 & phone conversations on 29/03/2023	<i>At this stage no issues with proposed operations – we will monitor stock locations closer to drill dates and plan accordingly.</i>
EL6081, EL6510	Kalkaroo Pastoral Lease	Pastoral	Grazing (not currently operational)	Form 21B 17/03/2022			Email 17/03/2023 & brief phone conversation 22/03/2023	<i>No issues raised.</i>

If any individual or group of similar affected persons were not able to be consulted, what steps were taken to consult with them?

<Include text here.>

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Provide any additional relevant information.

Due to the busy nature of their livelihood, and the constant management of (often) multiple large sheep, or cattle, stations, it was presumed that most of the emails would not be responded to, so Delivery and Read Receipt notifications were attached to each correspondent. These notifications were received back by most of the pastoral stations. However, follow-up phone calls were made as a courtesy to confirm receipt of the Notice of Entry forms, and also to ascertain whether there were any concerns that had not yet been discussed. In-person visits were also conducted at times best suited for the station owners/managers, whenever it was felt that this should be done, to maintain good relations once Boss personnel were back on site. Further consultation and in-person visits will be carried out prior to any exploration activities taking place to discuss program-specific requirements.

SECTION C – DESCRIPTION OF THE ENVIRONMENT

Include a description of the features of the environment that are expected to be affected by the proposed operations. Each of the elements of the existing environment listed below must be described only to the extent that they may need to be considered in assessing the impacts that the proposed exploration operations are reasonably expected to have on the environment. If the element is not likely to be impacted by the operation, a statement to that effect must be included.

Where the terms and conditions of an RL include environmental outcomes, include any new baseline environmental data relevant to the control strategies or measurement criteria, and where changes to the environment are identified, provide an updated description of the environment to describe the changes.

Proximity to infrastructure and housing

Provide the following information:

- Settlements – indicate the name and distance of the nearest town, and residences within, or near the proposed exploration operations.
- Roads and tracks – indicate existing fence lines, roads and tracks, including those which are to be used in the exploration program.
- Other human infrastructure such as schools, hospitals, commercial or industrial sites, roads, sheds, bores, dams, ruins, pumps, scenic lookouts.
- Railway lines, transmission lines, gas and water pipelines, communication lines – e.g. fibre optic cables etc., if these may be impacted by the exploration operations.

Provide this information on a locality plan/map.

Exploration locations will be accessed using existing station tracks and fence lines, a number of which are outlined in the attached Figure 2. Access to the Honeymoon tenement group (EL6081 & EL6510) will be via the Honeymoon Uranium Mine access road, and then by station tracks and fence lines. Yarramba Station Homestead and Boolcoomatta Station homesteads are located within the eastern group of tenements, shown in the attached Figure 3. No exploration activity will occur within 400m of a Station Homestead, and access along station tracks will be as negotiated with the landowner.

Land use and tenure

Using the table below, select the land tenure and land use that the proposed exploration activities will occur in. Include additional information where prompted.

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Land tenure/type	Applicable	Land use	Applicable
Freehold	<input type="checkbox"/>	Grazing	<input checked="" type="checkbox"/>
Pastoral lease	<input checked="" type="checkbox"/>	Cultivated land	<input type="checkbox"/>
Perpetual lease	<input type="checkbox"/>	Residential	<input type="checkbox"/>
Crown land	<input type="checkbox"/>	Township	<input type="checkbox"/>
Mining reserve	<input type="checkbox"/>	Industrial	<input type="checkbox"/>
Aboriginal freehold/leasehold land (e.g. Anangu Pitjantjatjara Yankunytjatjara and Maralinga Tjarutja lands)	<input type="checkbox"/>	Tourism	<input type="checkbox"/>
Forestry reserve	<input type="checkbox"/>	Conservation	<input type="checkbox"/>
Marine parks	<input type="checkbox"/>	Defence activity	<input type="checkbox"/>
National parks, conservation parks, conservation reserves, regional reserves*	<input type="checkbox"/>	Road reserve	<input type="checkbox"/>
Adelaide Dolphin Sanctuary	<input type="checkbox"/>	Sites of scientific significance (geological monuments, fossil reserves etc.)	<input type="checkbox"/>
Murray Darling Basin	<input type="checkbox"/>	Orchard/vineyard	<input type="checkbox"/>
		*Native vegetation heritage agreements	<input type="checkbox"/>
<If park/reserve is selected, please provide the name of the park>		<Provide the name of the area>	
Other*	<input type="checkbox"/>	*European heritage sites	<input type="checkbox"/>
		<Provide the name of the site>	
		*Other (e.g. historic mining)	
		<Provide the name of the site>	

* Indicates more information required in field immediately below.

Describe any council policies (or out of council) or development plans that may impact the program area.

Boss Energy is not aware of any council policies or development plans that would impact the Honeymoon Uranium Project

Provide a description of any known plans for future land use changes by other parties.

Boss Energy is not aware of any land use changes that would impact the Honeymoon Uranium Project

Provide any additional relevant information.

<Include text here.>

Woomera Prohibited Area (WPA)

Will activities be conducted within the WPA	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Do you have a resource exploration permit in place?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
In which zone will activities be conducted?					
Does the Exploration Permit allow the operator to conduct exploration operations in the WPA?				Yes <input type="checkbox"/>	No <input type="checkbox"/>
What is the expiry date of the resource exploration permit?					
Identify closure periods that may impact on the exploration program.					
<Include text here.>					

Other land owned or controlled by the Commonwealth Department of Defence

Lands in South Australia that are owned or controlled by the Commonwealth Department of Defence, which they manage either as a training or test area, include the Port Wakefield Proof and Experimental Establishment, Murray Bridge Training Area, and Cultana Training Area.

These lands remain to be mineral land under the Mining Act 1971 (SA) and can be accessed for mineral exploration and mining subject to certain restrictions and conditions under the Defence Act 1903 (Cth) and the Defence Regulation 2016 (Cth).

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Will operations be conducted within the Port Wakefield Proof and Experimental Establishment, Murray Bridge Training Area, or Cultana Training Area?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<If yes, indicate which area.>		
Do you have a Deed of Access with Defence?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
What is the expiry date of the Deed of Access?		
Provide the date the Range Control Officer granted access permission to conduct the proposed exploration operations.		
Describe the results of consultation and how any concerns raised were addressed.		
<Include text here.>		

Native title

Using the table below, describe how you have complied with the requirements of Part 9B of the Mining Act for each tenement (for further information refer to [Minerals Regulatory Guidelines MG22](#)).

Native title			
Is the proposed area of exploration located on native title land?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, no further information in this section required.)		
Are there registered native title party/parties in the area of proposed exploration?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	NAWNTAC (Adnyamathanha, Ngadjuri and Wilyakali Overlap Claim), Wilyakali – see Figure 4	If no, an Environment, Resources and Development (ERD) Court determination is required.
Have you negotiated a native title mining agreement?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the agreement registered?* Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	EL6081, EL6510
Have you accepted an Indigenous land use agreement (ILUA)?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Is the ILUA registered?* Yes <input type="checkbox"/> No <input type="checkbox"/>	<List the tenements covered by the ILUA>
Have you obtained ERD Court determination?†	Yes <input type="checkbox"/> No <input type="checkbox"/>	Is the determination registered?* Yes <input type="checkbox"/> No <input type="checkbox"/>	<List the tenements covered by the determination>

* The registration date refers to the date the agreement, determination or ILUA was registered with DEM.

† An ERD Court determination cannot be conjunctive (i.e. cannot apply to subsequent licences).

Provide any additional relevant information.

<Include text here.>

Landform and topography

Describe the topography of the general area affected by the exploration program. Include the susceptibility to erosion and visual attributes (steep or undulating slopes, plains, rocky outcrops, dunes, salt pans, clay pans etc.).

The Honeymoon Mine is located between the Olary Ranges and Lake Frome, and forms part of the south-eastern extremity of the Lake Eyre drainage system. Broad, gently undulating alluvial plains dominate the region, representing sedimentary deposition since the beginning of the Tertiary period (approximately 65 million years ago). The modern landscape has been modified by Pleistocene glacial and interglacial periods, resulting in cyclical deposition of finer sediments and subsequent soil formation. Recent periods of Holocene aridity have only superficially modified the landscape through Aeolian redistribution of soil, and the formation of low irregular sand dunes.

Soil and surface cover

Describe soil types and soil surface cover - e.g. gibber, rocky - in the general area affected by the exploration program. Include details on the susceptibility to compaction, erosion, dust, runoff and any other soil characteristics – e.g. acid sulphate – that may require control strategies to reduce environmental impacts during operations or rehabilitation.

The Honeymoon tenement areas are dominated by sandy soils with occasional low sand dunes and small scattered clay pans and falls within the PACKSADDLE and OLARY SPUR regolith regions, as defined by the "Regolith Terrains of Australia" dataset (see Photo1 & Photo2 in Section I). The soil landscape unit is described as plains with some through drainage-ways. Soils are predominantly brown calcareous earths with some irregular shallow depression-type gilgai. There are Ug5.3 and Ug5.2 soils along the drainage-ways and in clay pans and flats. Three specific soil landscapes have been identified from field inspections (Southern Cross Resources, 2000):

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- Plains with irregularly distributed clay pans or scalds; this soil sub-unit supports the pale poverty bush (*Sclerolaena divaricata*) low very open shrubland.
- Irregular and often discontinuous low sandy rises; this soil sub-unit supports the bladder saltbush (*Atriplex vesicaria*) / low bluebush (*Maireana astrotricha*) low open shrubland. In places where the surface sandy layer is thicker needle bush (*Hakea leucoptera*) shrubland and purple-wood wattle (*Acacia carnei*) are found.
- Small randomly distributed canegrass swamps; this soil sub-unit supports the canegrass (*Eragrostis australasica*) tall grassland.

The chance of compaction of existing station tracks is considered very low, while the risk of erosion through frequent use is considered low to moderate. The susceptibility to compaction of temporary access tracks created during the exploration program is moderate. Where tracks 'bulldust' up from heavy usage, rehabilitation will be undertaken such that the areas impacted are restored to a condition which is stable, consistent with the prior land use, and in a manner that will facilitate the natural regeneration of vegetation, and minimise the visual impact of exploration activities.

Former exploration tracks and drill lines will be appropriately rehabilitated, by scarifying or raking and brushing tracks to level ruts and restore windrows. Entrances to tracks will be disguised at departure points by placing plant material, scattering leaf litter, dead trees, etc. where appropriate. The placement of natural vegetation material will assist in trapping seeds for natural plant regeneration.

Surface water

Will the proposed program interfere with surface water bodies and natural drainage (e.g. drainage lines, creeks, floodplains, wetlands)? If yes, describe the potential interference and surface water bodies and natural drainage on maps. If no, indicate why.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<include information here.>		
Is the program area located within water protection areas defined under the <i>River Murray Act 2003</i> ? If yes, provide the name(s).	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<If yes, provide the name(s)>		
Is the program area located within any prescribed watercourses or prescribed surface water areas under the <i>Landscape South Australia Act 2019</i> ? If yes, provide the name(s).	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<If yes, provide the name(s)>		

Groundwater

Is groundwater likely to be intersected when conducting the exploration program? If yes, use the table below to describe the expected groundwater (hydrogeological) conditions, and identify groundwater aquifers in the exploration area(s) that may be affected. Indicate the approximate depth of drillholes in each area. Copy and paste a new table for each area where different groundwater conditions are expected. If no, provide evidence or any supporting information demonstrating this.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<Include text here.>		

Description of the locality/area where different groundwater conditions may be encountered					
Groundwater conditions across the Honeymoon Uranium Project (ie. interval depths, thicknesses and salinity), have been shown to be very consistent throughout the Yarramba Palaeovalley. The Namba formation has not been shown to host any significant aquifers. Previous drilling has shown the sediments of the Namba formation to be predominantly clays and silts of lacustrine origin.					
Formation age and/or stratigraphic unit	Stratigraphic intervals (depth range) (m)	Aquifer formation name	Aquifer interval/thickness (from-to) (m)	Type of aquifer(s) intersected (e.g. unconfined, confined, artesian)	Provide aquifer salinity, depth to water level and any other relevant comments
Eyre Formation – upper	70 – 100m	Upper Member – Eyre Formation	70 – 100m	Confined	Salinity ~10,000 mg/L TDS, WL = ~70m
Eyre Formation – lower	100 – 120m	Basal Member – Eyre Formation	100-120m	Confined	Salinity ~9,000 mg/L TDS, WL = ~100m

Provide the environmental value of each aquifer present determined according to the current Environment Protection (Water Quality) Policy.

As per Schedule 1 of the current Environmental Protection (Water Quality) Policy (2015), the environmental value of both the Upper and Lower Aquifers are shown to be variable between that suitable for Primary Industry – livestock drinking water, aquaculture and human consumption of aquatic foods (i.e., TDS values of 3,000 – 13,000 mg/L) and completely unusable (TDS values of more than 13,000 mg/L).

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Provide a description of the existence, location and value of all Groundwater Dependent Ecosystems (GDEs) within and immediately surrounding the project area.

With regards to Groundwater Dependent Ecosystems within the project area (source: Bureau of Meteorology) – see Figure 5:

- There are scattered occurrences of “Aquatic” GDE’s within the project area, which typically represent small soaks or “swampy” areas (which are generally dry except for after rain events). All of these are classified as “Low Potential GDE” according to the BOM GDE Atlas.
- With regards to Terrestrial GDE, the vast majority of the project area is classified as “Low potential GDE” according to the BOM GDE Atlas. The exception is the Oonart Creek which passes through the southern portion of EL6081 past the Boolcoomata Homestead, which is described as vegetation with “*Eucalyptus camaldulensis* var. *woodland*”. This system is classified as having high potential for GDE, based on the BOM GDE Atlas.
- The depth to SWL throughout the project is variable, but in the Honeymoon project area it is typically between ~40-50m. Groundwater salinities within the Eyre Formation are typically in the range of ~9,000 to as high as 20,000mg/L TDS in places.

Is the proposed program located within a prescribed wells area or prescribed water resource area?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
If yes, provide the name of the area.		
<Insert the name of the area>		

Provide any additional information, if required.

The current conceptual hydrogeological model for the Eyre Formation of the Yarramba Paleochannel comprises one hydraulically connected aquifer system, the Eyre Formation Aquifer, which is subdivided into two consistently recognisable stratigraphic units being the Upper Member and the Basal Member:

- The Upper member is a fine grained, moderately low permeability unit. The unit is discontinuous, and exhibits facies changes from sand to silt and clay. The Upper member is confined by the overlying Namba Formation, it is saline, naturally radioactive and host to minor uranium mineralisation.
- The basal member is variably, coarse grained highly permeable aquifer unit inter-bedded with discontinuous silt and clay units, it is confined by underlying basement saprolite. The basal member is saline, naturally radioactive and host to the Honeymoon uranium orebody.

A report detailing a Beneficial Use Assessment of Yarramba Paleochannel was completed in Dec 2012 by Emily Picken of Land and Water Consulting Pty Ltd. Based on the available data, the report identified that groundwater quality within the Eyre Formation aquifer system north of the mine lease boundary is considered consistent with that observed within the mine lease boundary, i.e. untreated groundwater is of poor quality and precludes the beneficial use of groundwater for all potential uses (i.e. livestock, potable use, irrigation and maintenance of ecosystems) with the exception of industrial water supply.

Native vegetation

Will you be working within areas of native vegetation? If yes, provide the following information:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<ul style="list-style-type: none"> description of the formation and structure of vegetation in the area (e.g. woodland, shrubland, grassland) list of the dominant species. 		
If no, indicate why you will not be working within areas of native vegetation?		
<p>The tenements (EL6081 & EL6510) are located within the Barrier Range Outwash subregion of the IBRA Region 7.0, Broken Hill Complex. The subregion (BHC04), shown in the attached Figure 6, is described as Plains with longitudinal sand dunes and clay pans or low sand rises. Some through drainage ways, particularly in the south. The vegetation there is described as Chenopod shrublands. The soils are; brown calcareous earths, crusty loamy soil with red clayey subsoil, loamy soils with weak pedologic development, red earths and various cracking clays. The plains of which support the pale poverty bush (<i>Sclerolaena divaricata</i>) on low, very open shrubland, and the irregular, often discontinuous low sandy rises support the bladder saltbush (<i>Atriplex vesicaria</i>) / low bluebush (<i>Maireana astrotricha</i>). Where the surface sandy layer is thicker, needle bush (<i>Hakea leucoptera</i>) shrubland and purple-wood wattle (<i>Acacia carneorum</i>) are found.</p>		

Significant habitats and flora

If you are working within areas of native vegetation, use the table below to list any significant habitats and any rare or endangered flora species located or reported to have been in the area that may be impacted by the proposed program. Include known sightings of listed species on a locality plan/map.

Species/habitat	Common name	NPW Act rating*	EPBC Act rating†
<i>Codonocarpus pyramidalis</i>	Slender Bell-fruit	Endangered	Vulnerable
<i>Atriplex eichleri</i>	Eichler's Saltbush	Rare	
<i>Bothriochloa macra</i>	Red-leg grass	Rare	
<i>Calotis lappulacea</i>	Yellow Burr-daisy	Rare	

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<i>Geijera parviflora</i>	Wilga	Rare	
<i>Orobanche cernua</i> var. <i>Australiana</i>	Australian Broomrape	Rare	
<i>Rytidosperma laeve</i>	Smooth Wallaby-grass	Rare	
<i>Swainsona fuscoviridis</i>	Dark Green Swainson-pea	Rare	
<i>Acacia carneorum</i>	Needle Wattle	Vulnerable	<i>Vulnerable</i>
<i>Dianella porracea</i>	Pale Flax-lily	Vulnerable	
<i>Maireana excavata</i>	Bottle Fissure-plant	Vulnerable	
<i>Malacocera gracilis</i>	Slender Soft-horns	Vulnerable	
<i>Swainsona murrayana</i>	Murray Swainson-pea	Vulnerable	<i>Vulnerable</i>
<i>Swainsona procumbens</i>	Broughton Pea	Vulnerable	
<i>Swainsona viridis</i>	Creeping Darling Pea	Vulnerable	

* *National Parks and Wildlife Act 1972* (NPW Act) conservation status includes extinct, endangered, vulnerable, threatened and rare.

† *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) listings include extinct, extinct in the wild, critically endangered, endangered, vulnerable and conservation dependent.

Weeds and pathogens

Provide information of the extent the area is affected or potentially affected by weeds and pathogens (e.g. phytophthora; buffel grass *Cenchrus ciliaris*).

African Boxthorn (*Lycium ferocissimum*) has been identified on the southern portions of EL6081 & EL6510 as shown in the attached Figure 7. Some cactus (*Opuntia elatior*), has also been sighted in the southern portions of EL6081 & EL6510. Athel Pine has been identified at Kalkaroo and Curnamona Stations. They are easily dispersed by both wind and water and may also be spread by animals, although the seeds die quickly if not kept moist.

Fauna

Describe the native and feral fauna that may be present in the application area, including feral species.

The most commonly sighted native fauna in and around the Honeymoon project area include kangaroos and emus, while the most common feral fauna sighted would be rabbits. Stumpy tail lizards (*Tiliqua rugosa asper*) are commonly sighted, while snakes are occasionally observed (Figure 8). A number of feral cats have also been observed.

Significant fauna

Where possible, using the table below, list any rare or endangered fauna species located or reported to have been in the area that may be impacted by the proposed program. Include known sightings of listed species on a locality plan/map.

Species	Common name	NPW Act rating	EPBC Act rating
<i>Acanthiza iredalei</i>	Slender-billed Thornbill	Vulnerable	
<i>Anas rhynchotis</i>	Australasian Shoveler	Rare	
<i>Aspidites ramsayi</i>	Woma Python	Rare	
<i>Elanus scriptus</i>	Letter-winged Kite	Rare	
<i>Falco hypoleucos</i>	Grey Falcon	Rare	
<i>Falco peregrinus</i>	Peregrine Falcon	Rare	
<i>Lucasium steindachneri</i>	Map Gecko	Rare	
<i>Melanodryas cucullata</i>	Hooded Robin	Vulnerable	
<i>Neophema chrysostoma</i>	Blue-winged parrot	Vulnerable	
<i>Northiella haematogaster</i>	Bluebonnet	Vulnerable	
<i>Neophema elegans</i>	Elegant Parrot	Rare	

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<i>Notomys fuscus</i>	Dusky Hopping-mouse	Vulnerable	<i>Vulnerable</i>
<i>Pachycephala inornata</i>	Gilbert's Whistler	Rare	
<i>Pedionomus torquatus</i>	Plains-wanderer	Endangered	<i>Critically Endangered</i>
<i>Petrogale xanthopus xanthopus</i>	Yellow-footed Rock-wallaby		<i>Vulnerable</i>
<i>Stictonetta naevosa</i>	Freckled Duck	Vulnerable	
<i>Tachyglossus aculeatus</i>	Short-beaked Echidna		<i>Vulnerable</i>
<i>Saccolaimus flaviventris</i>	Yellow-bellied sheath-tail bat	Rare	
<i>Chalinolobus picatus</i>	Little pied bat	Endangered	

Note: NPW Act conservation status includes extinct, endangered, vulnerable, threatened and rare.

EPBC Act listings include extinct, extinct in the wild, critically endangered, endangered, vulnerable and conservation dependent.

Environmentally sensitive locations

Are there any environmentally sensitive locations within or close to the proposed exploration area (e.g. areas having particular ecological, cultural, scientific, aesthetic or conservation value)? If yes, provide a description of identified environmentally sensitive location(s). Mark these areas on a locality plan to identify any areas of conflict so that access roads or other activities can be planned and located effectively.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
The Boolcoomata Conservation Reserve (BCR), which occupies the southern half of EL6081 and is depicted in Figure 3, has been excluded from this EPEPR. Any aboriginal heritage sites identified within the Boss Energy Aboriginal Heritage GIS database (see below and Figure 11) are also identified as no-go zones during exploration activities.		
Are you likely to impact on the environmentally sensitive area? If yes, detail the likely effects the proposed program may have.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Include a statement concerning whether or not an Aboriginal heritage survey has been conducted by the proponent and if so, the results of the survey.		
At least 19 separate Aboriginal heritage clearance surveys have been carried out within the project area since 1979. Both cleared areas and exclusion zones from these surveys are incorporated into a GIS database by Boss Energy (see Figure 11), and this database is used to plan exploration activities. Further heritage surveys will be carried out in the future as required, with the results added to the GIS database to ensure no exclusion sites are disturbed.		

SECTION D– DESCRIPTION OF PROPOSED EXPLORATION OPERATIONS

Include a description of the proposed operations. Each of the elements listed in below must be described only to the extent that they apply to the proposed exploration program.

Exploration scope

Describe the scope of the proposed exploration operations and detailing the following:

- all exploration methods to be covered by the PEPR.
- extent of exploration operations – e.g. drillhole spacing and drill line density.
- geographic extent of the area covered by the PEPR, including a general locality plan with tenement details, landowner boundaries and areas with environmental classifications or sensitivities.
- specific environments where exploration operations will not be conducted – e.g. parks, reserves, salt lakes etc.

<p>The extent of the Honeymoon Uranium Project area is shown in Figure 1. Initial exploration work is likely to focus on resource definition drilling at the Jason's deposit, and step-out drilling in proximity to this deposit (including Jason's South). Following this initial work (and the recommencement of production at the Honeymoon Mine), attention will shift to exploration of peripheral and under explored areas of the Yarramba palaeovalley throughout both EL6081 and EL6510. Exact drilling locations and specifications (i.e., density, spacing etc) will be determined following the initial resource definition drilling at the Jason's deposit.</p> <p>Given the known dimensions of the palaeovalley system (and internal, narrower palaeochannel features), drill spacings for regional exploration programs are likely to be between 50m and 400m, with regional drilling "fence" lines ranging from 400m to 2,000m apart. For resource definition drilling at Jason's (and elsewhere if/when required in future), hole spacing will range from ~40m to 200m apart. The main exploration methods that may be deployed within the project area include:</p> <ul style="list-style-type: none"> • Rotary mud drilling. This is the primary ground disturbing exploration method deployed by Boss Energy, as it enables the drill holes to be geophysically logged with a comprehensive suite of downhole tools. • Water well installation. Well installation will be carried out by the same contractor constructing the wellfields at Honeymoon (i.e. Watson's Drilling) utilising the rotary mud drilling rigs. The main purpose of well installation is for groundwater characterisation,

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aquifer characterisation (i.e pump testing) and potential drilling water supply if required. Wells are only generally installed within established deposits (i.e Jason's) for collection of baseline study data for future mining applications (i.e PEPR, mining lease).

- **Pump testing.** Pump testing is carried out utilising established monitoring wells and is designed to determine aquifer characteristics such as drawdown, yield, transmissivity etc.
- **Sonic coring.** Sonic coring is utilised to obtain intact core samples from within the target aquifers for metallurgical and geological characterisation. This method is preferred to traditional diamond coring in soft sediment environments due to near 100% core recoveries.
- **Percussion drilling** (i.e aircore, RC and RAB). These drilling methods would only be utilised in the pursuit of hard rock base metal targets. The choice of drilling method would depend largely on target depth, the type of sample required and the stage of exploration (i.e greenfields vs brownfields).
- **Diamond drilling.** Like percussion drilling, this method will likely only be deployed during hard rock base metal exploration.
- **Geophysical surveys.** Both airborne and ground-based geophysical surveys may be carried out within the project area, including (but not limited to) passive and high-reflection seismic, ground and/or airborne gravity, ground and/or airborne EM or MT etc. All these methods are non-ground disturbing and do not require any site preparation.
- **Surface rock chip/soil sampling.** Given the extensive sediment cover across most of the project area, surface sampling would only be effective where the basement sequences sub/outcrop within the southern half of EL6081.

Areas that are excluded from ground-disturbing activities within the project area include:

- The Boolcoomata Conservation Reserve (BCR).
- Any aboriginal heritage sites identified from historic or future heritage clearance surveys.
- Areas with significant trees or shrubs are considered off-limits to ground-disturbing exploration.
- Clay pans and sand dunes within the project area are typically where aboriginal artefacts are found and are avoided as a general rule.
- Major surface drainage features (such as creeks) and any other environmentally sensitive areas identified during the planning phase.

Equipment and personnel requirements

Describe the maximum composition of field crews (operator, contractors, and geologists) and proposed working hours/days for each type of activity.

A typical field crew operating during exploration activities could comprise up to 14 personnel operating 7 days a week during the active exploration phase. This may include day and night shift drilling if required (predominantly for diamond drilling during base metal exploration).

Potential make-up of the exploration crew during drilling operations could include:

- Between 3-8 drilling personnel (across 2 shifts if required);
- 1-2 Field Assistants/Technicians;
- 2 geophysical logging contractors;
- 2 supervising geologists;
- 1 camp manager/cook (if field crew not staying at the Honeymoon Mine).

Using the table below, describe the equipment (size, number and contractor details) required to conduct the proposed operations.

Equipment type	Owner/operator	Description/capacity	Activity/purpose
Mud Rotary drill rig, support truck, water truck, GPU, support LV	Watson Drilling	RM drill rig (typically drill to ~126m), 10,000L water truck, support truck/vehicles with muds etc, GPU for cementing completed drill holes	Rig used for palaeochannel uranium exploration, supported by water truck and support vehicles. The GPU unit is used for mixing cement to complete hole rehabilitation.
Downhole Logging truck	Borehole Wireline	Typically retrofitted Troop Carrier with onboard winch and logging tools	Purpose is to run lithological tools in rotary mud holes (including magnetic resonance, total gamma, formation density and neutron porosity)
Downhole logging truck	Boss Energy	Retrofitted small Isuzu cabin truck	Exclusively for running Boss Energy's in-house PFN tools in rotary mud holes.
Backhoe	Boss Energy	JCB backhoe	For digging drill sumps, access track preparation (where required) and rehabilitation.
4WD light vehicles	Boss Energy	Typically either 4WD single cab Toyota Landcruiser or dual cab Toyota Hilux.	For staff access, equipment transport etc.

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Diamond drilling rig, support truck, water truck & LV	DDH1	Diamond drill rig (capacity up to 1,000m), rod/support truck, water supply truck (10,000L) and support LV's	This rig is used for deep base metal exploration drilling, and will typically complete a rotary mud pre-collar (cutting disposed of into sumps) and complete a diamond coring "tail" once fresh rock is reached.
Percussion drilling rig (RC, aircore or RAB), support truck, water truck & LV's	Could be either SA-based MJ Drilling (RC), MCleod or Bullion Drilling (aircore/RAB).	Truck-mounted (RC) or truck/LV mounted (aircore/RAB) drill rig, support vehicle (rods etc where required) and LV's	These drilling methods are used for either deep first-pass (RC) or shallow first pass (aircore/RC) base metal exploration drilling.

Low impact exploration activities

Will low impact exploration operations be conducted that are not covered by the Generic program for environment protection and rehabilitation – low impact mineral exploration in South Australia , (generic PEPR)? If yes, describe each type of low impact operations proposed.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<Include text here.>		

Drilling Operations

Will exploration drilling activities be conducted? If yes, identify all the drilling methods that may be used.										Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
AC	RAB	RM	RC	DD	AC/DD	RAB/DD	RM/DD	RC/DD	Vibracore	Auger	Other
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

AC = aircore, RAB = rotary air blast, RM = rotary mud, RC = reverse circulation, DD = diamond drilling, AC/DD = aircore with diamond tails, RAB/DD = rotary air blast with diamond tails, RM/DD = rotary mud with diamond tails, RC/DD = reverse circulation with diamond tails.

Where 'Other' drilling method is selected, provide a description of the drilling method.

<Include text here.>

Drillsite preparation

If exploration drilling activities are proposed, describe the methods used to prepare sites, including vegetation clearance requirements, site levelling and digging of sumps.

<p>The following is a description of site preparation activities for exploration drilling.</p> <p><u>Drilling sumps.</u></p> <ul style="list-style-type: none"> <u>Rotary mud drilling</u> – one sump is typically required within the drill pad. This sump is typically ~8-10m long, ~2m wide and ~1.5m deep. An egress ramp is included at one end to allow any fauna that become trapped to escape. <u>RC drilling</u> – one sump is typically required within the drill pad. This sump is typically ~10m long, ~2m wide and up to 1.5m deep (used for capturing groundwater). If significant groundwater is encountered during drilling, the existing sump may need to be extended (an extra ~5m long) or a second sump of similar dimensions may be needed within the drill pad footprint. An egress ramp is also built in to these sumps. <u>Diamond/sonic core drilling</u> – Two sumps are typically required for these drilling types within the drill pad. These sumps are typically side-by-side and 3m long x 3m wide x 1.5m deep, with a small shallow channel connecting the two sumps to allow settling of solids/cuttings (sump 1) and recycling of drilling muds to the drill hole (sump 2). Egress ramps are again included. <u>Aircore/RAB</u> – Typically don't require a sump as they tend to not penetrate very far into fresh rock, but a small sump may be constructed if groundwater is encountered in the cover sequence (typically only 3m long x 2m wide x 1m deep). <u>Turkey's Nest</u> – If test pumping of a monitoring bore is to be carried out a water storage pit (Turkeys Nest), will be constructed adjacent to the water bore used for pumping to store the pumped water. The Turkeys Nest will be located to cause the least possible disturbance to existing native vegetation. The dimensions will be roughly 20m x 20m x 2m deep with an approximate ground disturbance area of ~400m². The area will have temporary fencing constructed around it. Inclined animal ramps will be included in the construction of the Turkeys Nest to allow animals a means to get out of the water. <p><u>Drill site pads.</u></p> <ul style="list-style-type: none"> Typical drill pad size for rotary mud drilling is ~20m x 20m. For RC drilling, typical drill pad size is 20m x 25m and for diamond drilling the pad is typically 20m x 35m to accommodate rod trucks etc. Aircore and RAB rigs need only need a small pad of ~15m x 15m (LV mounted RAB rigs designed for small footprint programs can be down to 10m x 10m). If vegetation is sparse (i.e. grasses or bare ground) clearing/levelling may not be required. If low level vegetation is prominent (eg saltbush and/or bluebush), then the pad is cleared with the backhoe via raised blade with material stockpiled to the side of the pad for re-spreading during rehabilitation. Topography at the Honeymoon project is generally quite flat, so site levelling is only carried out if required (which is rare). Areas with significant shrubs/trees are avoided at all times during exploration activities. <p><u>Site access tracks.</u></p>

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- Given the generally open nature of the landscape at the Honeymoon Project, where possible access tracks are marked by the backhoe tyre tracks with no clearing required. If significant bluebush/saltbush is present (and no alternative route around it is available), tracks are cleared with the backhoe (raised blade), with material stockpiled along the track for re-spreading during rehabilitation. In some cases minor track levelling may be required, but again this is not common. Areas with significant shrubs/trees are avoided at all times during exploration activities.

Photo Monitoring Points (PMP's) are set up at select drill sites (typically every fifth drill site) and selected drill lines to maintain a record of the sites before (i.e prior to site prep) and after (following rehabilitation) drilling activities have been completed. Background radiation readings are also taken at every drill site for comparison against post-rehabilitation readings, to ensure that no radioactive material is left on the surface following rehab.

Drillhole construction and decommissioning

Have the personnel responsible for implementing the proposed program read and understood the Earth Resources Information Sheet M21, Mineral exploration drillholes – general specifications for construction and backfilling?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Describe how drillholes will be constructed, including the casing material to be used, depth of casing, if the casing will be cemented, cementing intervals and the class of driller that will install the casing.		
<p>Exploration rotary mud, aircore and RAB drill holes do not require any casing and will naturally collapse after a relatively short period of time. Exploration diamond, sonic and RC drill holes may require pre-collar casing to control unstable ground at/near the surface. The depth of this casing can range from 6m to 40m (depending on ground conditions) and comprises lengths of suitable PVC.</p> <p>Constructing groundwater monitoring wells is carried out in accordance with the "<i>Minimum construction requirements for water bores in Australia – Fourth Edition</i>". The wells are constructed in the same way as the production wellfields at the Honeymoon Mine, which are 9" diameter with cemented PVC casing. The aquifer zone of interest is then under-reamed, with a 100mm slotted (1mm aperture) screen and gravel pack installed. Drillers holding a minimum Class 2 licence will be used to construct water bores.</p>		
When describing drillhole decommissioning requirements, include the materials to be used, stratigraphic intervals where cement plugs will be placed, if the casing will be removed and when decommissioning will occur after drilling is completed.		
<p>With regards to hole decommissioning (Refer to Figure 10):</p> <ul style="list-style-type: none"> Fresh grout is mixed on site and pumped into the hole using a GPU. Where Tertiary aquifers are encountered, the boreholes are grouted from EOH to approximately ground level. If temporary casing has been used, it is cut ~40cm below the ground level surface or removed completely (if possible). Boss Energy aims to grout drill holes as soon as practically possible (i.e once holes have been completely geophysically logged). The aim is to have this done within 3 days of hole completion, but it can be up to 5 days depending on workload, machinery breakdowns etc. 		

Where confined or artesian conditions are expected, include a schematic diagram demonstrating how drillholes will be constructed and decommissioned

Costeans and bulk sample disposal pits

Will costeans/bulk sample disposal pits be required for the proposed program? If yes, indicate the maximum dimensions and size of pits and costeans.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>In the event that a Solids Removal Unit (SRU) is used during diamond drilling, a small pit will be required to dispose of the cuttings after the completion of each hole. Generally a SRU is only used if the digging of drilling sumps is not possible (or if requested by any of the key stakeholders) – and they basically act as a portable trailer-mounted sump for removal of drill cutting and recycling of drilling muds.</p> <p>If such a unit is employed at the Honeymoon project, a small pit up to 15m x 15m x 1.5m will be required for disposal of the drill cuttings from the SRU. The location of this pit will depend on the drilling location, and a suitable site will be chosen after consultation with all key stakeholders (i.e native title parties, pastoralists and Boss Energy internal environmental/heritage clearances).</p>		
Describe site preparation methods, vegetation clearance, and safety and maintenance requirements if pits and costeans are required.		
Site preparation for a SRU disposal pit would be identical to the drilling site preparation method (i.e creation of site access track if required, clearing a small 20m x 20m pad and pit excavation). The pit is marked with safety flagging and a clear access point is established. Topsoil is stockpiled (if clearing is carried out) for re-spreading during rehabilitation.		

Sample management

Describe the size of samples collected (including drilling samples and bulk sampling), collection methods, materials used when collecting the sample, sample disposal methods (including removal of sample bags), safety management and any other sample management requirements at the exploration site (e.g. tarps or matting used to contain cuttings). Include requirements for on-site geological sample management (splitting of archive samples, bag farms, core processing and storage).

Chip samples will be laid out on the ground within the drilling pad for sampling into chip trays by the site geologist/field supervisor (completed either by hand or with a small scoop). If end of hole samples are collected for multi-element analysis, samples are collected with a small scoop and sealed in a small plastic sample bag (approx. 500g of material). All samples containing radioactive material (including chip trays) are stored separately from the main camp area in placarded storage containers while awaiting transportation to the Honeymoon Mine site for storage. Any remaining chip samples will be disposed of into the drilling sump as soon as practicable after the sampling and field descriptions have taken place. Typically, samples would be disposed of in this way within 4 to 7 days.

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Core samples will be collected and laid out into core trays on the drill pad for collection and transfer to the Honeymoon mine almost immediately. Core processing and storage will occur at the Honeymoon mine site. A selection of core samples will be sent off site for further analysis. All samples leaving site for further analysis will be sent in accordance with the ARPANSA Code for the Safe Transport of Radioactive Material (2019).

Access routes to work areas

Will existing tracks require upgrading and/or maintenance? If yes, detail the work required to upgrade/maintain existing tracks.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Existing tracks may require upgrading / on-going maintenance, including old disused station tracks or previously used temporary access tracks. Any work of this type will be completed in consultation with the key stakeholders (native title, pastoralist, Boss Energy), prior to, during and on completion of the program.		
Will access off existing tracks be required? If yes, detail the method(s) for gaining access and if vegetation clearance is required. Details of the total area of disturbance (includes drill traverses and seismic lines) required off existing tracks (i.e. length (km) and width (m) of new tracks) must be provided in the program notification.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wherever possible, existing tracks and roads will be utilised to access drill hole locations. Additionally, drill hole locations may be moved by up to 15m to enable collar positioning to be less ground disturbing.		
Light access tracks may be required to access some drill lines. The majority of these will consist of new light-vehicle / truck tracks driving across country, without the need for removal of vegetation, avoiding environmentally sensitive sites such as isolated stands of vegetation, watering holes, nesting areas, etc. Where there are no established tracks and it is intended to traverse the same ground more than once, the same wheel tracks will be used each time.		
In certain areas, the removal of small shrubs may be required as a last resort. It is estimated that the requirement for removal of vegetation will be rare. Rolling back vegetation or driving a backhoe back and forth in low scrub to crush stakes may be sufficient to remove vegetation whilst still retaining the rootstock, topsoil and seeds to encourage regeneration. If raised blade work is required, as little ground as possible will be disturbed and windrows will be avoided or minimised. Natural drainage lines will not be blocked and adequate erosion control structures on slopes, such as spur drains, spoon drains or contour banks will be installed at suitable intervals.		
Any removal of vegetation or creation of access routes will be done in accordance with M33 Guidelines (Statement of Environmental Guidelines for Mineral Exploration in South Australia), and Boss Energy internal procedures. Copies of the M33 Guidelines will be made available to field crews and as part of their induction they will need to agree they have read and understood them.		

Where possible, indicate planned access routes on a locality plan and distinguish between existing and proposed new access tracks and drill lines (including fence lines).

Campsites, storage and equipment laydown areas

Provide a description of campsites and/or laydown areas required. Indicate the campsite and laydown area on a locality plan.

Campsite details		
Indicate where staff and contractors will be accommodated during the exploration program.		
As much as possible, exploration crews will be based at the Honeymoon Mine site. However, there may be occasion where the Honeymoon camp is at or close to capacity – in this instance a temporary camp utilising caravan style accommodation will be set up at Brooks Dam ~2km north of the mine site (Figure 9).		
What is the maximum number of personnel requiring accommodation?	14	
Is a campsite required to be established? If no, no further information is required.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Provide a description and justification of the camp location (e.g. previously cleared areas etc.), and any other relevant information.		
When required, the exploration camp will comprise accommodation caravans (3-berth or 4-berth depending on availability), a kitchen/ablutions caravan and a crib van or tent. The site at Brooks Dam has been chosen as it has been cleared for use during a previous aboriginal heritage clearance survey (completed in 2011), it is in close proximity to Honeymoon (i.e access to diesel and other supplies) and the ground is open and clear (i.e little to no vegetation clearing required).		
What will be the total area (ha) of the campsite(s)?	1 ha	
What will be the total area (ha) of vegetation clearance for the campsite?	0.2 ha	
If vegetation clearance is required, describe the methods used to prepare the site.		
Any bluebush or saltbush will be either flattened with the backhoe bucket or pushed to the side of the camp site and stockpiled for re-spreading during rehabilitation.		
Will any excavations be required? If yes, describe the purpose of the excavation and the maximum volume (m ³) of material to be excavated.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

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A small drain/soak will be dug to absorb/evaporate campsite grey water. The drain will be ~10m long, ~1m wide and ~0.2m deep.		
Are the proposed ablution facilities endorsed/approved for use by the Department of Health or local council, where applicable? If no, indicate why.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Black water produced at the camp will be stored in holding tanks and removed by a licenced wastewater contractor, who will dispose of it at an appropriate facility off site.		
Proposed infrastructure (includes caravans, tents, offices, hydrocarbon and water storage requirements etc)	Quantity	Description/capacity
Caravans	Up to 5	<i>Comprised of accommodation vans (3 or 4 berth), kitchen/ablution van and a crib/office van if available.</i>
Potable water tank	1	<i>A plastic above ground water tank will be used to hold camp water. Potable water will be sourced from the nearby Honeymoon minesite.</i>
Generator & fuel trailer	1	<i>A suitable sized diesel generator will be operational at site, along with a small bunded 1,000L trailer mounted diesel tank to keep it running. All other diesel supplies will come from the Honeymoon mine site.</i>
Tents/swags	2-3	<i>Temporary tents and/or swags may be used for excess numbers. Double-room tents can also be used as clean/dirty change rooms for radiation control measures.</i>

Laydown area details		
Will laydown areas be required? If no, no further information is required.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Will the laydown area(s) be located at the same location as the campsite?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
What will be the maximum area (ha) required for the laydown area(s)?	0.4 ha	
What will be the total area (ha) of vegetation clearance for the site?	0.1 ha	
If vegetation clearance is required, describe the methods used to prepare the site.		
<i>Any bluebush or saltbush will be either flattened with the backhoe bucket or pushed to the side of the camp site and stockpiled for re-spreading during rehabilitation.</i>		
Will any excavations be required? If yes, describe the purpose of the excavation and volume (m ³) of material to be excavated.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<Include text here.>		
Proposed infrastructure (includes hydrocarbon and water storage requirements)	Quantity	Description/capacity
Potable camp water	1	<i>Large above-ground plastic water tank (10,000 – 20,000L capacity).</i>
Bunded trailer mounted diesel tank	1	<i>Small diesel tank (~1,000L) to supply the site generator.</i>

Other exploration methods and/or ancillary operations

Are any other proposed exploration methods (e.g. seismic) and/or ancillary exploration operations required?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
If yes, describe the activity(s), site preparation, vegetation clearance, and safety and maintenance requirements.		
Active High-Reflection Seismic may be undertaken at some stage during the lifetime of this EPEPR application. The High-Reflection seismic will likely involve a team of 6 operators, 3 utility vehicles (e.g., Landcruisers or similar) and the use of an EVibe seismic source, which is smaller in size than a Dingo mini digger machine. Vegetation clearance is not required for this. If undertaken, this survey will be completed by an external geophysical contractor such as Ultramag. Safety and maintenance requirements will involve continual liaison with the relevant landholders, regular communication with pastoralists to ensure that surveys do not impact on livestock, water points or general farming operations.		

Water supply and management

Will camp and/or drilling water be required? If yes, describe how and where water will be sourced for drilling, track maintenance and camping purposes (e.g. groundwater, surface water, mains). Indicate how wastewater and/or runoff water will be managed.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Both camp and raw water for Drilling will be sourced from the Honeymoon Mine site.		
Will surface water and/or mineral drillholes be used as a water source/supply? If yes, indicate if a licence for water extraction/usage is required (refer to relevant Natural Resources Management water allocation plan available on the <i>Department for Environment and Water (DEW) website</i> . If a licence is required and has been obtained please attach a copy. Where a licence has not been obtained, include a statement confirming that a licence will be obtained before the extraction and/or usage of water.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<Include text here.>		

Groundwater and drilling investigation activities

Will any water bores be required and/or water investigation activities (e.g. pump testing, water monitoring sites, water storage, turkey nests/dams) be conducted? If yes, describe the water drilling and investigation activities, including site preparation, vegetation clearance, and safety and maintenance requirements.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Any monitoring wells constructed will be used for water testing, water monitoring and pump testing. Suitably licensed and qualified drill contractors (minimum Class 2 drillers) will be used to construct the wells.		
Where significant pumping of water from the aquifer is required to establish the hydrogeological conditions, a water storage pit - Turkeys Nest, will be constructed adjacent to the water bore used for pumping to store the pumped water. The Turkeys Nest will be located to cause the least possible disturbance to existing native vegetation. The dimensions will be roughly 20m x 20m x 2m deep with an approximate ground disturbance area of ~400m ² . The area will have temporary fencing constructed around it. Inclined animal ramps will be included in the construction of the Turkeys Nest to allow animals a means to get out of the water.		
Indicate if well permits have been obtained and whether or not a water extraction licence is required in accordance with the Landscape South Australia Act 2019. If yes, attach a copy of the permit(s)/licences. If no, provide a statement confirming that permits/licences will be obtained prior to commencement of water investigation activities.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Appropriate well permits/licences will be acquired prior to the installation of any monitoring bores		

Water affecting activities

Will any water affecting activities, other than drilling a water well, be undertaken (refer to s. 127 of the Landscape South Australia Act 2019)? If yes, attach a copy of the permit. If a permit has not been obtained, provide a statement confirming that a water affecting activity permit(s) will be obtained and provide a description of the site preparation, vegetation clearance, and safety and maintenance requirements.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<If yes, include text here.>		

Management of hazardous materials

Will activities be conducted in areas of known uranium and thorium mineralisation? If yes, attach a Radiation Management Plan and confirmation of endorsement of the plan by the Environment Protection Authority South Australia (EPA).	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Will any other hazardous material be encountered when exploring in the area? If yes, list the types of hazardous materials and provide a management plan on how these materials will be managed.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<If yes, include text here.>		

Rehabilitation

Detail all the activities and strategies relating to the remediation of all impacts associated with the proposed exploration operations (includes exploration camps and laydown areas, tracks).
Completion of rehabilitation must be achieved within 3 months after the expiry of each program notification.
The following rehabilitation method will be employed for all proposed exploration operations: <ul style="list-style-type: none"> The campsite area will be scarified following camp demobilisation to help combat compaction, and any vegetation moved to facilitate the campsite will be stockpiled and re-spread to promote regrowth. Topsoil stockpiled separately during drill pad construction & re-spread during rehabilitation to promote regrowth. All temporary access tracks will be scarified following completion of field activities, with track entrances bunded off where practical to prevent re-use following rehabilitation. Use existing tracks where possible.

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Detail all the activities and strategies relating to the remediation of all impacts associated with the proposed exploration operations (includes exploration camps and laydown areas, tracks).

Completion of rehabilitation must be achieved within 3 months after the expiry of each program notification.

- Minimise potential for erosion on new tracks by not clearing low shrubby vegetation/grass, before driving over it.
- Removing windrows, restoring original contours, lightly scarify where appropriate; replace topsoil and stockpiled vegetation if required.

State the estimated budget required to rehabilitate all impacted sites.

A value of \$1.50 per metre is allocated during the budgeting process to cover surface rehabilitation activities (hole grouting is included as part of the drilling metre rate). Boss Energy own the necessary machinery (backhoe and scarification equipment), so the surface rehabilitation budget is designed to cover the cost of labor to operate the machinery and fuel. An estimated rehabilitation budget will be provided during each Program Notification phase.

Vegetation Clearance

Will any area of cleared native vegetation be unrehabilitated after the authorised period?

Yes ☐

No ☒

If yes, provide a map and description of the vegetation present in the application area, the extent of any proposed vegetation clearance and the likelihood of the presence of threatened flora.

State the estimated quantum of significant environmental benefit (SEB) to be gained in exchange for the proposed native vegetation clearance and describe how the SEB will be provided.

<Include text here.>

SECTION E – LEASE CONDITIONS

Retention leases

Where the retention lease includes specific conditions that are not environmental outcomes, demonstrate where these have been addressed in the PEPR (if relevant) or demonstrate how otherwise they have or will be complied with.

<Include text here.>

SECTION 6 – MANAGEMENT OF ENVIRONMENTAL IMPACTS

Use the table below (instructions provided) to identify all of the potential environmental, social and economic impact events that are likely to occur as a result of the proposed exploration operations, how each of the identified impacts will be managed, and the residual risk, i.e. the level of risk remaining after implementing control and management strategies. Identified potential impact events should be developed based on the aspects of the environment that may be impacted on and the proposed operational details. Potential impact events must have corresponding outcomes and measurement criteria.

Where the terms and conditions of an RL include environmental outcomes, list them (where different) in the table below and complete all sections (receptor, potential impacts, control strategies, risk assessment and measurement criteria).

Environmental management – potential impacts/events, outcomes, measurable criteria and monitoring plan

			Likelihood of consequence (LH)				
			1	2	3	4	5
			Rare	Unlikely	Possible	Likely	Almost certain
Severity of consequence (CQ)	A	Insignificant	Low	Low	Low	Low	Low
	B	Minor	Low	Low	Moderate	Moderate	Moderate
	C	Moderate	Moderate	Moderate	High	High	High
	D	Major	High	High	Extreme	Extreme	Extreme
	E	Catastrophic	High	Extreme	Extreme	Extreme	Extreme

How to fill out the table

- Based on the description of the environment and exploration operations, indicate which potential impacts are applicable to the proposed program. Note that some potential impacts are applicable to all programs.
- For each applicable potential impact (and corresponding receptor), describe control strategies that will reduce the risk of the potential impact to an acceptable level, and achieve the corresponding environmental outcomes.
- Conduct an impact assessment to determine if the control strategies address the potential impact (i.e. reduce the risk to an acceptable level). Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level.
- For each applicable potential impact, the corresponding outcome and outcome measurement criteria are required.
- Based on the description of the environment and proposed exploration activities, determine if any other potential impacts are applicable. For each new potential impact, describe proposed control and rehabilitation strategies, conduct an impact assessment, and develop corresponding outcomes and outcome measurement criteria.

Use the above matrix to conduct an impact assessment for each potential impact.

Impact assessment							Outcomes	Outcome measurement criteria (inc. monitoring plan)
Receptor Lists are not exhaustive.	Potential impacts Lists are not exhaustive.	Is the potential impact applicable (Yes/No) Some potential impacts are applicable to all programs.	Control strategies Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level. – refer to Minerals Regulatory Guidelines MG22 for more information.	Risk assessment LH = likelihood of consequence CQ = severity of consequence				
				LH	CQ	Risk		
Stakeholders: <ul style="list-style-type: none">freehold land ownersperpetual lease holderspastoral lease holdersAboriginal land (Anangu Pitjantjatjara Yankunytjatjara and Maralinga Tjarutja lands)Department of Defencestate government departments.local government (councils)federal governmentnative title parties.	Interference to: <ul style="list-style-type: none">existing or permissible land use (includes loss of income, noise, dust, light and other emissions).buildings, structures, existing tracks or other infrastructure.aesthetic values of an area. Noncompliance with legislative requirements.	Yes (Applicable to all programs.)	Control strategies will include: <ul style="list-style-type: none">Commencing early consultation with Pastoral Lease holders, relevant Native Title parties and other relevant stakeholders via phone, email and/or face-to-face meetings to discuss scope of planned programs and ascertain any concerns or issues.All relevant Native Title parties are informed of planned exploration activities and aboriginal heritage surveys are carried out in areas where no previous heritage clearances have been completed.Ongoing communication with Pastoral Lease holders regarding program progress and any issues that may arise.The Geology Manager will act as the designated point of contact for resolution of any issues, etc.Vehicle speed limits will be imposed to reflect local road conditions and the proximity to any infrastructure or livestock.Enforce speed limits, supply maps and use high visibility flagging tape to clearly mark gates & fences.Limit movement of heavy vehicles as much as practically possible.	2	B	low	Stakeholders are fully informed and satisfied with the proposed methods used to conduct exploration activities on their land, and all prescribed forms are served and agreements obtained in accordance with the Mining Act.	Provide the information requested within the 'Complaints' section of the annual exploration compliance report demonstrating that all reasonable complaints from stakeholders are resolved to the satisfaction of both parties prior to and ongoing during the course of exploration program, without the involvement of DEM. Provide the information requested within the 'Landowner details and liaison' section of the annual exploration compliance report demonstrating that prescribed forms were served and agreements obtained in accordance with the Mining Act prior to the commencement of exploration activities.
Stakeholder: DEW	Interference to: <ul style="list-style-type: none">existing or permissible land use.buildings, structures, existing tracks or other infrastructure.aesthetic values of an area. Noncompliance with legislative requirements.	No (Applicable to programs located adjacent to or within parks and reserves.)	<If the potential impact is applicable, list the control and rehabilitation strategies>				For activities located within or adjacent to regional reserves, national, conservation and marine parks only: <ul style="list-style-type: none">no unauthorised interference with park management activities.	Provide confirmation that: <ul style="list-style-type: none">Park access notification forms were submitted to DEW and DEM at least 10 days prior to entry into regional reserves, national, conservation and marine parks, orProgram notifications for PEPRs approved for an ongoing period of time, were submitted to DEW and the DEM at least 21 days prior to entry into regional reserves, national, conservation and marine parks.

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Impact assessment							Outcomes	Outcome measurement criteria (inc. monitoring plan)
Receptor Lists are not exhaustive.	Potential impacts Lists are not exhaustive.	Is the potential impact applicable (Yes/No) Some potential impacts are applicable to all programs.	Control strategies Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level. – refer to Minerals Regulatory Guidelines MG22 for more information.	Risk assessment LH = likelihood of consequence CQ = severity of consequence				
				LH	CQ	Risk		
Flora and fauna and their habitats; includes Commonwealth and state scheduled species.	Loss/modification of native vegetation and associated habitats through the clearance of vegetation.	Yes (Applicable to exploration programs located within or impacting on native vegetation.)	<ul style="list-style-type: none">Staff inductions outlining appropriate work practices.Clearing of understory vegetation and mechanical clearing of tracks will be avoided wherever possible.If new tracks are required they will be sited to avoid vegetation removal as much as possible and will pass around larger trees.Access tracks/drill sites planned in a manner that avoids significant vegetation.No significant vegetation (e.g.trees & shrubs) cleared during program.Drill sites will only be cleared if necessary and pads will not exceed dimensions specified for the applicable drilling technique in the “drill site preparation” section of this EPEPR.Progressive rehabilitation works will restore land to a stable condition that will facilitate land use consistent with that established prior to implementing the exploration program of work. Remediation works will promote natural regeneration of vegetation.	2	C	moderate	No permanent loss/modification of native flora and fauna populations and their habitats through: <ul style="list-style-type: none">clearancefireother unless prior approval under the relevant legislation is obtained.	Maintain before, during and after photographic evidence of all exploration sites (e.g. drillsites, new track exit/entry points off existing tracks, costeans, campsites) demonstrating that: <ul style="list-style-type: none">The area and method of disturbance is consistent with that described in the PEPR.No uncontrolled fires* occurred as a result of exploration activities. Representative photos to be included within the annual exploration compliance report.
All flora and fauna, especially listed species.	Loss/modification of the environment (biological, social and economic) through the introduction of weeds and pathogens.	Yes (Applicable to all programs.)	<ul style="list-style-type: none">Ensure vehicles are clean & free of weeds prior to entering site.Personnel will be inducted in requirements in relation to management of weeds and wasteVehicle hygiene logs will demonstrate that all vehicles are clean and free of plant and mud material before entering properties associated with exploration activity.Vehicles are washed before entering new sites where the risks warrant it (i.e. between exploration areas of different weed profiles; or where surveys indicate potential risk; or if there are specific landholder concerns).Vehicle hygiene kits (containing brush, gloves and waste disposal bag) will be made available to vehicles that are moving to/from the exploration project area.	2	B	low	No introduction of new species of weeds and plant pathogens, nor increase in abundance of existing weeds species.	Provide a statement within the ‘Compliance with approved programs’ section of the annual exploration compliance report, confirming that: <ul style="list-style-type: none">Vehicle logs were kept during the exploration program, demonstrating that all vehicles are clean and free of plant and mud material prior to entering properties[†] within the tenement areas, unless otherwise agreed to with the relevant landowners.Photographic evidence before and during exploration operations and after rehabilitation of disturbed sites was captured, demonstrating that no new weeds and plant pathogens were introduced, nor an increase in abundance of existing weeds recorded.
All fauna	Entrapment of fauna through open drillholes and excavations.	Yes (Applicable to exploration programs that involve drilling and/or require excavations.)	<ul style="list-style-type: none">Collars will be securely capped immediately after exploration and investigative drilling is completed.Any surface casings will be cut off below ground level and holes grouted to surface once field survey and any planned down-hole surveys are complete.Sumps will be constructed with a sloping ingress/egress to prevent fauna from falling into the sumps.Windrows will also be established around the sumps to deter fauna from congregating around the sumps and potentially falling in.	2	B	low	No fauna traps created as a result of exploration activities.	Maintain before, during and after photographic evidence of all drillholes and/or excavations demonstrating that: <ul style="list-style-type: none">All drillholes were permanently or temporarily capped/plugged immediately upon completion.No fauna and livestock became trapped in drillholes and/or excavations throughout the duration of the program.All rehabilitation was completed within 3 months of expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised. Representative photos are to be included within the annual exploration compliance report. Provide the information requested within the ‘Rehabilitation’ section of the annual exploration compliance report.
Aboriginal heritage sites	Disturbance to Aboriginal heritage.	Yes (Applicable to all programs.)	<ul style="list-style-type: none">Proposed exploration activities will only be undertaken in areas cleared by Native Title claimants of those areas.Staff/contractors will be made aware of all exclusion sites during inductions, maps provided.If any artefacts/sites are discovered during the program, work will be halted and the discovery reported. If buried bones are discovered during excavation, all site works will cease and SAPOL will be notified.Significant areas cordoned off with bunting, denying access.	2	B	low	No disturbance to Aboriginal artefacts or sites of significance unless prior approval under the relevant legislation is obtained.	Maintain a database and provide a statement within the ‘Compliance with approved programs’ section of the annual exploration compliance report demonstrating that: <ul style="list-style-type: none">Heritage sites were not impacted during the conduct of the exploration program, unless prior approval was obtained under the appropriate legislation.Work ceased on discovery of a significant site and recommenced only after authorisation.Aboriginal heritage sites identified during the exploration program were appropriately recorded and reported to authorities, if not previously known.
European heritage sites and sites of scientific and environmental significance	Disturbance to European heritage sites and sites of scientific and environmental significance (e.g.	No (Applicable to exploration programs	<If the potential impact is applicable, list the control and rehabilitation strategies>				No disturbance to European heritage sites and to sites of scientific and environmental	Demonstrate no impact to heritage sites and sites of scientific and environmental significance by:

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Impact assessment							Outcomes	Outcome measurement criteria (inc. monitoring plan)
Receptor Lists are not exhaustive.	Potential impacts Lists are not exhaustive.	Is the potential impact applicable (Yes/No) Some potential impacts are applicable to all programs.	Control strategies Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level. – refer to Minerals Regulatory Guidelines MG22 for more information.	Risk assessment LH = likelihood of consequence CQ = severity of consequence				
				LH	CQ	Risk		
	geological monuments, fossil reserves).	located close to or within European heritage sites and sites of scientific and environmental significance.)					significance unless prior approval under the relevant legislation is obtained.	<ul style="list-style-type: none">Maintaining evidence, including detailed maps showing sites compared to the location of exploration activities, and photographic evidence of sites before and after the conduct of the exploration program.Providing a statement within the annual exploration compliance report confirming sites were not impacted during the conduct of the exploration program.
Soil/vegetation/fauna	Soil/vegetation contamination (e.g. hydrocarbons, rubbish, drill samples/cuttings, ablutions, other sources).	Yes (Applicable to all programs.)	<ul style="list-style-type: none">Pre-start checks (safety and environment) will be undertaken on equipment to identify any leaks.Spill kits kept at drill rig & in exploration vehicles.Fuel storage units appropriately banded (as per EPA 080/07 guidelines).All spills immediately cleaned up & all contaminated soil is removed off site and disposed of at a registered waste management facility.Black water from the exploration camp will be stored in effluent holding tanks and pumped out as required by a licensed operator, which will be then disposed of at an approved site.Grey water (i.e kitchen and ablutions) will be conveyed to a suitably constructed earth drain to allow rapid infiltration to the soil and minimize the area required. Where possible, only natural/biodegradable detergents will be used in the kitchen and ablutions facilities.Bulka bags used to contain rubbish and removed as required to an appropriate waste transfer area or disposal site (eg Yunta).Excess drill cuttings replaced down hole or buried in adjacent mud pits and covered by at least 1m of compacted soil.Regional radiation baseline measurements established prior to program commencing.Radiation monitoring of each drill site before site preparation, during drilling and following rehabilitation.	2	B	low	No contamination of soil and vegetation as a result of exploration activities.	<p>Demonstrate that all domestic or industrial waste (includes general rubbish and hydrocarbons) is disposed of in accordance with the <i>Environment Protection Act 1993</i> within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), and that all fuel and chemicals are stored in accordance with EPA requirements, by providing:</p> <ul style="list-style-type: none">The name, location and contact details of the authorised waste disposal facility.A statement within the ‘Compliance with approved programs’ section of the annual exploration compliance report confirming domestic and industrial waste was removed from all exploration sites and disposed of at an authorised waste disposal facility.Photographic evidence within the annual exploration compliance report demonstrating that all fuel and chemical storage facilities were managed in accordance with EPA requirements. <p>Maintain photographs of all exploration sites and provide representative photos within the annual exploration compliance report demonstrating that drill cuttings are:</p> <ul style="list-style-type: none">removed from site and disposed of at a licensed facilityburied under a minimum of 30 cm of soil, or in accordance with EPA guideline, Radiation protection guidelines on mining in South Australia: mineral exploration, available on the EPA website, orbackfilled down the drillhole, within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised. <p>Provide the information requested within the ‘Rehabilitation’ section of the annual exploration compliance report.</p>
Soil	Disturbance to the soil profile and topography, and accelerated soil erosion caused by exploration activities (e.g. construction of sumps, new tracks and drill pads; ground compaction at laydown areas and camps).	Yes (Applicable to all programs.)	<p>Disturbance to the soil profile is minimised/managed in the following ways:</p> <ul style="list-style-type: none">Driving in the field restricted to existing and temporary access tracks and drill pads.Areas of likely compaction (i.e access tracks, drill pads and camp site) are scarified following program completion.Topsoil/vegetation is stockpiled separately during site preparation activities & re-spread following rehabilitation to promote regrowth.Where possible, access tracks are planned to follow topographic contours rather than cut across them, in order to prevent potential channeling and scour erosion in the event of heavy rainfall.	2	B	low	Where soil disturbance occurs as a result of exploration activities, ensure that: <ul style="list-style-type: none">topsoil quality and quantity is maintainedthe soil profile and topography is reinstated to original conditionsthere is no accelerated soil erosion.	<p>Maintain before, during and after photographic evidence of all excavations, drillsites, camps, laydown areas and new tracks demonstrating that:</p> <ul style="list-style-type: none">The soil profile and topography is reinstated to original conditions and is consistent with natural surroundings within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised.Where required, sufficient topsoil is removed (depending on soil profile), stored separately from subsoil and reinstated (in the correct order) within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised.There are no signs of accelerated soil erosion during and post rehabilitation of disturbed sites. <p>Representative photos to be included within the annual exploration compliance report.</p> <p>Provide the information requested within the ‘Rehabilitation’ section of the annual exploration compliance report.</p>

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Impact assessment							Outcomes	Outcome measurement criteria (inc. monitoring plan)
Receptor Lists are not exhaustive.	Potential impacts Lists are not exhaustive.	Is the potential impact applicable (Yes/No) Some potential impacts are applicable to all programs.	Control strategies Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level. – refer to Minerals Regulatory Guidelines MG22 for more information.	Risk assessment LH = likelihood of consequence CQ = severity of consequence				
				LH	CQ	Risk		
Surface water	Alteration to surface water – interference to surface drainage.	No (Applicable to exploration programs that are likely to impact on surface drainage channels.)	<If the potential impact is applicable, list the control and rehabilitation strategies>				No permanent modification to hydrological features caused by exploration activities without obtaining a water affecting permit from the relevant Landscape Board (under Landscapes Act SA 2019).	Provide before, during and after photographic evidence within the annual exploration compliance report demonstrating that original drainage contours (watercourses and lakes) are consistent with the natural relief post rehabilitation within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period). Alternatively, provide copies of water affecting permits within the annual exploration compliance report.
Groundwater/aquifer	Groundwater contamination: <ul style="list-style-type: none">contamination of aquifers through entry of pollutants from the surfaceinterconnection between aquifersdegradation of natural hydrostatic conditions (maintain pre-drilling pressures).	Yes (Applicable to all exploration programs that may intersect groundwater.)	<ul style="list-style-type: none">All drillholes grouted no later than five (5) days after completion to ensure aquifers remain isolated, and will be abandoned in accordance with Earth Resources Information Sheet M21 guidelines.Ensure drilling operations keep clear of existing water bores.Use of an appropriately licensed driller, appropriate well construction materials/methods and most importantly well decommissioning methods..No large quantities of fuels or chemicals to be stored on site.Collars will be securely capped immediately after drilling is completed if drill holes are required for further surveys.Typically existing rotary mud holes cannot be converted to monitoring bores unless it is pre-planned to happen immediately upon completion, as the soft sediment will have collapsed within 3-5 days. Temporary casing can be installed to maintain aquifer isolation, however normal practice is to either pre-plan a bore location or drill a new hole from scratch rather than use a pre-existing hole.	2	B	low	Drillholes restored to controlling geological conditions that existed before the hole was drilled or, where it is intended to re-enter the hole, the hole must be completed with casing of adequate strength and the casing cemented so that all aquifers are isolated to prevent the movement of any fluids behind the casing.	Maintain evidence demonstrating that drillholes are decommissioned in accordance with Earth Resources Information Sheet M21, Mineral exploration drillholes – general specifications for construction and backfilling , and/or specific conditions from DEW (Groundwater) within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised. Provide the information requested within the ‘Groundwater’ section of the annual exploration compliance report.
Soil/vegetation/fauna	Discharge of groundwater into the surrounding environment.	Yes (Applicable to all exploration programs that may intersect groundwater or where activities require the discharge of groundwater into the surrounding environment.)	<ul style="list-style-type: none">Typically, one sump is adequate for rotary mud drilling. However, provision is made in drill pad design/footprint for a second sump to be constructed if required. This may be for diamond coring/RC drilling, deeper rotary mud drill holes or to contain any groundwater discharge.If required, drilling operations will cease to ensure no groundwater discharges beyond the drill pad.Where additional hydrogeological testing of aquifer characteristics is required (i.e pump testing), a water storage pit - Turkeys Nest, will be constructed adjacent to a water bore planned for pump testing activities requiring discharging groundwater to the surface. The Turkeys Nest will be roughly 20m x 20m x 2m deep and located so as to cause the least possible disturbance to existing native vegetation.	2	B	low	No discharge of groundwater outside of the exploration site (e.g. drillsite) into the surrounding environment and no discharge of water into a watercourse, unless prior approval under the relevant legislation is obtained.	Maintain photographic evidence of all drillsites demonstrating that groundwater was not discharged into the surrounding environment, unless water affecting activity permits were obtained allowing the discharge of groundwater into watercourses and/or lakes. Representative photos and water affecting activity permits (where applicable) to be included within the annual exploration compliance report.
Groundwater users	Interference to existing water users when extracting water from existing dams, water bores or mineral drillholes.	Yes (Applicable to all exploration programs that may require the use of water from existing dams, water bores or mineral drillholes.)	<ul style="list-style-type: none">Maintain appropriate consultation with Landowner on the use of existing water sources.Ensure drilling operations keep clear of existing water bores.Use of appropriately licensed driller and appropriate well construction materials/methods.Drilling water (if required) to be obtained from existing pastoral lease bores in accordance with the quantities specified by the pastoral lessee and any DEW/NRM Board licence	2	B	low	No public nuisance impacts resulting from the extraction of water for exploration purposes, unless prior approval under the relevant legislation is obtained.	Provide the information requested within the ‘Complaints’ section of the annual exploration compliance report demonstrating that all reasonable complaints from stakeholders were resolved to the satisfaction of both parties, prior to and ongoing during the course of the exploration program without the involvement of DEM. Where permits are required for the extraction and/or usage of groundwater, provide copies of the licence or permit within the annual exploration compliance report.
Soil/vegetation/fauna	Degradation of rehabilitated access tracks caused by third party access (includes previously closed and rehabilitated access tracks).	Yes (Applicable to exploration programs that create new access tracks.)	<ul style="list-style-type: none">Use of existing tracks were possible.Minimise potential for erosion on new tracks by not clearing low shrubby vegetation/grass, before driving over it.Complete rehabilitation of new tracks as per best practice model – e.g. removing windrows, restoring original contours, scarify temporary access tracks to eliminate compaction, replace topsoil and stockpiled vegetation if required, bund/restrict access to rehabilitated tracks where possible.	2	B	low	Rehabilitated access tracks remain permanently closed, unless prior approval under the relevant legislation is obtained.	Maintain before and after photographic evidence demonstrating that all tracks are closed and rehabilitated within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised. Representative photos are to be included within the annual exploration compliance report.

Exploration PEPR application – ongoing

Impact assessment							Outcomes	Outcome measurement criteria (inc. monitoring plan)
Receptor Lists are not exhaustive.	Potential impacts Lists are not exhaustive.	Is the potential impact applicable (Yes/No) Some potential impacts are applicable to all programs.	Control strategies Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level. – refer to Minerals Regulatory Guidelines MG22 for more information.	Risk assessment LH = likelihood of consequence CQ = severity of consequence				
				LH	CQ	Risk		
			<ul style="list-style-type: none">Audits of the rehabilitated areas will be performed post-closure to ensure that all areas have been mapped, recorded and adequately rehabilitated.					Provide the information requested within the 'Rehabilitation' section of the annual exploration compliance report.
Community/landowners	Damage to infrastructure and loss of income through fire.	Yes (Applicable to all programs.)	<ul style="list-style-type: none">Compliance with AS 5062-2006 - Fire protection of mobile and transportable equipment.Contact list on site at all times, listing Emergency Contact phone numbers.Hot work banned on days of “Extreme” Fire Danger Ratings within the North East Pastoral district.The storage of flammable material will be undertaken in accordance with Australian standards and EPA Guidelines.Portable fire extinguishers to be located at drilling site, and within vehicles.Hot works permits (internal management tool) will be required for activities such as welding, grinding, oxy cutting – i.e. firefighting provisions will be installed.Fire suppression units will be fitted to large plant such as the drill rig.	2	B	low	No loss of infrastructure or income through fire as a result of exploration activities.	<p>Provide a statement within the 'Compliance with approved programs' section of the annual exploration compliance report confirming that no uncontrolled fires* occurred.</p> <p>Alternatively, provide a report on the independent investigation of all uncontrolled fires* demonstrating that the licensee could not have reasonably prevented the fire through the implementation of precautionary measures.</p>
General public	Injury or death to members of the public as a result of exploration activities.	Yes (Applicable to all programs.)	<ul style="list-style-type: none">Ensure activities are clearly sign postedLandowner to be informed of activities and relevant safety measures.Ensure speed limits are adhered to.It is noted that exploration will take place in a remote region, public interaction would be rare.Only inducted personnel who have direct need to be in the work area of drilling rigs or other heavy equipment will be permitted in close proximity to the operations.At drill sites near major access tracks to the stations, a physical barrier (e.g. safety fencing, bunting or line of traffic cones) will be established around the entire site.An exclusion zone will be delineated at all drill sites via the drillers entry warning"sign.Drill crew members will be notified to keep an eye out for any approaching members of the public.Any visitors to the drilling operations will undergo a visitors induction and will be required to be accompanied by a fully inducted staff member.Warning signs, highlighting the hazards of drilling operations will be erected around the drill site.All drill holes will have casing removed or cut off below the ground in line with DEM Guideline M21 “Mineral Exploration Drill holes - General Specifications for Construction and Backfilling”. Should casing be required to be left temporarily above ground (e.g. for down hole survey, monitoring water levels etc.), then casing will be securely capped immediately, and cutting and rehabilitation completed when no longer required.Where practical the start of new access tracks coming off existing tracks will be doglegged and blocked at the entrance to reduce visibility and prevent third party access.Open excavations will comply with SafeWork SA requirements.	2	C	moderate	No accidents involving the public that could have been reasonably prevented by the licensee.	<p>Provide a statement within the 'Compliance with approved programs' section of the annual exploration compliance report confirming no accidents occurred involving the public during and after the exploration program.</p> <p>If an accident involving the public did occur, provide a copy of the independent investigation report within the annual exploration compliance report demonstrating that the licensee could not have reasonably prevented the accident through the implementation of precautionary measures.</p>
General public, employees, contractors and the environment	Contamination of the environment when exploring for known uranium and thorium deposits. Public and employee/contractor exposure to low level radiation.	Yes (Applicable to exploration programs located within known uranium or thorium deposits.)	<ul style="list-style-type: none">The company will ensure that exploration activities are undertaken in accordance with the SA Government's (EPA) Radiation protection guidelines on mining in South Australia: Mineral exploration.Radiation monitoring of each drill site before site preparation, during drilling and following rehabilitation.If background radiation levels of the samples are found to be significant, advice will be sought from the company's Radiation	2	B	low	No increase in background radiation levels, and employee/contractor exposure levels during the exploration program are within safe limits.	<p>Maintain a database and provide a statement within the 'Compliance with approved programs' section of the annual exploration compliance report demonstrating that:</p> <ul style="list-style-type: none">Radiation levels post exploration and rehabilitation are consistent with pre-existing background levels.Employee and contractors exposure levels were within safe limits during the exploration program.

Exploration PEPR application – ongoing

Impact assessment							Outcomes	Outcome measurement criteria (inc. monitoring plan)
Receptor Lists are not exhaustive.	Potential impacts Lists are not exhaustive.	Is the potential impact applicable (Yes/No) Some potential impacts are applicable to all programs.	Control strategies Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level. – refer to Minerals Regulatory Guidelines MG22 for more information.	Risk assessment LH = likelihood of consequence CQ = severity of consequence				
				LH	CQ	Risk		
			<p>Safety Officer who will determine the appropriate levels and strategies to be applied</p> <ul style="list-style-type: none">Employees/contractors will be made aware of any risks involved with working with radioactive minerals and will be given steps to minimise their exposure.Workers will change out of work clothing at the end of their shift. Shower and laundering facilities are provided.Liquid waste in mud pits will be allowed to dry out and be covered by at least 1m of compacted soil.Solid cuttings will be returned to the drill hole or buried in adjacent mud pits and covered by at least 1m of compacted soil.The Boss Energy Exploration Radiation Management Plan details important control strategies to ensure that employee/contractor exposure levels during the exploration program are within appropriate limits, i.e. dust emissions, hygiene aspects, sample handling, etc.					
Other (if applicable)								

* Uncontrolled fires = fires that escape outside of the work area (e.g. drillsite).

† Properties = freehold (cropping and grazing land); perpetual/pastoral lease land; council land; regional reserves; national, conservation and marine parks; Aboriginal land; Commonwealth land etc.

SECTION G - OPERATOR CAPABILITY

Provide information demonstrating that the tenement holder and operator (where applicable) has the capability to conduct the program in a manner that consistently ensures ongoing achievement of the environmental outcomes. This may be demonstrated within the PEPR by providing an overview of the following:

- Manuals or standard operating procedures that outline the safe and environmentally sound operation of all critical operations associated with the exploration program that ensure compliance with the PEPR.
- Systems in place to monitor, audit and assess compliance against the criteria approved in the PEPR.
- Systems in place to identify and report any noncompliance with regulatory requirements or relevant environmental outcomes (e.g. measures in place to report incidents in accordance with regulation 79(3)).
- Practices and procedures in place to provide appropriate communication of regulatory requirements to employees and contractors (e.g. induction programs).
- Practices and procedures in place to respond to, and communicate with landowners and external parties on the proposed program and compliance matters (e.g. complaints)

Applicable Boss Energy Policies & Procedures for this EPEPR application include the following:

EXPL001 – Exploration OHSEC Management Plan

- This document describes the processes that will be implemented throughout exploration programs to comply with Boss Energy Workplace Health and Safety Policies.

EXPL002 - Exploration Radiation Management Plan (ERMP)

- Boss Energy's exploration radiation management plan identifies the specific radiological risks associated with uranium exploration project work, and details how these risks will be managed by Boss Energy's personnel and contractors. This ERMP is designed to apply to any exploration activities within the Boss Energy Exploration Licences and/or Retention Leases that may contain an inherent radiological risk, and is based on the EPA approved Radiation Management Plan developed for the Honeymoon Mine.

EXPL003 – Exploration drill site preparation & rehabilitation

- This document provides guidelines regarding drill site preparation and rehabilitation methods to ensure compliance with Boss Energy & statutory requirements. This includes requirements for photo monitoring and surface radiation monitoring.

EXPL004 – Cultural heritage & community management

- This document outlines the company's responsibilities and requirements with regards to preserving cultural heritage, and maintaining positive working relationships with all key stakeholders.

EXPL005 - Program notification & Notice of Entry (NOE) requirements

- This document outlines the company's requirements with regards to statutory and stakeholder exploration program notifications, along with maintaining the "Stakeholder Engagement Register" which is a record of all key stakeholder correspondence.

SECTION H –ADDITIONAL INFORMATION

List any other supporting information and/or documents submitted with the application, including land access approvals/permits required to conduct the proposed exploration program.

<Include text here.>

- that have been obtained during site visits
- that help describe relevant environmental and operational aspects in the PEPR.

Site identification	Date taken	Photo number & PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Details and Comments
P0013	07/11/2021	Photo2	467244	6490017	54	Example of landscape at temporary camp location & Brooks Dam area



Exploration PEPR application – ongoing

Site identification	Date taken	Photo number & PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Details and Comments
P0064	08/11/2021	Photo1	470059	6497954	54	Example of landscape at Jason's South.



SW W NW
0 240 270 300 330

☀ 281°W (T) ● 54 S 470059 6497954 ±5m ▲ 91m

Before photo
Boss Energy Ltd

P0064
08 Nov 2021, 12:38:22

SECTION J – MAPS

Provide a map(s) showing the following information that is located adjacent to or within the proposed area of operations, where applicable:

- tenement boundaries,
- cadastral information,
- existing surface contours,
- existing vegetation,
- location of the proposed exploration operations (includes drillholes, existing and new access tracks, drill traverses, campsites, laydown areas and other applicable information) and/or the target exploration area(s),
- location of existing ephemeral and permanent rivers, creeks, swamps, streams or watercourses and water management structures,
- location of towns, houses and homesteads, existing roads, rails, fences, transmission lines, buildings, dams and pipelines
- known sightings of listed species,
- location and extent of all environmentally sensitive areas,
- any relevant land use types (e.g. parks and reserves, Aboriginal freehold land, Woomera Prohibited Area).

All maps and sections must conform to the standards outlined in the Exploration PEPR Terms of Reference.

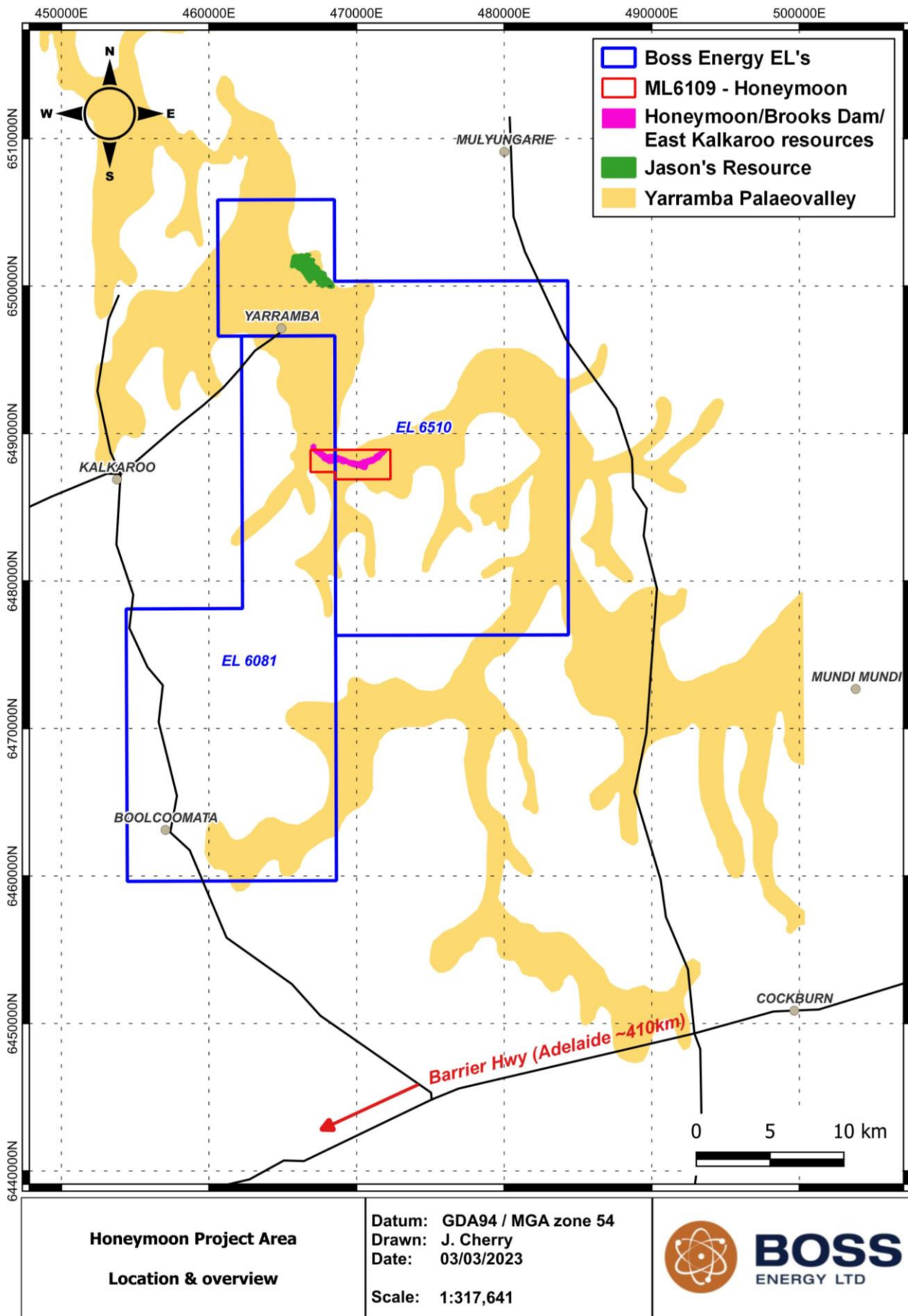


Figure 1. Honeymoon project location & overview.

Exploration PEPR application – ongoing

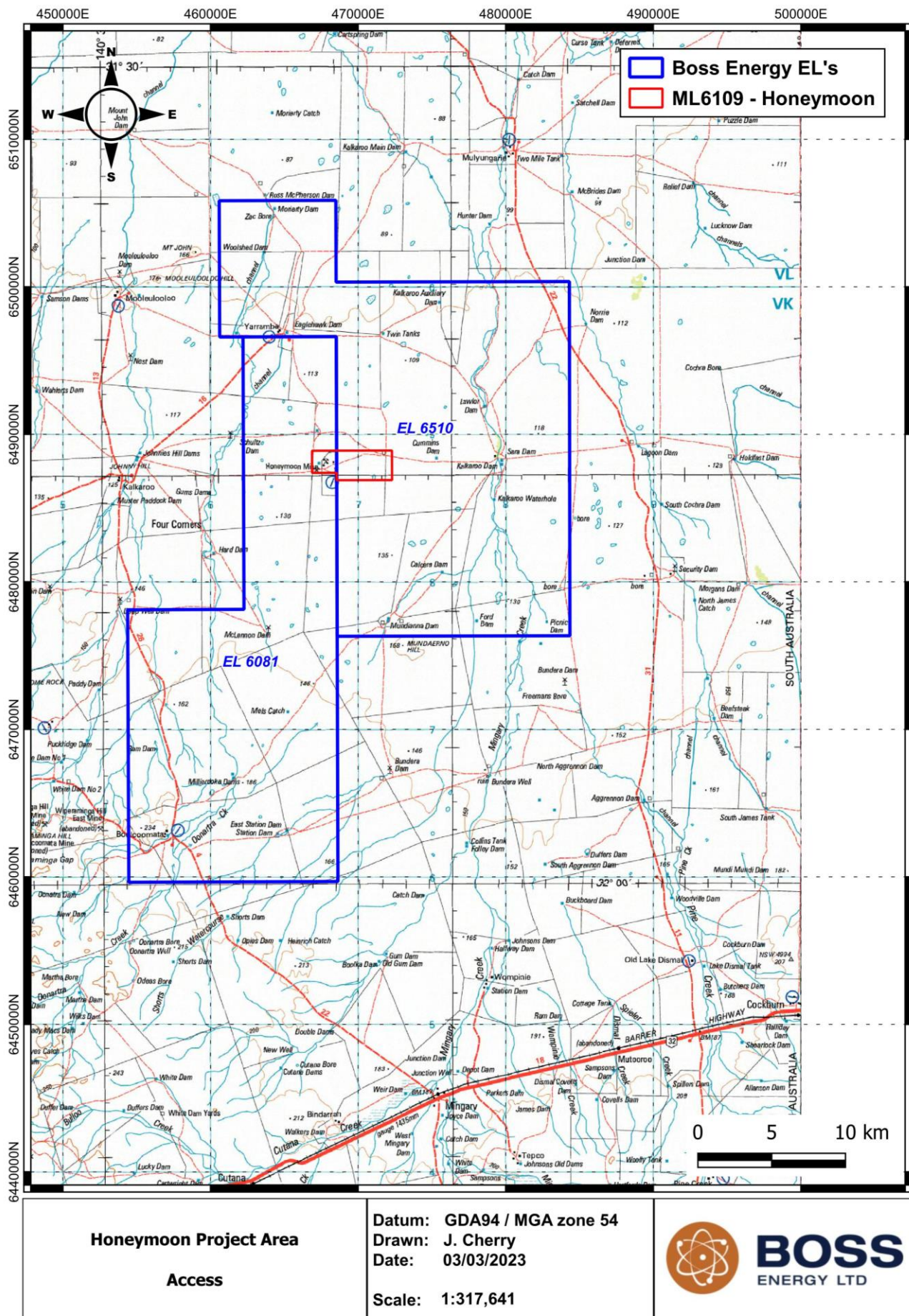


Figure 2. Honeymoon Project access.

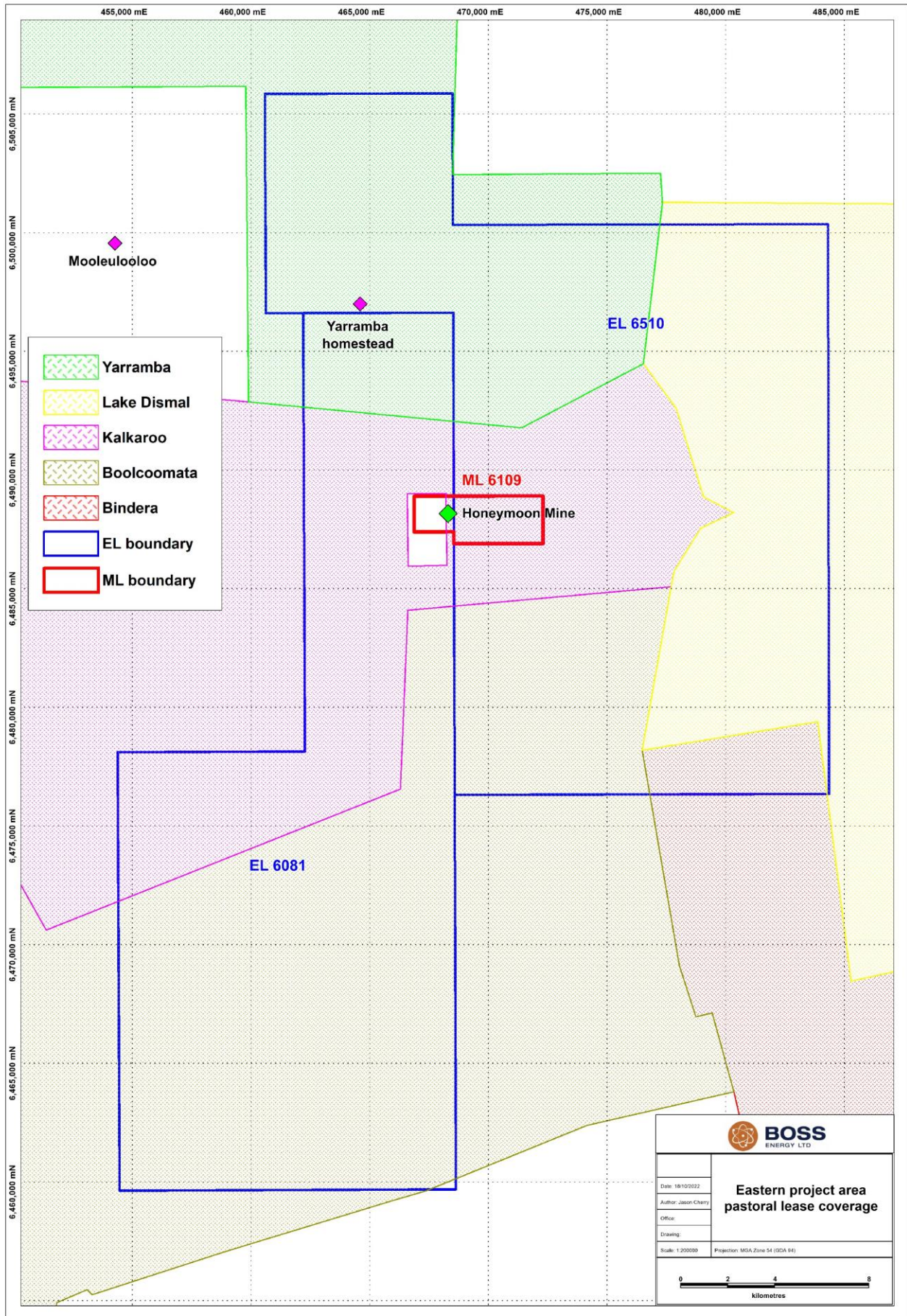


Figure 3. Honeymoon Project – pastoral lease coverage.

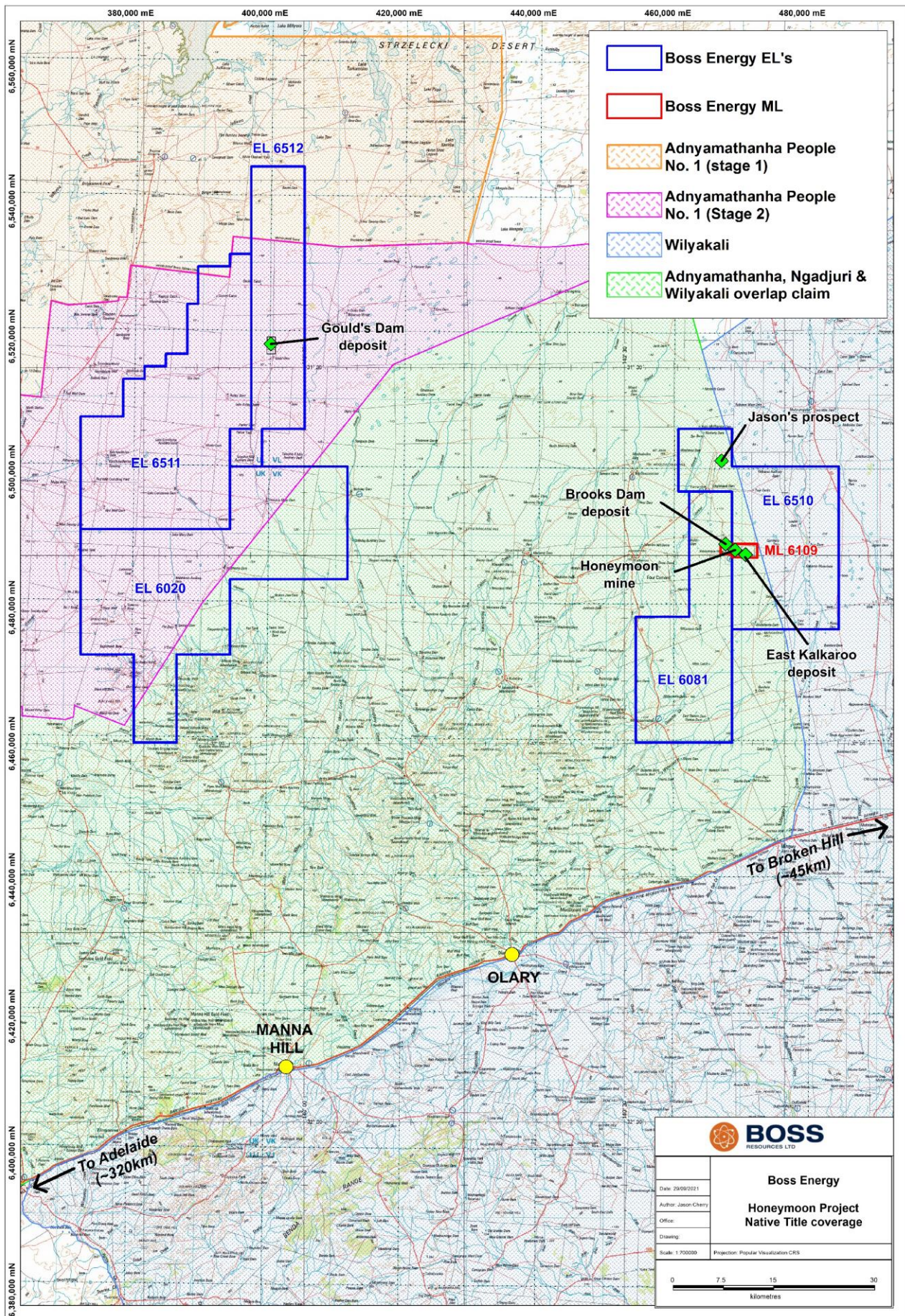


Figure 4. Honeymoon Project – native title coverage.

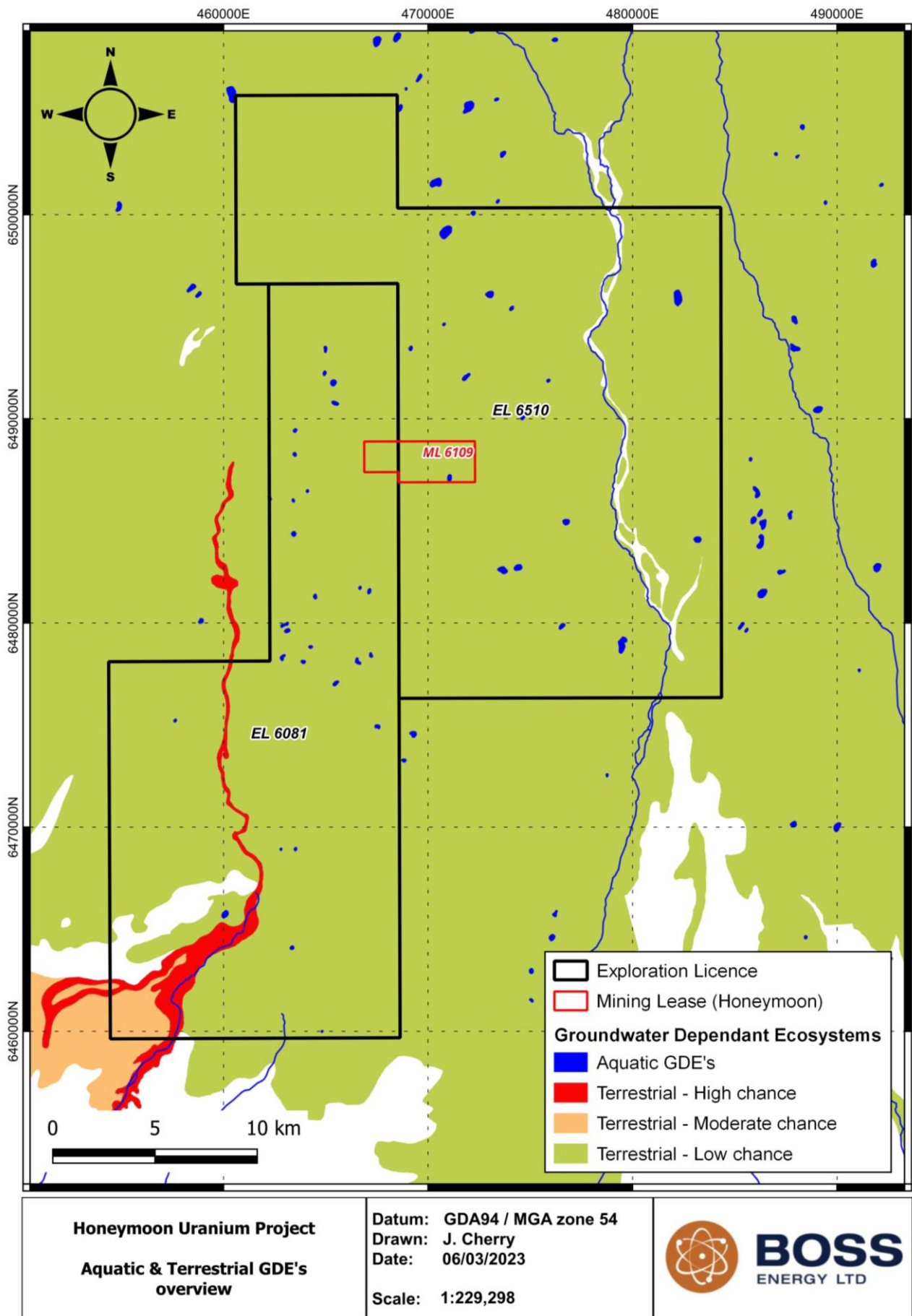


Figure 5. Honeymoon Project - Groundwater Dependant Ecosystems (GDE's).

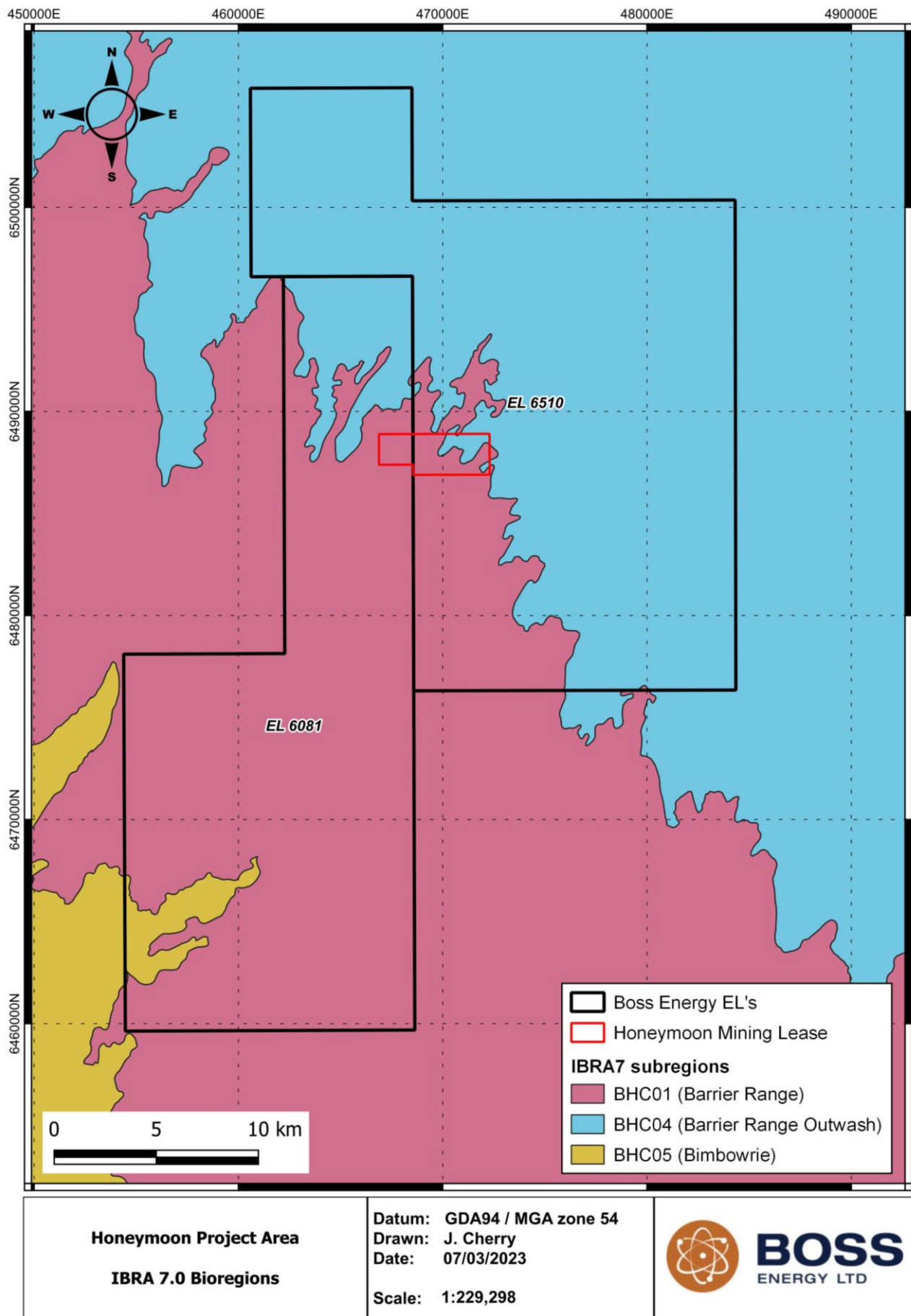


Figure 6. Honeymoon Project – IBRA Bioregions overview.

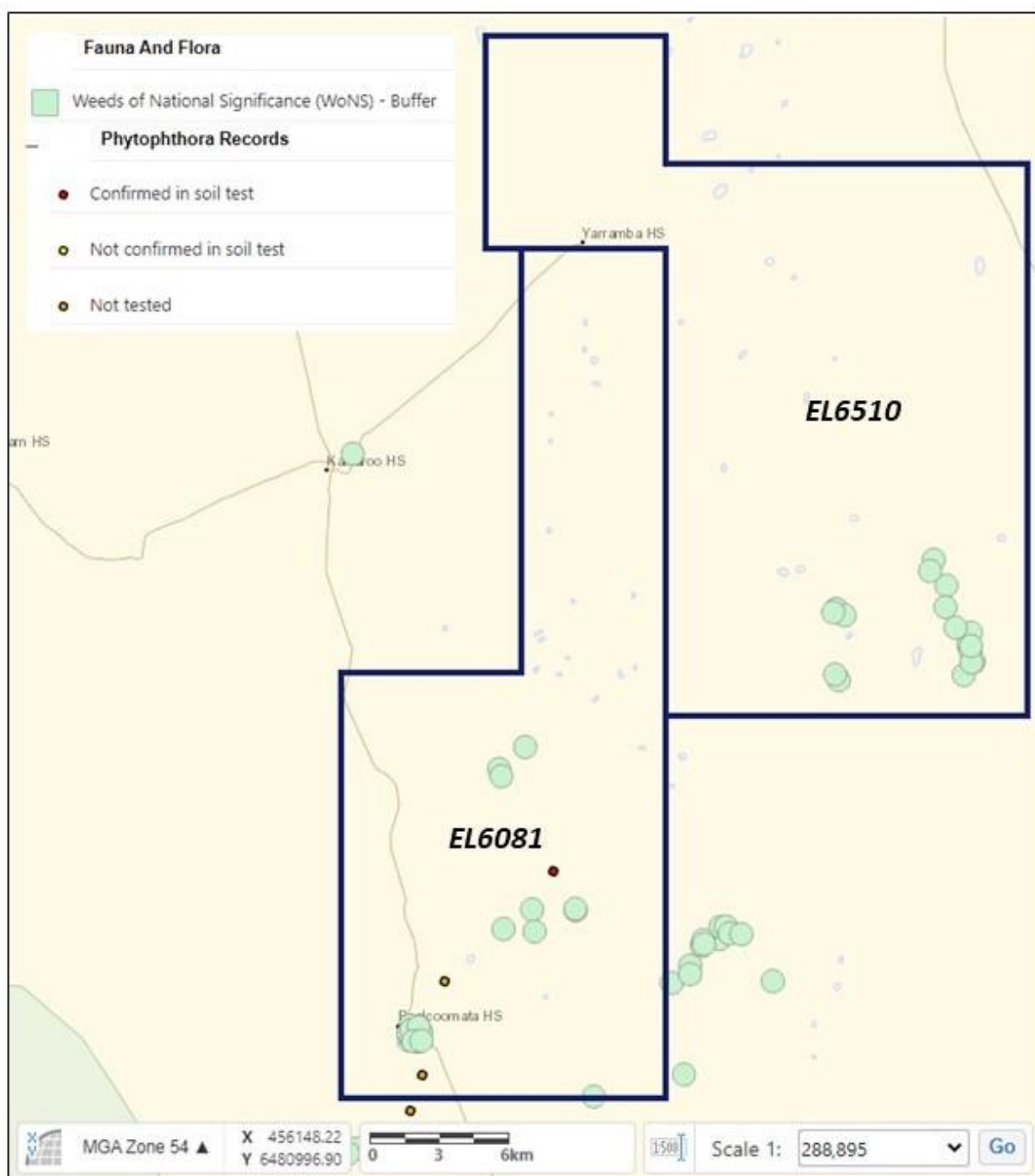


Figure 7. Honeymoon Project – weeds & pathogens.

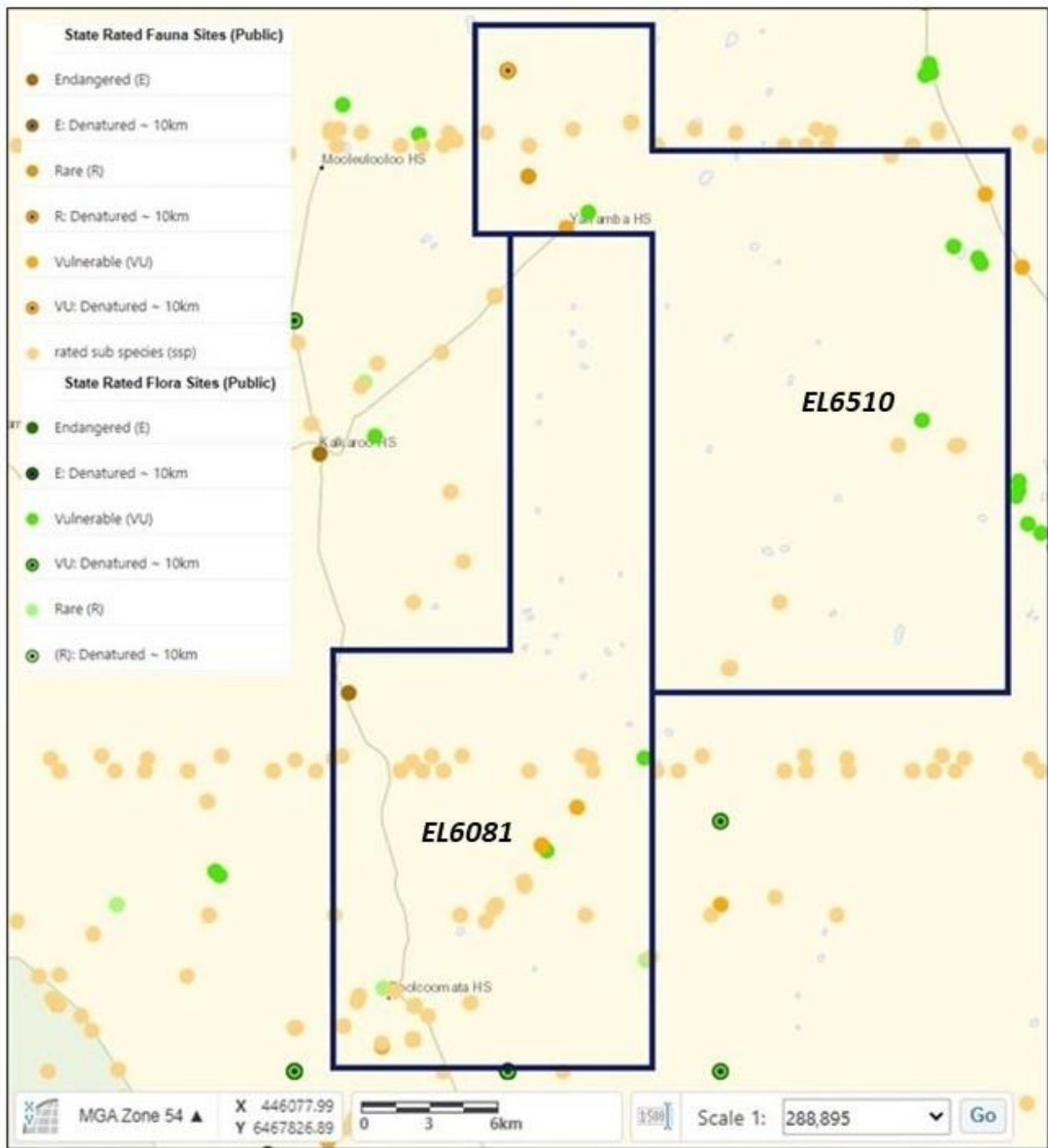
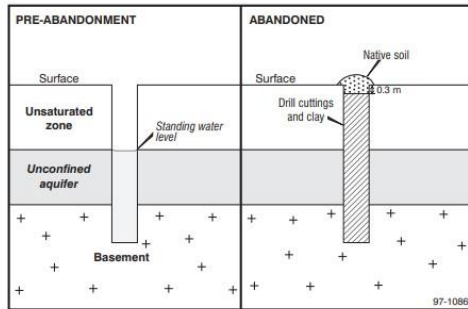


Figure 8. Honeymoon Project – flora & fauna overview.

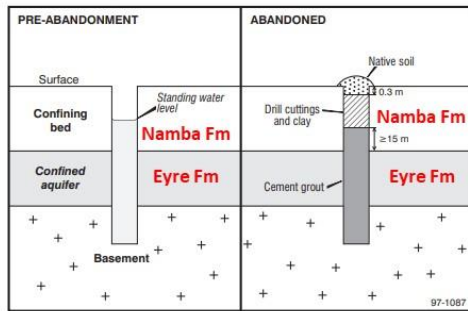


Figure 9. Honeymoon Project – temporary exploration camp location.



Unconfined aquifer example:

- No confined aquifers (i.e Eyre Formation) encountered.
- Most likely during base metal exploration using RAB, aircore or RC drilling methods.
- Back-fill with drill cuttings and/or excess subsoil from excavations.



Confined aquifer example:

- Confined Tertiary aquifers within the Eyre Formation should be encountered during palaeochannel uranium exploration drilling.
- Drilling methods typically restricted to rotary mud and sonic coring.
- Drill holes must be grouted from EOH to surface (or at least ~15m into the overlying lacustrine Namba Formation).

Figure 10. Example of drill hole decommissioning.

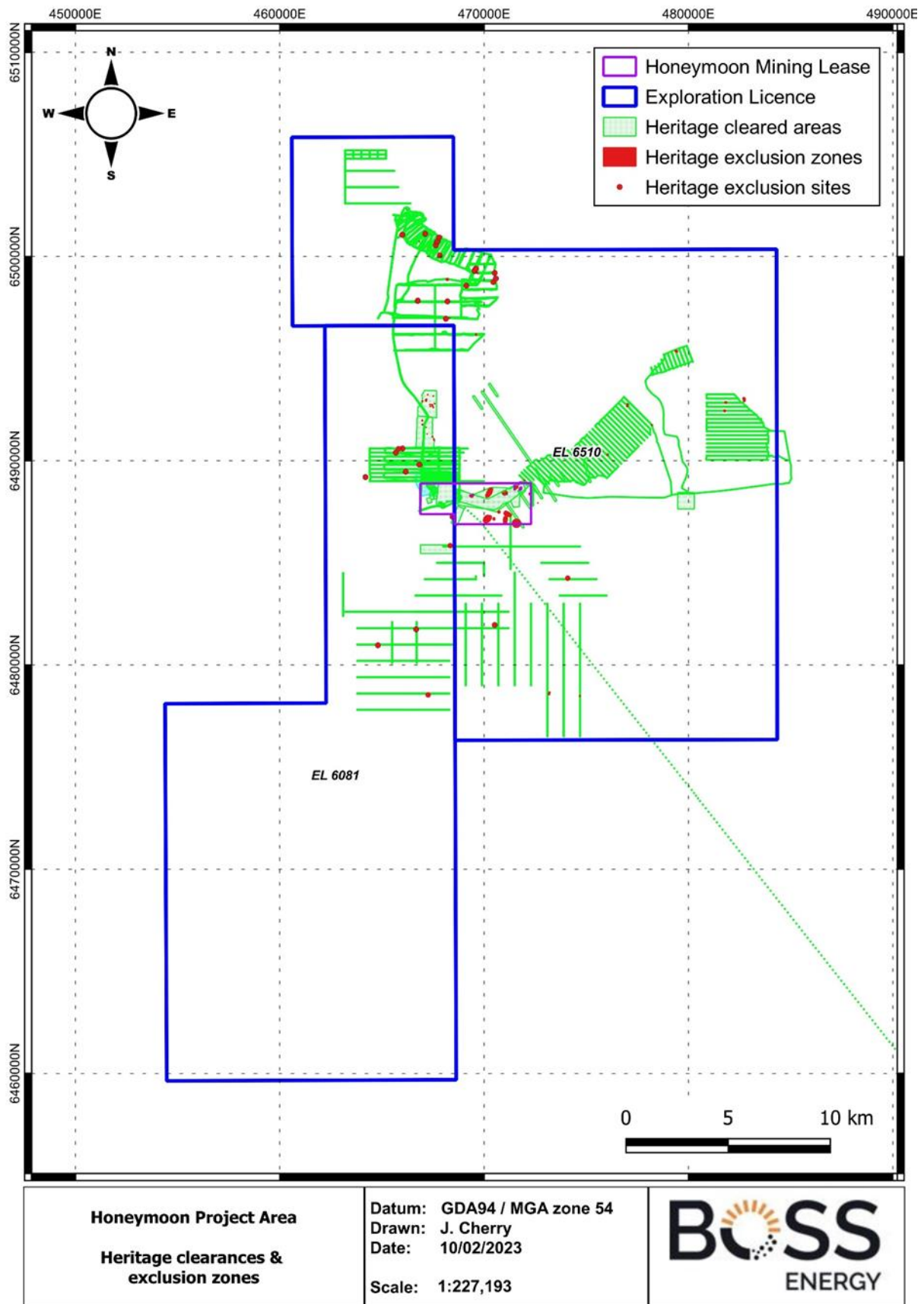


Figure 11. Clearance and exclusion zones from aboriginal heritage clearances.

SECTION K – PUBLIC RELEASE

PEPR documents will be registered on the mining register and publicly released in full without the need to request consent from the tenement holder(s). Ultimately, it is the applicant's responsibility to ensure that confidential, or commercially sensitive, information is not included within the PEPR application.

SECTION L – SUBMISSION OF THE APPLICATION

An application for an Exploration PEPR or PEPR review, must be submitted in the following form, unless otherwise specified by the Director of Mines or an authorised officer:

- an electronic version of the PEPR must be submitted using the exploration PEPR template(s) provided on the DEM Minerals website,
- the electronic version must be submitted online through the DEM Minerals website using the exploration PEPR submission form,
- the electronic version must be submitted in one single Acrobat PDF file, and
- Microsoft Word-compatible files must be submitted if requested by the Director of Mines (or delegate), or other authorised officers.

Exploration Radiation Management Plan (ERMP)

Eastern & Western Project Areas

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Bibliographic Data Sheet

Project Name: Eastern & Western project areas

Tenement Number: EL6510, EL6511, EL6512, EL6020, EL6081, RL83-85

Tenement Operator: Boss Uranium Pty Ltd

Author: Jason Cherry (Geology Manager)

Date of Report: 19/04/2023

Document ID: EXPL002 – Exploration Radiation Management Plan

Revision History			
<i>Date</i>	<i>Version</i>	<i>Summary of Change</i>	<i>Author</i>
15/09/2021	1	Initial draft version	Jason Cherry
25/11/2021	2	Updated following internal review	Jason Cherry
19/04/2023	3	Minor revisions to Sections 3, 4 & 5	Jason Cherry

1 Introduction

Boss Energy's exploration radiation management plan identifies the specific radiological risks associated with uranium exploration project work, and details how these risks will be managed by Boss Energy's personnel and contractors. This ERMP is designed to apply to any exploration activities within the Boss Energy Exploration Licences and/or Retention Leases (Figure 1) that may contain an inherent radiological risk.

This management plan is based largely on practices employed at the Honeymoon Mine, which have been tailored to suit the exploration environment, and has been developed to ensure legislative compliance in line with the Radiation Protection and Control Act 2021, associated Regulations and the guidance provided by the "*Radiation protection guidelines on mining in South Australia: Mineral Exploration*" 2010.

1.1 Roles & Responsibilities

Role	Position	Responsibility
Designated Exploration Radiation Safety Officer	Supervising Exploration Geologist	<ul style="list-style-type: none"> Ensure all personnel involved in the exploration program have adequate training and understanding of the radiation hazards, required control measures. Ensure compliance of the exploration program with the Exploration Program for Environment Protection and Rehabilitation (E-PEPR) and the Exploration Radiation Management Plan (ERMP). Ensuring all records are collected and retained and reporting is carried out in line with the specifications of the ERMP.
Exploration Program Personnel		<ul style="list-style-type: none"> Comply with all requirements set out in the ERMP.

1.2 List of Equipment/Consumables

The following is a list of equipment and consumables to be used for radiation management:

- Personal radiation monitoring devices (e.g., OSL monitor);
- Gamma ray scintillometer (RS-125 scintillometer or similar);
- Surface contamination meter (e.g., a Ludlum 2401-EC survey meter or similar);
- Secure storage containers (if radioactive sample storage is required);
- Waste drums or bags for storage of low level radioactive waste.
- Gloves;
- Dust masks (minimum standard P2 or N95);
- Hand wash (Solvol or similar);
- Dangerous Goods labels for sample shipping (Class 7);
- Hazardous Material placards for use on vehicles.
- Pressure washer.

1.3 Related Documentation

EXPL001 – Exploration HSEC Management Plan

EXPL003 – Cultural Heritage & Community Management

EXPL004 – Program Notification & Notice of Entry (NOE) Requirements

EXPL005 – Exploration Drill Site Preparation & Rehabilitation

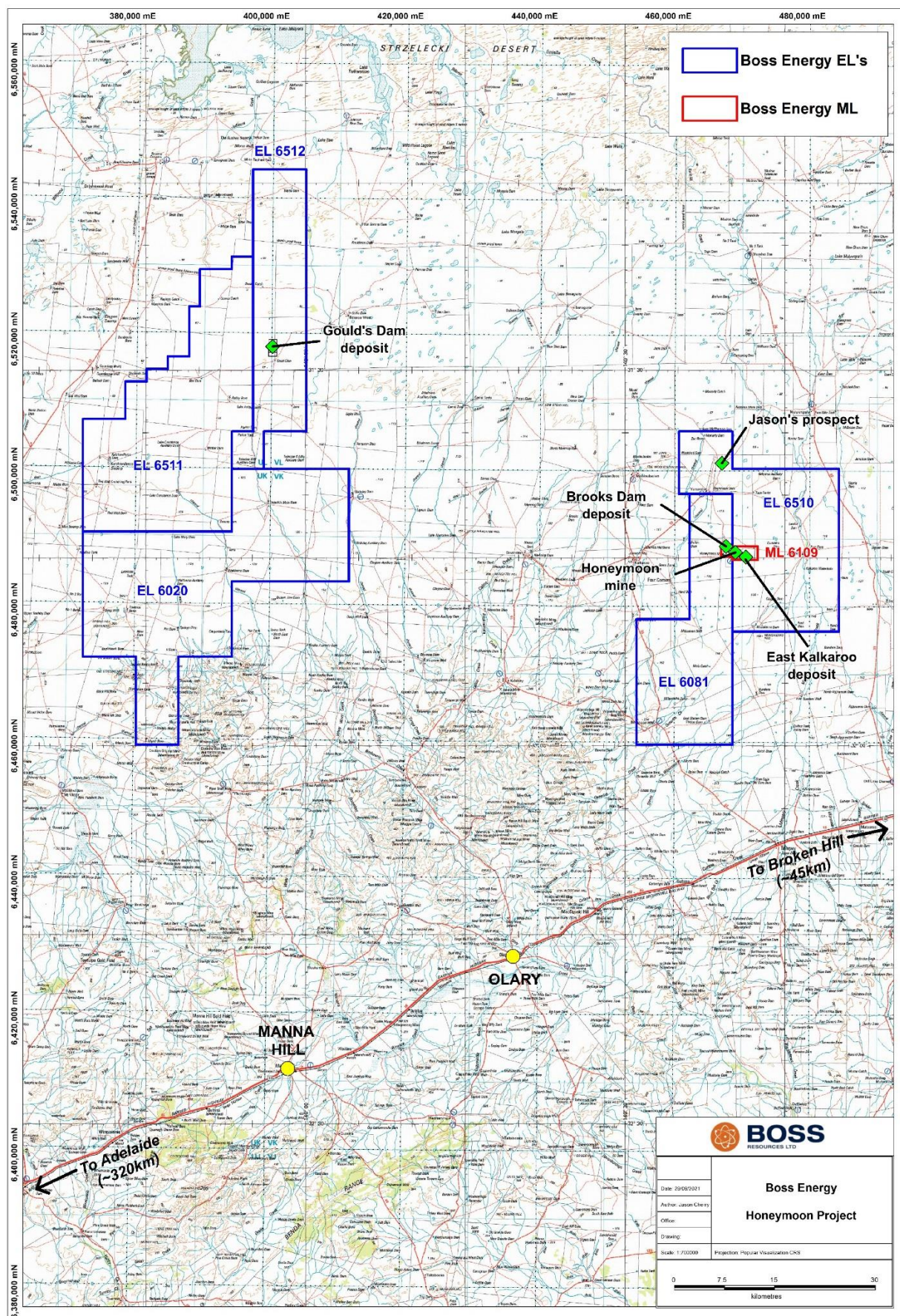


Figure 1. Overview of the Boss Energy tenure in South Australia.

2 Radiation Sources & Exposure Pathways

2.1 Key Radiation Sources

The key radionuclide sources, concentrations and potential exposure pathways associated with proposed uranium exploration activities are provided in Table 1 below.

Exploration Activity	Component Inputs and & Radionuclide Concentrations	Exposure Sources & Source Locations	Potential Pathways
Prompt fission neutron (PFN) Logging	PFN logging tool (111 GBq)	<ul style="list-style-type: none"> Tritium within the PFN is encapsulated; only damage or malfunction of the unit when energised can result in neutron emissions. 	<ul style="list-style-type: none"> Neutron exposure to logging personnel if the PFN tool malfunctions, is operated above ground, or environmental contamination if the source leaks.
Well drilling/development	Native Groundwater (Rn-222, Ra-226).	<ul style="list-style-type: none"> As groundwater brought to the surface during drilling and development activities, radon and radon decay products are released. 	<ul style="list-style-type: none"> Inhalation of atmospheric radon decay products during drilling and well development.
	Ore zone sediment samples can contain autunite (hydrated calcium uranyl phosphate $\text{Ca}(\text{UO}_2)_2(\text{PO}_4)_8\text{H}_2\text{O}$, coffinite, uranium bearing silicate $\text{U}(\text{SiO}_4)_{1-x}(\text{OH})_{4x}$ and uraninite (UO_2). Calibration sources.	<ul style="list-style-type: none"> Uranium decay chain radionuclides in minerals are present in sample chips collected on the ground during drilling (for geological logging) and are collected in sumps as waste sediments during drilling. Sediments can result in surface contamination and can become an inhalation risk if the sediments are allowed to dry out and become airborne. 	<ul style="list-style-type: none"> External gamma dose from close contact with radionuclide rich sample material, radioactive sources, and/or waste materials. Internal inhalation and ingestion through airborne particulates (dust) created during the drilling program, dusting of sample material left to dry on the ground surface, and hand to mouth contact from particulates present on the surface of drilling equipment, samples and other work materials. surface contamination. Internal inhalation of radon decay products where sample are stored, analysed or logged in poorly ventilated areas.
Hand-held XRF	X-Ray tube	<ul style="list-style-type: none"> X-Ray generator at front of machine, activated when trigger is engaged. 	<ul style="list-style-type: none"> Exposure to X-Ray generator when trigger is engaged. Back scatter during use when sample material is not held close or in

Exploration Activity	Component Inputs and & Radionuclide Concentrations	Exposure Sources & Source Locations	Potential Pathways
			contact with the machine.

Table 1. Key radionuclide sources associated with exploration activities.

2.2 Radiation Exposure Pathways & Management

Radiation exposure pathways during exploration activities can be broadly divided into:

- External Radiation Exposure – Gamma Rays
- Internal Radiation Exposure – Ingestion and/or inhalation of long and short lived long lived alpha particulates.

2.2.1 Limiting External Radiation (Gamma) Exposure

Key methods to limit exposure to external radiation sources involve the principals of time distance and shielding, which include (Figure 2):

- Limiting unnecessary time spent near radioactive sources, mineralised samples or waste materials.
- Increasing the distance between workers and stored mineralised samples or waste materials.
- If significant mineralisation present, use non-radioactive sample material for shielding over radioactive samples.

Personnel will be trained on these principals during exploration induction programs, which will also include specific advice as to how to apply them in the exploration setting.

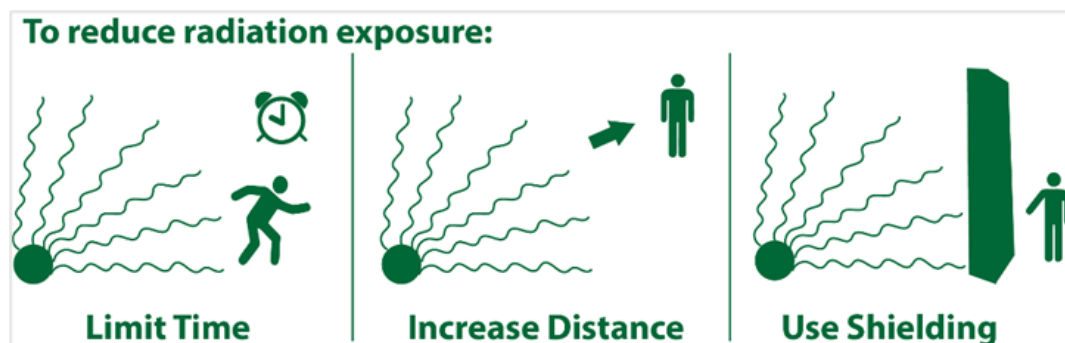


Figure 2. Principals of Time, Distance & Shielding.

2.2.2 Limiting Internal Exposure (Radioactive Dust & Radon Decay Products)

Limiting internal exposure to radioactive dust and radon decay products during the exploration programs is primarily managed using appropriate personal protective equipment (PPE) and personal hygiene procedures, which are described below. The key objective of these controls is to prevent unnecessary inhalation of radioactive particulates and minimising any ingestion from hand to mouth contact.

Handwashing provisions will be provided at designated locations, enabling all personnel to abide by mandatory handwashing prior to eating, drinking or smoking, thereby minimizing

ingestion of radioactive particulates. Solvol hand wash will be provided to all field crews to enable good hygiene when working away from the mine site or temporary field camp.

All site employees will be required to change out of work clothing at the end of their shift to ensure radioactive contamination is not spread into non-work areas, with shower and laundry facilities provided on site. All work areas and work equipment will also be regularly cleaned to prevent any accumulation of dust or mud.

Surface contamination meters will be available for personnel assess the presence of radiological contamination:

- In work and living areas.
- On hands and clothing.
- On, work tools, equipment, and vehicles.

Dust masks will be used when handling radioactive samples or cutting core if there is potential for exposure to inhalable dust in the process (masks are not required during wet mud drilling).

Gloves and appropriate protective work clothing will be worn when using drilling equipment and handling mineralised samples to minimize both skin contamination and spread of radioactive contaminants to non-work areas and ingestion of the particulates through hand to mouth contact.

2.2.3 Anticipated Dose Rates

The results of personal radiation monitoring, and associated dose assessments carried out at the adjacent Honeymoon Uranium mine for exploration and wellfield construction, can provide indicative maximum dose rates per quarter for the main exposure pathways; gamma irradiation, and inhalation of long and short lived alpha.

- Gamma dose rates would not be predicted to exceed the minimum reported dose for the ARPANSA issued personal gamma dosimeters (<0.1 mSv).
- Short lived alpha (radon decay products) would not be predicted to exceed <0.05 mSv
- Long lived alpha (airborne dust) typically result in a dose rate less <0.05 mSv.

3 Pre-Drilling Requirements

The following section outlines the processes that need to occur prior to the commencement of an exploration drilling program within Boss Energy tenure.

3.1 Radiation Induction & Training Requirements

In line with the South Australian Radiation Protection and Control Act, personnel who use or handle radioactive materials, operate ionising radiation apparatus (i.e., the Boss Energy Olympus Delta portable XRF unit), or possess a radiation source are required to hold an appropriate radiation licence with the South Australian EPA. Evidence of these licences should be provided to the supervising geologist prior to mobilisation.

All personnel involved in an exploration program will receive a radiation specific induction and training program before the exploration program commences. This training program will provide detailed, exploration specific information on:

- Potential radiation sources.
- Risks posed by radioactive materials.
- Mandatory procedures to minimise their exposure and ensure compliance.
- Waste management requirements.
- Incident and emergency response protocols for radiation incidents, inc. steps to be taken in the event of a potential exposure event, and regulatory reporting requirements.

Exploration radiation training provided will be valid for the duration of the defined exploration program or a maximum period of 12 months. All training and induction records will be maintained by the supervising geologist.

3.2 Baseline Gamma Survey – Drill Sites

Sample material and drill sites are routinely monitored using a hand-held gamma dose rate meter to assess gamma radiation levels, with all results recorded in a Radiation Management Log (RML). These pre-disturbance readings can then be compared to the post-rehabilitation readings to ensure no lingering surface contamination is present. Gamma surveys are undertaken at all drill sites:

- Prior to site preparation;
- Post-rehabilitation.

The scintillometer will be calibrated annually, or in line with manufacturer specifications. The results of the calibration and survey results will be maintained by the supervising geologist on behalf of Boss Energy.

Pre-disturbance photographs of the drill site should be taken as per the specific drilling program photograph monitoring requirements (examples in Appendix B).

4 Drilling program requirements

This section outlines the processes that need to be followed throughout the duration of an exploration drilling program within Boss Energy tenure.

4.1 Personal Protective Equipment (PPE)

In addition to standard PPE required for a drilling program, the following items should be available on site specifically for radiation exposure management:

- **Dust masks** – As a minimum, a P2 or PN95 dust mask should be used when handling radioactive samples, cutting core, or other activity where there is potential for exposure to dust in the process.
- **Gloves** – along with appropriate protective work clothing should be worn when using drilling equipment and handling mineralised samples to minimize both skin contamination and spread of radioactive contaminants to non-work areas and ingestion of the particulates through hand to mouth contact.
- **Hand wash** – Solvol or similar for washing potentially contaminated drilling muds off hands prior to eating, drinking etc.

4.2 Personal Radiation Monitoring / Dose Assessments

All personnel involved in geophysical logging utilising a neutron source are required to always wear a neutron Optically Stimulated Luminescence (OSL) dosimeter during work activities. External logging contractors engaged by Boss Energy (e.g., Borehole Wireline) will be responsible for providing suitable monitoring devices to their employees. Staff or contractors engaged to run the Boss Energy logging truck & PFN tools will be provided with an appropriate monitoring device by Boss Energy.

While gamma doses during exploration are unlikely to exceed 1 mSv/year, select site personnel (including geologists, members of the drilling crew, geophysical logging staff and field assistants) who deal with mineralised sample material will be issued OSL dosimeters for the duration of the exploration activities. Issuing of OSLs will be at the discretion of the Supervising Geologist.

Where OSL dosimeters or TLD's are issued by Boss Energy, personnel will be registered with Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) where possible, or full personal details provided to ARPANSA on conclusion of the monitoring period. Dose records will be provided to personnel and kept and maintained by the Boss Energy Supervising Geologist, on the Boss Energy internal document servers. Boss Energy will retain all worker records until such time these records are provided to the South Australian Government.

Monitoring for airborne radioactive dust may also be undertaken if required for specific high-risk tasks, where exposure risks cannot be adequately controlled utilising dust masks. Airborne dust monitoring will be undertaken utilising personal air pumps and analysed by the Honeymoon project Radiation Safety Officer.

All personal radiation exposure monitoring carried out during exploration will be documented with the following:

- Type of measurements made; and
- Times and places at which the measurements were made; and
- Results of the measurements; and
- Details of the instruments and methods used to make the measurements; and

- Details of the calibration of the radiation monitoring equipment used to make the measurements.

Boss Energy will retain all worker records, and not dispose of any records until such time copies of records are provided to the South Australian Government.

4.3 Surface Contamination Monitoring

Routine monitoring of surfaces for radioactive contamination will also be undertaken, with a dedicated exploration surface contamination monitor available during all field programs. This monitor will be used for work area surface contamination assessments, such as checking for surface contamination in vehicles or on work surfaces and for personal hygiene checks such as hands, clothing and footwear. This monitor (eg a Radeye B20 or Ludlum 2401-EC survey meter) will be calibrated annually and managed by the Supervising Geologist.

4.4 Wireline Logging

Only fully licenced and trained staff and contractors are authorised to operate wireline logging equipment when a radioactive source is in use (for example a PFN tool, formation density tool or neutron porosity tool). Employees/contractors who operate wireline logging tools utilising a radioactive source will hold a '*Radiation Use Licence*' authorising the use of the specific equipment.

The Supervising Geologist will ensure all licences and accreditation has been checked prior to any tool operation.

Prior to use or assessment of a radioactive source tool, an exclusion zone of between 15-40 meters will be established by the logging technician signage and or barricading (Figure 3) to ensure there is no authorised or inadvertent access and that any personnel within the area follow the instructions/requests of the logging technician.



Figure 3. Example of logging truck exclusion zone during radioactive source handling.

4.5 Sample Storage During Drilling

All mineralised sample and/or waste materials will be stored away from regularly occupied work or living areas. Samples materials will be stored in well-ventilated areas or containers (where possible), and loose samples will be kept in sealed bags to prevent particulate release/spread. Radioactive sample material will be clearly labelled to ensure they are distinguishable from non-radioactive samples.

4.6 Use of Portable XRF Units

Boss Energy owns an Olympus Delta portable XRF spectrometer which was manufactured in 2014. When in operation, high dosages of gamma radiation are emitted in a narrow cone that focus the X-rays into the sample of interest. If used incorrectly, there is a high risk of exposure to ionising radiation to both the operator and/or bystanders in close proximity.

The portable XRF unit can only be operated by staff who hold a “*Radiation Use Licence*” issued by the South Australian EPA – evidence of this licence should be provided to the supervising geologist prior to the drill program commencing. Staff should have also undergone appropriate training on the correct use of hand-held XRF machines.

4.7 Management of Surface Spills

All groundwater and liquids brought to the surface during drilling activities need to be contained in sumps, with appropriate earthen bunding (where required). If any spills outside this area occurs, the material should be scraped into a sump to enable any material to be covered by a minimum of 1 meter of clean fill.

4.8 Radioactive Material or Source Transport

All radioactive materials transported as part of exploration activities will be undertaken in accordance with the South Australian Radiation Protection and Control Act (2021), associated Regulations, and the associated Federal Code of Practice for the Safe Transport of Radioactive Material (2019).

Sample materials and packaging requirements for samples collected during exploration will be assessed by the supervising geologist on a case-by-case basis to ensure compliance with the Transport Code. Any radioactive sources will be transported in line with associated source transport plans but designated authorised personnel only.

5 Incident Reporting & Management

Any incidents involving radioactive materials during site works or material transport will be formally recorded and investigated as part of Boss Energy's incident management system. Incidents must be reported directly to the supervising geologist, who will then alert senior Boss Energy representatives.

5.1 Regulatory Reporting Requirements

Incidents that meet Schedule 3 of the Radiation Protection and Control Regulation 2022, such as:

- Incidents that cause or may lead to radiation injuries or radiation doses exceeding the annual dose limits to workers or members of the public.
- Loss or theft of radioactive sources or radiation apparatus
- Incidents relating to the transport of radioactive material
- Unintentional or unauthorised discharges of radioactive material into the environment.
- Damage to, or malfunctioning of, radiation apparatus or sealed radioactive source.
- Contamination with, or dispersal of, radioactive material
- Out of control radiation sources

Any regulatory notifiable incident will be reported to the Minister for the Radiation Protection and Control Act 2021 as soon as reasonably practicable (but not more than 24 hours) after it is reported to a Boss Energy representative. Boss Energy will provide a formal written submission to the Minister within 7 day of the incident being reported to Boss Energy.

6 Post Drilling Requirements

This section details the radiation management requirements following the completion of an exploration drilling program.

6.1 Radioactive Waste Management

Drilling muds and water will be contained on the drill pad within appropriately sized sumps (refer to the relevant e-PEPR for details). Any drill cuttings/samples placed on the of the drill pad will be scraped preferentially back into the drill hole, or if this is not possible back into the sumps prior to backfilling and rehabilitation. Sample material must be removed from the surface as soon as sample material has been collected/assessed. Note - any samples returned to the sumps must be emptied out of any sample bags.

Solid wastes generated during exploration potentially contaminated with radioactive particulates (e.g., used PPE, surplus materials and containers/packages) must be treated as low level radioactive waste. These waste materials must be separated from non-contaminated waste, packaged and brought to the Honeymoon mine site, where it will be registered and stored in the designated low level waste storage area.

6.2 Contaminated Equipment Washdown

All equipment and vehicles involved in exploration activities are required to be thoroughly cleaned and decontaminated prior to leaving site. Vehicle cleaning will be carried out at a designated wash bay, with a final inspection required by the supervising geologist prior to leaving site. All water utilised for washing down equipment and vehicles must be directed into a sump to ensure any radioactive sediments are captured and can be backfilled under a minimum of one (1) meter of uncontaminated soil.

Following the decontamination washdown, a surface contamination meter will be used on dry surfaces to verify that surface contamination clearance limits can be met. All vehicles and equipment used during drilling activities must be scanned with a calibrated surface contamination meter (e.g., a Thermo Scientific Radeye). Vehicles or plant may only leave site if the post-clean scan confirms surface contamination is less than 0.4 Bq/cm² in accordance with Radiation Protection and Control Regulations (SA) 2022. All items removed from the exploration stie must be accompanied by a Boss Energy Radiation Clearance Dispatch Certificate (Appendix A).

6.3 Radioactive Sample Storage

Any drilling samples or drill core collected by Boss Energy and kept for future reference must be stored within the designated storage facilities within the 'Supervised Area' at the Honeymoon Uranium Mine site.

If entry into a sample storage container (shipping container) is required, the door of the storage container must be opened & left open for at least five minutes prior to entry, in order to allow any built-up radon gas to dissipate.

6.4 Drill Hole Rehabilitation

Once drilling activities have been completed (including grouting of rotary mud holes) the Ensure all rubbish and equipment has been removed from the drill site (including drill pegs).

- Take a post-drilling photograph of the drill site as per the specific drilling program photograph monitoring requirements (examples in Appendix B).

- Any drill cuttings or remnant grout on the surface should be scraped into the drill sump – this should be completed within 7 days of drill program completion (or as specified in the relevant EPEPR).
- The drilling sump needs to be completely dry prior to being backfilled – sufficient time should be given for all liquid to evaporate. This will help prevent slumping post-rehab.
- Once the liquid has evaporated, the stockpiled subsoil should be back-filled into the sump ensuring a minimum cap of 1 meter is established over the drilling muds and cuttings. If the grout within the drill collar has settled below ground level, it should be topped up to ground level with subsoil.
- The separately stockpiled topsoil and surface material should then be spread across the rehabilitated drill sump and pad.
- Finally, all drill sites and access tracks should be scarified to promote regrowth.

After the drill holes have been rehabilitated and sumps have been backfilled, gamma dose rate surveys will be carried out and recorded in the Radiation Monitoring Log (RML) to ensure the post rehabilitation radiation levels do not exceed background measurements taken prior to site preparation. If measurements taken following rehabilitation exceed the background levels recorded prior to drilling, remedial action of the site will be carried out (i.e., removal of contaminated surface material).

Post-rehabilitation photographs of the drill site should be taken as per the specific drilling program photograph monitoring requirements (examples in Appendix B).

7 Contact Details

Jason Cherry (Geology Manager)

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Tel: 0409 889 985

Email: jason@bossenergy.com

Web: www.bossenergy.com

A. Appendix A – Radiation Clearance Certificate

Radiation Clearance / Dispatch Certificate

Radiation Management System



Date:		Destination:	
Originator:		Attention:	
Authoriser:			

Reason for Dispatch			
<input type="checkbox"/>	Repair/Maintenance	<input type="checkbox"/>	Hire Return
<input type="checkbox"/>	Samples	<input type="checkbox"/>	Recycling
<input type="checkbox"/>	Sale	<input type="checkbox"/>	Other

Origin or Use of Material/Item			
<input type="checkbox"/>	Process Plant (General)	<input type="checkbox"/>	Wellfield
<input type="checkbox"/>	Clean Area Only	<input type="checkbox"/>	Workshops
<input type="checkbox"/>	GRTP	<input type="checkbox"/>	Other

Quantity	Description / Vehicle	Reg. No / Serial No

Radiological Clearance	
Gamma Dose Rate	$\mu\text{Sv h}^{-1}$
Alpha Surface Contamination Level	Bq cm^{-2} (limit 0.4 Bq cm^{-2})

Name:	
Position	
Signature:	

B. Appendix B - Example of Drill Site Photograph Monitoring



Pre-drilling



Post-drilling



Post-rehabilitation

C. Appendix C - Sample Transport Procedures

RADIOACTIVE SAMPLE DISPATCH – EXCEPTED PACKAGES

1. GENERAL

BACKGROUND:	<ul style="list-style-type: none"> This work instruction covers the transport of radioactive samples as 'Excepted Packages', where the contact gamma dose rate on the external surface of the package is less than 5 $\mu\text{Sv/h}$.
REFERENCED DOCUMENTS:	<ul style="list-style-type: none"> Radiation Protection & Control Act 2021 and Regulations Radiation Protection Series C-2 (Rev. 1) Code for the Safe Transport of Radioactive Material, 2019 Edition, ARPANSA. Radiation Protection Series C-2 (Rev. 1) . Excepted Package Warning Label (ERR-FRM-001) Excepted Radioactive Package UN 2910 Certificate (ERR-FRM-002) Boss Energy Chain of Custody (COC) Form for Excepted Packages (ERR-FRM-003)
TOOLS & EQUIPMENT:	<ul style="list-style-type: none"> Calibrated gamma dose rate and surface contamination meters.
TASK PREREQUISITES:	<ul style="list-style-type: none"> Designated Radiation Safety Officer for the site or exploration operation.

2. INSTRUCTIONS

STEP	DETAILED INSTRUCTIONS
1. Sample Preparation & Packaging	1.1. Ensure any liquids are tightly sealed, cleaned and free from any surface contamination. <ul style="list-style-type: none"> Pack all samples inside the box or container. Fill the box/container with vermiculite. 1.2. Ensure any solid materials are sealed properly. <ul style="list-style-type: none"> Pack materials inside a box or drum. Use packing material such as bubble wrap or cardboard to fill the box.
2. Gamma Dose Rate Assessment	2.1. Using a gamma dose rate meter, monitor the gamma dose rate on contact for of all surfaces of the package. <ul style="list-style-type: none"> The dose rate meter should not exceed 5 $\mu\text{Sv/h}$ at any point If a dose rate over 5 $\mu\text{Sv/h}$ is detected, the package cannot be dispatched as an Excepted Package. 2.2. Record the gamma dose rates on the Chain of Custody (COC) Form for Radioactive Excepted Packages (ERR-FRM-003).
3. Surface Contamination Assessment	3.1. Check for non-fixed surface contamination on the surface of the package using the surface contamination meter. 3.2. Surface contamination should be no more than 0.4 Bq/cm ² for alpha and beta emitters. 3.3. Record surface contamination levels on the COC.
4. Documentation	4.1. Place a Radioactive Material Excepted Package warning sign inside each package so it is seen as soon as the package is opened (ERR-FRM-001). 4.2. Fill in an Excepted Radioactive Package UN2910 Certificate (ERR-FRM-002) and take a photocopy for internal records. 4.3. Complete the COC Form (ERR-FRM-003), take a photocopy for internal records.

END OF WORK INSTRUCTION

UN 2910



RADIOACTIVE MATERIAL EXCEPTED PACKAGES

Limited Quantity of Material

DESCRIPTION
OF ITEM(S):

SUBSIDIARY
RISK:

Corrosive (Class 8)	Yes / No
Oxidising Agent (Class 5)	Yes / No
Other (Specify)	

SEND TO:

SENT FROM:

CHAIN OF CUSTODY – RADIOACTIVE SAMPLES

SENT TO:		TOTAL NO. OF SAMPLES	
SENT BY:		DATE SENT:	
DEPARTMENT:		HAZARDOUS MATERIALS:	Y / N
CONTACT PHONE:		RADIOACTIVE / BIOLOGICAL:	
EMAIL RESULTS TO:		RADIOACTIVE CATEGORY:	EXCE / CAT I / II / III

[illegible]



Environment Protection Authority
GPO Box 2607 Adelaide SA 5001
211 Victoria Square Adelaide SA 5000
T (08) 8204 2004
Country areas 1800 623 445

EPA: R 50979

Kathryn Levingstone
Boss Uranium Pty Ltd
email: kathryn@bossenergy.com

Dear Kathryn

RE: APPROVAL OF EXPLORATION RADIATION MANAGEMENT PLAN (ERMP).

I refer to Boss' submission on of an Exploration Radiation Management Plan (ERMP) V3.0, dated 29 September 2022, for the Eastern and Western Project Areas and submitted to EPA on 7 February 2023.

The EPA has reviewed the ERMP (V3.0) and provided comment on 17 April 2023 and notes Boss' inclusion of the majority of the EPA's suggested edits into the ERMP (V3.0) dated 20 April 2023.

The revised ERMP (20 April 2023) adequately addresses the principles of radiation protection and is considered satisfactory. It is understood that the necessary legislated references will be updated by Boss at the next revision of the RMP/RWMP for the Honeymoon site operation.

Approval of the revised ERMP V3.0 (20 April 2023) is granted under clause 2.9.5 of the Code of Practice on Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005) (the Code), subject to the following:

- The EPA is to be provided with an updated RMP/RWMP including updated references to current legislation at the next revision of the RMP/RWMP.

For further information on this matter, please contact me on 0428 115 052 or peter.bond@sa.gov.au

Yours sincerely

Peter Bond

AUTHORISED OFFICER

MINING AND RADIATION

ENVIRONMENT PROTECTION AUTHORITY

Date: 27 April 2023

CC Department for Energy and Mining.