



28 May 2026

Mr Joe Sutanto,
Chief Financial Officer and Company Secretary
Big Lake Uranium Pty Ltd
Level 1, 103 King William Street
KENT TOWN SA 5067

Via email: joes@alligatorenergy.com.au

Dear Mr Sutanto

Notification of Approved Exploration Program for Environment Protection and Rehabilitation (EPEPR) Review

In reference to your final submission dated 16 March 2026, the EPEPR has been approved pursuant to section 70C(5) of the [Mining Act 1971](#) (the Mining Act).

The approved EPEPR will be made publicly available on the Mining Register and the Department for Energy and Mining (DEM) website. Details of the approved EPEPR are listed below.

Approval Granted to	Big Lake Uranium Pty Ltd
Tenement Type & Number	Exploration Licence EL 6367
Program Number	EPR-04054
EPEPR Description	Conduct 50 Rotary mud and 150 AC drill holes (maximum depth of 350m and 200m respectively) at the Big Lake Uranium Project, within a 100 km radius of Innamincka.

You are reminded that you must always implement and comply with this approved EPEPR.

This approval does not constitute endorsement of the systems that you have in place to manage the mining operations in compliance with the Mining Act. Whilst your capability to undertake this activity has been considered in this approval, the responsibility for compliance with the Mining Act always remains with the tenement holder.

The legislative requirements associated with the EPEPR are outlined below, and certain requirements must be actioned prior to commencement of operations authorised by the EPEPR.

1	Public Liability Insurance Pursuant to Regulation 81 of the Mining Regulations 2020 (the Mining Regulations), you are required to provide a copy of a certificate evidencing the insurance coverage over the tenement.
2	Compliance Reporting You are required to submit an annual exploration compliance report. The report is required to be submitted within 2 months after the anniversary of the date the licence was granted, or

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	in accordance with joint reporting requirements agreed to with the Minister. Please refer to the DEM website for more information on the reporting requirements. You are reminded that a separate compliance report is required 2 months after the expiry or surrender of the EL.
3	Protection of Aboriginal sites The <i>Aboriginal Heritage Act 1988</i> protects all Aboriginal sites, objects and ancestral remains throughout South Australia. Under the requirements of that Act, an authorisation may be required to damage, disturb or interfere with Aboriginal heritage, or to excavate for uncovering of an Aboriginal site, object or remains. You are advised to consult with the Attorney-General's Department, Aboriginal Affairs and Reconciliation Division to seek further information regarding Aboriginal heritage matters.
4	EPEPR Timeframe The EPEPR Review is approved for a period of twelve months from the date of this letter. A further 3 months after expiry of the 12-month period is provided to complete all rehabilitation.

Please note, proposed changes to exploration operations stated in the approved EPEPR may require a EPEPR review to be submitted for assessment. Where a EPEPR 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](#).

In addition to the requirements under the Mining Act, you are reminded that your operation will have other legislative requirements that you will need to comply with.

If you have any further queries, please contact DEM staff as below:

General enquiries	Mark O'Brien Senior Assessment Officer, Exploration Regulation DEM.exploration@sa.gov.au
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Yours sincerely

Simon Constable
DIRECTOR, MINERALS REGULATION
In accordance with delegated powers and functions

CC: DEW Drilling Inspector miningwatersciencereferrals@sa.gov.au

The Department's Regulatory Guidelines, Ministerial Determinations and Information Sheets are available at: <https://energymining.sa.gov.au/industry/minerals-and-mining/forms-legislation-and-guidance>

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Tel (+61) 8 463 3000 | ABN 83 768 683 934

Exploration PEPR - EPEPR | 12 Month PEPR Review

Reference Number: EPR-04054 • Status: **Assessment**

Select Applicable PEPR

Previous MERS EPEPR?

☐ No ☒ Yes

Previous PEPR ID

EPR-04006

Search PEPRs

—

Applicant and General Details

Applicant Details

Mandy Slattery

Full Name * Mandy Slattery
Business Phone 0413 857 994
Mobile Phone 0413 857 994
Email * ms@alligatorenergy.com.au (mailto:ms@alligatorenergy.com.au)

Project Supervisor

Ben Williams - Senior Exploration Geologist

bw@alligatorenergy.com.au

0438 760 106

General Details

Tenement Details *

Tenement Type	Tenement Name	Tenement Holder
Exploration Licence	EL 6367	Big Lake Uranium Pty Ltd

Operating Company

Alligator Energy Ltd

If there is another Operating Company, please provide

Account Name	Entity Type	Registered Address	Registered Email
There are no records to display.			

Project/prospect name

Big Lake Uranium Project

Mineral Model

Sedimentary hosted roll-front uranium mineralisation

Primary Commodities *

Commodity Name ↑	Commodity Group	Grade
Uranium	Exploration	

Secondary Commodities

Commodity Name ↑	Commodity Group	Grade
There are no records to display.		

Project Description

The Big Lake project is targeting sedimentary hosted uranium mineralisation. The program is designed to verify and then identify the origin of natural gamma anomalies previously identified in historic oil and gas exploration and production wells. The results of previous drilling have identified several intersections of anomalous uranium occurring in a geological setting that may be a vector for roll-front style sedimentary uranium mineralisation.

Proposed Project Schedule

Start Date

20/03/2026

End date

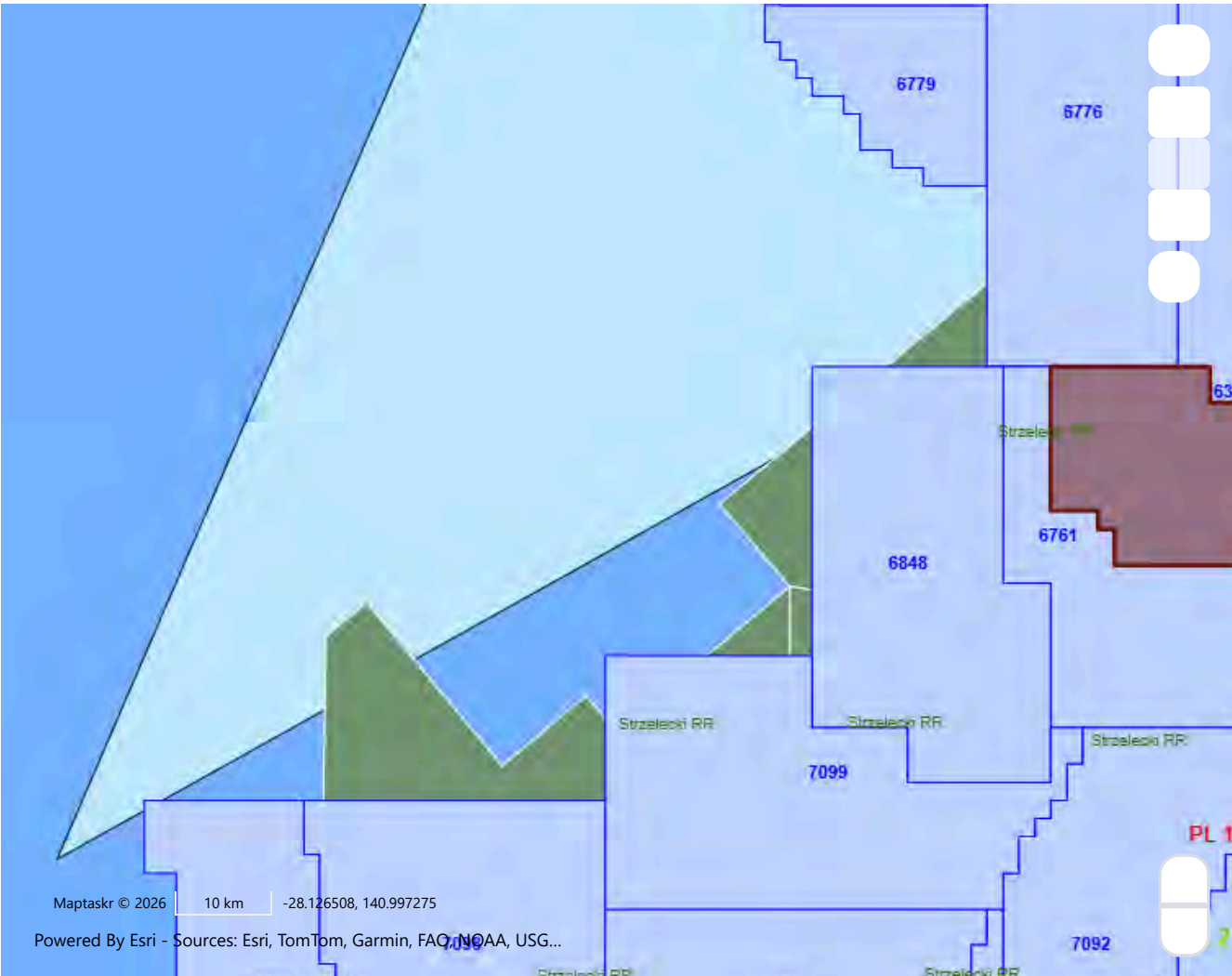
19/01/2027

Clearly describe why a PEPR review is required, summarise all content changes made to the approved PEPR, and provide appropriate justification where a time extension is required.

We request a review of approved EPEPR2024-046/EPR-04006 on EL6367. EPEPR2024-046 was originally approved on 19 February 2025 for a period of 12 months and EPR-04006 was approved a 12-month time extension on 19 January 2026. We request a review of the following:

- Additional option for accommodation during the exploration program being a disused oil/gas drill pad located 2.5km southwest of the Big Lake Gas Satellite Station
- Drilling to be undertaken by a suitably licensed driller, with a Class 2 driller available for consultation if required, to align with current operational experience and requirements.
- An increase in the amount of aircore and mud rotary drillholes.

Identify Application Area



Map Layer Intersects

Application Area Details

Location Description

Merty Merty Area in Cooper Basin - Approximately 20 km south of Moomba (within 100km of Innamincka)

Area (Sqkm)

818.14

Spatial Data Intersects - Summary Table

Show

10

 entries

Search:

Spatial Layer Name	Category	Referral	Intersect Count
1:250K mapsheets	Other		1
Cadastral Parcels	Other		3
Determinations of Native Title	Other		2
Exploration licences (geothermal)	Other		2
Exploration licences (mineral/opal)	No-Go Area		1
Licences, exploration (petroleum)	Other		1
Licences, gas pipeline (petroleum)	Other		534
Licences, liquids pipeline (petroleum)	Other		178
Licences, production (petroleum)	Other		18
Licences, retention (petroleum)	Other		8

Showing 1 to 10 of 18 entries

Previous

1

2Next

Spatial Data Intersects - Details Table

Show

10

 entries

Search:

Spatial Layer Name	Shape	Primary Attribute	All Attributes	Category
1:250K mapsheets	Shape 1	STRZELECKI	View attributes	Other
Cadastral Parcels	Shape 1	D35687AL2026	View attributes	Other
Cadastral Parcels	Shape 1	D35579AL2025	View attributes	Other
Cadastral Parcels	Shape 1	H832400BL505	View attributes	Other
Determinations of Native Title	Shape 1	Dieri	View attributes	Other
Determinations of Native Title	Shape 1	Yandruwandha/Yawar rawarrka Native Title Claim	View attributes	Other

Spatial Layer Name	Shape	Primary Attribute	All Attributes	Category
Exploration licences (geothermal)	Shape 1	GEL 655	View attributes	Other
Exploration licences (geothermal)	Shape 1	GEL 656	View attributes	Other
Exploration licences (mineral/opal)	Shape 1	EL 6367	View attributes	No-Go Area
Licences, exploration (petroleum)	Shape 1	PEL 516	View attributes	Other

Showing 1 to 10 of 1,059 entries

Previous

1

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Next

Program Preparation

Work undertaken in preparing the proposal

New drill targets are being selected and prioritised based upon detailed analysis of past exploration activities in the area, available geological/geophysical datasets and Alligator Energy’s (AGE) most recent drilling programs (2024-2025). This includes:

- Drilling program results and their integration into the AGE mineralisation model, including geochemical, lithological, and redox analyses of downhole data.
- Desktop review of historic petroleum wells, mineral drillholes, gamma logs and seismic data.
- Geological interpretation of geophysics (magnetics and EM data) including isochron modelling and iso-proportional/time slicing of seismic data for formation thickness interpretation.
- Ongoing data modelling and generation of 3D geological surfaces from well-picks.
- Environmental desktop review using Naturemaps (SA), the EPBC act protected matters report search tool listed on Flora and Fauna, National Groundwater Dependent Ecosystem Atlas, WaterConnect (SA), PlanSA and internet literature searches.
- Consultation with environmental specialist with experience in natural resource management works within the Cooper Basin.
- Engagement on Native Title and access agreements with the Yandruwandha/Yawarrawarrka Traditional Land Owners Aboriginal Corporation.
- Engagement with SANTOS, Beach Energy, Gidgealpa Station and Merty-Merty Station concerning the timing and type of on-ground works.

Operator Capability

Alligator Energy Ltd (AGE) is the parent company of Big Lake Pty Ltd and acting as operator of EL6367. AGE has been an established junior explorer for over 11 years, historically primarily operating in Arnhem land (NT) with a strong focus on safe working practices and high standards for rehabilitation.

Company Policies:

- Community Relations Policy.
- Environmental Policy.
- Health and Safety Policy.
- Risk Management Policy.

Manuals and operating procedures:

- Induction manual – Containing all staff induction information ranging from radiation safety, vehicle operation protocols, safety manual to tool-box meeting forms outlined below:
- Safety manual.
- Radiation safety manual.
- Ground disturbance protocol.
- Drill pad protocol.
- Drilling contractor guidelines.
- Waste management guidelines.
- Medical evacuation procedure.
- Search and rescue procedure.
- Vehicle operation protocol.
- Camp and general site rules.
- Hydrocarbon/chemical spill management.

Monitoring forms and audits:

- Radiation safety/weed clearance form.
- Environmental – Incident report form.
- Safety – Incident report form.
- Drilling operations checklist.
- Toolbox meeting form.
- Drill site analysis forms.
- Internal compliance audits – An internal review template to survey the safe and compliant work practices in operation, including environmental and radiation compliance reviews.
- Radiation monitoring forms – Drill sites, laydown and sample storage.
- Contact List.
- Radiation monitoring schedule.

Registers:

- Rehab status register.
- Site induction register.

Daily reports:

- Include site staff, operations and incidents (during active on groundwork under an approved PEPR).

Lease Conditions

N/A

Land Access

Identify the Owners of Land and authority to access land

Land Title Reference	Plan Parcel Reference	Type of Land	Owner of Land ↑	Land Access Authorisation Method	Date of Form 21 or Agreement Signed	Instrument or Uploaded Document Id	Uncheck land not applicable to your application ar
CL 6174/509	D35687 AL2026						Checked
CL 6175/809	D35579 AL2025						Checked
CR 5440/758	H83240 0BL505						Checked

Is any of the application area over a road, street or highway

No

Woomera Prohibited Area (WPA)

Will activities be conducted within the WPA

No

In which zone will activities be conducted?

Name	Are you intending to undertake work?	Closure start date	Closure end date
There are no records to display.			

Does the tenement holder hold a valid and current Resource Exploration Permit under the WPA Rule?

—

Permit No.

—

What is the expiry date of the permit?

—

Does the Exploration Permit allow the operator to conduct exploration operations in the WPA?

—

Other Land Owned or Controlled by the Commonwealth Department of Defence

Indicate if you are intending to undertake exploration operations within the identified defence land

No

Other Commonwealth defence land

Defence Land	Applicable
There are no records to display.	

Do you have a Deed of Access with Defence?

—

Expiry date of the Deed of Access

—

Date the Range Control Officer granted permission to conduct the proposed exploration operations.

—

Describe the results of consultation and how any concerns raised were addressed

—

Native Title

Does 'Native Title land' exist within the application area?

Yes

Using the table below, describe how you have complied with the requirements of Part 9B of the Mining Act for each tenement.

Name of Determined / Claimant Group	Agreement Type	Instrument Number	Applicable
Dieri			No
Yandruwandha/Yawarrawarrka Native Title Claim			No
Yandruwandha/Yawarrawarrka Claim Settlement ILUA			No
Yandruwandha/Yawarrawarrka Gidgealpa Pastoral ILUA			No
Yandruwandha/Yawarrawarrka Merty Merty Pastoral ILUA			No
Dieri Geokinetics ILUA			No
Yandruwandha/Yawarrawarrka Petroleum Conjunctive ILUA			No
Yandruwandha Yawarrawarrka Fishing ILUA			No

Provide any additional relevant information

Name of Determined / Claimant Group - Yandruwandha/Yawarrawarrka;
Agreement Type - Native Title;
Instrument Number - 53024;
Applicable Yes.

Exempt Land

Exempt Land

Has Exempt land been identified?

No

If a "Waiver of Exemption" has been reached to waive the benefit of the exemption, a notice of the agreement must be given to the Mining Registrar, either within 21 days after the agreement was entered into or when an application for the mineral tenement is made under the Mining Act.

In the table below enter the relevant instrument numbers for any Form 23C - Notice of wavier of exemption provided to the Mining Registrar.*

Land Title	Plan Parcel	Owner of Land that has benefit of exemption ↑	Why is the land exempt land?	Waiver of exemption(s) been negotiated	Instrument Number or Uploaded Document Id
CR 5440/758	H832400 BL505				
CL 6175/809	D35579 AL2025				
CL 6174/509	D35687 AL2026				

Consultation

Consultation

Stakeholder ↑	Land Use	Matters raised	Stakeholder concerns raised and how addressed
Bass Oil	Industrial	No concerns raised. Consultation not required at current time. No requirement to serve NOE. Correspondence c/- Santos and Beach	
Beach Energy Ltd	Industrial	- No concerns raised on previous NOE's. - Primary contact confirmed 31/5/23.	Engagement ongoing. Continued contact via email to keep Beach advised on project progress, timing and changes.
Chris Hannocks - National Parks and Wildlife SA	Conservation	Consultation required in entering Strzelecki Regional Reserve	
Jason and Jayne-Marie Barns	Grazing	No concerns raised on previous NOE's or work programs	
Santos	Industrial	Awareness regarding Santos Infrastructure and operations raised: - Engagement ongoing. Continued contact via phone and email to keep Santos advised on project progress, timing and changes. - 23/10/24: Meeting to discuss clearance locations and timing. - 7/8/24 - Infrastructure GIS data package updated. - Santos notified before heritage survey undertaken. - Detailed fieldwork plans for exploration activities provided to Santos the week prior to any on ground activities.	Discussions ongoing concerning active gas field operations and infrastructure.
Sharon and Graham Betts, Glen and Christine Armstrong	Grazing	No concerns raised on previous NOE's or work programs. AGE worked closely with station during 2024 drilling program for camp and catering activities. This is expected to repeat for subsequent programs.	
Shelley Rasmussen and Jack White - DEM	Other (e.g. historic mining)	Multiple	Concerns addressed as raised, Last contact 8/10/24.
Steve Bodey - DEW	Other (e.g. historic mining)	Concerns raised regarding drilling into possible confined aquifers	A licensed class 2 driller with appropriate experience and equipment imbedded with the AGE team for all drill programs
Tim Wilson	Conservation	No concerns raised.	

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

N/A

Provide any additional relevant information.

N/A

Describe any council policies (or out of council) or development plans that may impact the program area and a description of any known plans for future land use changes by other parties.

N/A

Description of Environment

Proximity to Infrastructure and Housing

Provide the following information:

Settlements:
The closest townships to EL6367 and the proposed drill sites are Moomba (located 15 km north of the EL) and Innamincka (located 55 km northeast of the EL), refer Map 1 (see Supporting Information Section). The EL straddles two pastoral stations, Gidgealpa and Merty Merty (Map 1), and incorporates part of Australia’s largest onshore oil and gas developments, the Cooper Basins Moomba field. The field is jointly owned and operated by Santos and Beach Energy with an estimated production end date of 2067. AGE has already contacted the listed stakeholders to advise of planned activities prior to proceeding with on-site exploration activities.

Roads and tracks:
Wherever possible, access to proposed drill sites will utilise the network of existing roads and tracks. Tracks will be maintained as required (in consultation with the pastoral lease holders and gas field operators) and exploration work will be conducted in ways to ensure minimal disruption to station or petroleum production activities.

Other infrastructure:
Permanent gas infrastructure, including producing and abandoned petroleum wells, above and below ground pipelines, tanks, towers, transmission lines, compressor stations, etc are commonplace (Figure 3 and Map 6), particularly in the west (Daralingie, Thurakinna and Yapeni gas fields) and east (the Big Lake gas field) of EL6367. Drill sites will not be positioned within 50m of stock watering points (bores, etc) or within 50m of gas field infrastructure.

The western most portion of the licence also encompasses the Strzelecki Regional Reserve. The dominant land uses of the reserve are biological conservation, recreational tourism and petroleum exploration and production. Exploration endeavours will not be undertaken in the reserve at this time.

Attach Files ⓘ

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Landform, topography, soil and surface cover

Describe the topography and soil and surface cover (e.g. gibber) of the general area affected by the exploration program. Include details on the susceptibility to compaction, erosion, dust, runoff and visual attributes (steep or undulating slopes, plains, rocky outcrops, dunes, salt pans, clay pans etc) any other characteristics (e.g. acid sulphate soils) that may require control strategies to reduce environmental impacts during operations or rehabilitation.

Topography:
The tenement is located within the Coongie Interim Biogeographic Regionalisation for Australia (IBRA) region of the Cooper Basin. The habitat across the proposed drill sites is predominately dunefields with clay flats in interdunal regions (Figure 2 - Supporting Information Section). Occasional floodplains and/or ephemeral lakes are also recognised.

Vegetation:
The clay flats are dominated by chenopod shrubland of *Chenopodium auricomum* and *Atriplex nummularia* and, to a lesser extent, *Eucalyptus coolabah* ssp. *arida*, *Muehlenbeckia florulenta* low woodland. The interdunal complexes are of low relief and sparsely vegetated (Figure 4), generally dominated by shrubs and occasional large trees/shrubs such as Coolibah (*Eucalyptus coolabah*), Whitewood (*Atalaya hemiglauc*a), Mulga (*Acacia aneura*), Dead Finish (*Acacia tetragonophylla*) and Queensland Bean (*Lysiphyllum gilvum*). Groundcovers of summer grasses are typical for this landform, such as *Aristida* sp. and *Eragrostis* sp. On the dunes an *Acacia ligulata*, *Atalaya hemiglauc*a, *Hakea* spp. tall shrubland dominates the red siliceous sands, while the whitish siliceous sands support *Zygochloa paradoxa*, *Triodia basedowii* hummock grassland (Gillam & Urban, 2013). Map 3 shows the distribution of the above.

Erosion:
Most of the tenure contains low sand dunes interspersed with swales. These are susceptible to erosion where (i) vegetation is removed (ii) they are cut through against the ambient wind direction or (iii) become thoroughfares for either vehicles or grazing stock. The impact, both visual and tangible, will be minimised by avoiding construction of any new tracks or drill-pads on dunes. New ground disturbance works will be strategically placed on less erosion-prone areas between dunes with minimal, if any, vegetation clearance required (Alligator's approach for drill pad clearance is to prepare with blade-up and roll vegetation as opposed to clearing) and the option of mud mat use to minimise soil disturbance will be in place. While mostly ephemeral within the region, flood plains /water course paths are susceptible to embankment erosion where disturbed. These will be documented and avoided to ensure operations are not impacted through flash-flooding.

Soil Types:
The clay flats are dominated by grey self-mulching cracking clays. The flood plains are of variable soil composition and may be comprised of sand, clay, or clay with a thin sandy veneer. Soils associated with channel banks are predominantly lightly textured alluvial soils with mainly silty loams or silty clay loams in the upper profile and with increasing clay at depth (Purdie, 1984). The dune and interdune corridor soil profiles are typically comprised of quartz sand and range in colour from pale brown to deep reddish-brown (Fitzsimmons, 2003).

Soil Susceptibility:
Whilst existing tracks will be utilised where possible for vehicle movement, it is likely that traverses over the flatter interdunal regions may lead to slight soil compaction. Its anticipated erosion, dust and other impacts on the region's soils will be negligible.

References:Fitzsimmons, K. E. (2003). Longitudinal and transverse dunes of the Lake Eyre Basin.Gillam, S. and Urban, R. (2013) Regional Species Conservation Assessment Project, Phase 1 Report: Regional Species Status Assessments, Outback Region. Department of Environment, Water and Natural Resources, South Australia.Purdie, R. (1984). Land systems of the Simpson Desert region.

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Surface Water

Will the proposed program interfere with surface water bodies and natural drainage (e.g. drainage lines, creeks, floodplains, wetlands)?

No

Describe the potential interference and surface water bodies and natural drainage on maps.

Indicate how you will avoid disturbance

Ephemeral drainage patterns exist within the work area. No interference of drainage systems is proposed with all drill sites to be modified should they fall within a previously unidentified drainage line. Locations will be sighted by senior field personnel to ensure drainage and surface water sites are not disturbed.

Is the program area located within water protection areas defined under the River Murray Act 2003?

No

Select the name(s) of protected water areas

Is the program area located within any prescribed watercourses or prescribed surface water areas under the Landscape?

No

Select the name(s) of the prescribed watercourses or prescribed surface water areas under the Landscape South Australia Act 2019.

Attach Files ⓘ

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No Files Uploaded			

Name	Applicable
There are no records to display.	

Groundwater

Is groundwater likely to be intersected when conducting the exploration program?

Yes

Provide evidence or any supporting information demonstrating this.

Description of the localites/areas where different groundwater conditions may be encountered

Shallow, unconfined groundwater (i.e. the water table) will be intersected when conducting the exploration program. Drill holes will be to a maximum depth of 350 meters and will also intersect Tertiary aquifer systems (see below). Due to the lack of groundwater information from the target formations, AGE will continue to document groundwater information encountered to aid subsequent EPEPR applications.

Well data in the South Australian WaterConnect database and well picks from PEPS indicate the subsurface stratigraphy to include the Namba (Neogene) and Eyre (Palaeogene) formations. These units host variably confined aquifers within unconsolidated/semi-consolidated sedimentary sequences. A map of boreholes in the area is provided in the Supporting Information Section (Map 5).

Regional Setting:

Mesozoic Aquifers (J-K aquifer)

The Cadnaowie Formation and Algebuckina Sandstone are the main aquifers in the Cooper subregion and represent both artesian and nonartesian systems. DEW factsheet summarising the 2020-21 Water Resources Assessment for the Far North PWA, indicates the great artesian basin is part of a single hydrogeological unit called the Jurassic-Cretaceous (J-C) aquifer. The main confining layers of the aquifer units are comprised of a regionally variable set of sediments from Triassic, Palaeozoic or Proterozoic age. – These aquifers will not be intersected in the proposed drill program.

Cenozoic Aquifers (Lake Eyre Basin)

Sparse hydrogeological data suggests that there are at least two Cenozoic aquifer systems, a shallow system (Namba Formation aquifer), approximately 60 - 80 m thick with highly variable salinity, and a deeper system (Eyre Formation aquifer) with more consistent salinity down to about 300 m (Evens et al., 2020). These two systems are recharged both by upward leakage from the deeper artesian Mesozoic aquifers and rainfall infiltration. Enhanced recharge to the shallower Cenozoic aquifers possibly occurs along creek-lines and lakebeds, especially during episodic flood events. Discharge from the Tertiary aquifers is expected to primarily occur to saline lake systems such as Lake Eyre or the numerous smaller lakes that populate the region (DESIQ, 2020).

The Eyre Formation

The Eyre Formation is a relatively lithological consistent aquifer characterised by a silcrete overprint at the top of the formation (Alley, 1998; Callen et al., 1995). This silcrete is a potentially impermeable barrier to upward groundwater migration. The thickness of this Eyre Formation aquifer ranges from about 12 to 60 m over the Weena Trough. However, there are greater thickness variations over the Tenappera Trough (thicker) and Murteree High (thinner) areas. Water salinity is brackish to saline (Smith et al., 2020).

Stratigraphic picks from 68 petroleum wells indicate the Eyre Formations shallowest point across EL 6367 is 180 metres at Lowanna 1 (500 meters northeast of drill site 9) and 185 metres around Namur 1, 2 and 3 (1.2 km northeast of drill site 7). The Eyre formation aquifer is confined at all drill sites proposed in this PEPR, but aquifer does become unconfined where the formation shallows at the basin margins. Structural contouring modelling of well picks indicates the formation shallows to 160 metres in the vicinity of drill sites 4 and 8.

Namba Formation

Across the Weena Trough the Namba Formation and Quaternary sediments host the regional water table. Salinity of this aquifer range between 5000 mg/L and 10 000 mg/L. The Namba Formation is comprised of localised linear aquifers within aquitards of fine-grained lacustrine sediments (Smith et al., 2016). Water levels are between 9 to 92 m below ground level across the proposed work area, occurring close to sea level. The previous drilling program in the project area has resulted in an improved understanding of the aquifer conditions and indicates that a Class 2 driller is not required for these drilling activities. See Section F 'Management of Environmental Impacts' for further details.

Quaternary units

The remainder of shallow groundwater interaction includes alluvial aquifers, permeable sandy plain aquifers and inland sand dunefield aquifers. Alluvial aquifers in these catchments are characterised by brackish, ephemeral groundwater connectivity. Groundwater persistence and interaction with the surface is dependent on recent rainfall and/or flooding. Many wetlands are associated with these aquifers (DESIQ, 2020).

References:

Alley NF 1998. Cainozoic stratigraphy, palaeoenvironments and geological evolution of the Lake Eyre Basin. *Palaeogeography, Palaeoclimatology, Palaeoecology* 144:239–263.

Callen RA, Alley NF and Greenwood DR 1995. Lake Eyre Basin. In JF Drexel and WV Preiss (Eds), *The geology of South Australia, Volume 2, The Phanerozoic*. Bulletin 54:189–194. Geological Survey of South Australia.

DESIQ (2020). Department of Environment, Science and Innovation, Queensland; Lake Eyre Basin Catchment Story. Retrieved from <https://wetlandinfo.des.qld.gov.au/wetlands/ecology/processes-systems/water/catchment-stories/transcript-lake-eyre-basin/overview.html>.

Evans TJ, Martinez J, Lai ÉCS, Raiber M, Radke BM, Sundaram B, Ransley TR, Dehelean A, Skeers N, Woods M, Evenden C and Dunn B (2020) Hydrogeology of the Cooper GBA region. Technical appendix for the Geological and Bioregional Assessment Program: Stage 2. Department of the Environment and Energy, Bureau of Meteorology, CSIRO and Geoscience Australia, Australia.

Smith M, Pavey C, Ford J, Sparrow A, Karim F and Radke B (2016) Conceptual modelling for the Cooper subregion. Product 2.3 for the Cooper subregion from the Lake Eyre Basin Bioregional Assessment. Department of the Environment and Energy, Bureau of Meteorology, CSIRO and Geoscience Australia, Australia.

Add the different groundwater conditions for each localities/areas to the table below.

Name ↑	Formation age and/or stratigraphic unit	Stratigraphic intervals (depth range) (m)	Aquifer formatio n name	Aquifer Interval/thinkn ess (from-to) (m)	Aquif er Type	Aquifer salinity (TDS)	Depth to groundw ater (m)	Com ment s
Far North								

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

Groundwater with a background TDS level of 3,000 mg/L or more, but less than 13 000 mg/L have an environmental value of Primary industries — livestock drinking water and Primary industries — aquaculture and human consumption of aquatic foods as defined by the Environment Protection (Water Quality) Policy 2015. All aquifers likely to be intersected are of this environmental value.

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

A search of the National Groundwater Dependent Ecosystem Atlas shows known GDEs within the proposed work area. A low potential GDE from national assessment exists. Aquatic GDEs (Springs) will be assessed and avoided (Map 5 and 8).

The salinity levels are generally considered to be too high to sustain Stygofauna (Hancock & Boulton., 2009). South Australian Stygofauna typically require salinity to be less than 1500 µS/cm EC, have a pH range of 4.3 to 7.37 and the geology to have the presence of cavities, fractures or interstices (Hancock P.J. and Boulton A.J., 2009).

Reference:

Hancock P.J. and Boulton A.J. (2009). Sampling groundwater fauna: efficiency of rapid assessment methods tested in bores in eastern Australia. Freshwater Biology 54:902-917.

Is the proposed program located within a prescribed wells area?

Yes

Select the prescribed wells

Far North Prescribed Wells Area

Is the proposed program located within a prescribed water resource area?

No

Select the prescribed water resource areas

Provide any additional information

The Far North Prescribed Wells Area (PWA) is located in the South Australian Arid Lands Landscape Region. Groundwater resources are managed under the principles in the Water Allocation Plan for the Far North PWA.

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Native Vegetation

Will you be working within areas of native vegetation?

Yes

Provide the following information:

- A search of NatureMaps identified a minimum of 58 native flora species across the proposed exploration area. The search also indicates there is one nationally listed plant species. Field staff will be alerted to rated/protected species with environmental contractors to provide a check book for species to be aware of.
- Ground cover is variable, being a mix of short-lived perennials and herbaceous species. The interdunal complexes in the Northern parts of the EL are of low relief and sparsely vegetated, generally dominated by Coolibah (Eucalyptus coolabah) with occasional large trees/shrubs such as Whitewood (Atalaya hemiglauca), Mulga (Acacia aneura), Dead finish (Acacia tetragonophylla) and Queensland Bean (Lysiphyllum gilvum). Drill sites will be in open scrubland with the main vegetation consisting of lignum and old man saltbush. In areas of higher inundation there is a higher proportion of lignum (Map 3).
- A protected matters report search has been completed to support information provided on listed Flora and Fauna within the EPBC act supplied as uploaded file Appendix 1. The report identified one listed species of plant was likely to occur in the area, the nationally Endangered Frankenia plicata, common name Sea heath.

Indicate why you will not be working within areas of native vegetation?

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Fauna

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

NatureMaps (Table 1) and the EPBC Act protected matters report across the project area identified:

- Two mammal species being listed as Vulnerable nationally and under NPW ACT SA.
- Three reptile species being listed as Rare under SA NPW ACT.
- 27 native bird species of which four were of conservation significance.

A protected matters report search has been completed to support information provided on listed Flora and Fauna and supplied as Appendix 1 – Protected Matters Report May 20th 2025. The following species of conservation significance were identified in the broader regional study area during historic government surveys; Environment Protection and Biodiversity Conservation Act (Nationally) listed:

- Curlew Sandpiper (*Calidris ferruginea*) listed as critically endangered.
- Grey Falcon (*Falco hypoleucos*) listed as vulnerable.
- Plains Wanderer (*Pedionomus torquatus*) listed as critically endangered.
- Night Parrot (*Pezoporus occidentalis*) listed as endangered.
- Thick-billed Grasswren (*Amytornis modestus*) listed as vulnerable.
- Kowari (*Dasyuroides byrnie*) listed as vulnerable.
- Dusky Hopping-mouse (*Notomys fuscus*) listed as vulnerable.
- Plains Rat (*Pseudomys australis*) listed as vulnerable.

A map detailing 'Sightings of Listed Species' (map 7) is provided in the 'Supporting Information' section of this submission.

Significant Habitats, Flora & Fauna

Are there any significant habitats, flora and fauna within the project area?

Yes

Use the table below to list any significant habitats and any rare or endangered flora and 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 name/habitat	Common name	NPW Act Rating	EBPC Act Rating
<i>Calidris ferruginea</i>	Curlew Sandpiper	Critically endangered (CR)	Endangered
<i>Pedionomus torquatus</i>	Plains-wanderer	Critically endangered (CR)	Critically endangered
<i>Falco hypoleucos</i>	Grey Falcon	Rare (RA)	Vulnerable
<i>Pezoporus occidentalis</i>	Night Parrot	Endangered (EN)	Endangered
<i>Aphelocephala leucopsis</i>	Southern Whiteface	Vulnerable (VU)	Vulnerable
<i>Dasyuroides byrnie</i>	Kowari	Vulnerable (VU)	Vulnerable
<i>Notomys fuscus</i>	Dusky Hopping-mouse	Vulnerable (VU)	Vulnerable
<i>Pseudomys australis</i>	Plains rat	Vulnerable (VU)	Vulnerable

Attach Files 

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File Name	File Size (Mb)	Created On	Download
Appendix 1_Protected Matters Report May 20th 2025.pdf	0.07 Mb	25-02-2026 13:45:29	Download (MERS/EPR-04054/Fauna/Appendix 1_Protected Matters Report May 20th 2025_2026-02-25T03-15-28.853Z.pdf)
Table 1-Nationally Listed Fauna Species_NatureMaps.pdf	0.5 Mb	25-02-2026 13:47:05	Download (MERS/EPR-04054/Fauna/Table 1-Nationally Listed Fauna Species_NatureMaps_2026-02-25T03-17-03.947Z.pdf)

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*).

Weeds recorded on the Naturemaps database include:

- *Cenchrus ciliaris* (Buffel Grass)
- *Citrullus colocynthis*
- *Brassica tournefortii* (Wild turnip)
- *Heliotropium supinum* (Potato weed)

Additionally, Santos provided Alligator Energy their Production and Processing Operations Environmental Impact Report 2023 and additional weed species were recorded in this document, these include:

Athel Pine (*Tamarix aphylla*) • Black Nightshade (*Solanum nigrum*) • Caltrop (*Tribulus terrestris*) • Common Sow-thistle (*Sonchus oleraceus*) • Common Verbena (*Verbena officinalis*) • Creeping Heliotrope (*Heliotropium supinum*) • Grain Sorghum (*Sorghum bicolor*) • Mimosa Bush (*Acacia farnesiana*) • Noogoora Burr (*Xanthium strumarium*) • Prickly Acacia (*Acacia nilotica*) • Ruby Dock (*Acetosa vesicaria*) • Wandering Speedwell (*Veronica peregrina* ssp. *xalapensis*).

Of these Buffel Grass, Athel Pine, Caltrop, Noogoora Burr and Prickly Acacia are declared weeds under the Landscape SA act 2019. Government guidelines are to be followed should these weeds be identified within the work area or along access routes.

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Aboriginal Heritage

Describe the steps taken to identify Aboriginal heritage sites within the proposed area of exploration. Include a statement advising if an Aboriginal heritage survey has been conducted by the proponent and if so, the results of the survey.

There are two registered native title parties in the area of proposed exploration (Map 2) and as such Aboriginal Heritage Surveys are conducted prior to undertaking any on-ground activities (Figure 1A).

– An Aboriginal Heritage Survey was completed between the 26th and 29th of October 2024. 5 different drill sites were cleared with multiple areas excluded from proposed drilling activities. A report has been prepared by Australian Heritage Services (AHS).

– An Aboriginal Heritage Survey was completed on the 13th of April 2024 for an exploration field camp. 1 site was cleared with no areas excluded.

– An Aboriginal Heritage Survey was completed between the 16th and 20th of November 2023. 11 different drill sites were cleared with only two areas (both of 30 metres radius) excluded from proposed drilling activities. A report has been prepared by Australian Heritage Services (AHS). See Map 4 for cleared drillsite locations.

Environmentally Sensitive Locations

Indicate if you are intending to undertake exploration operations within the environmentally sensitive locations listed.

No

Name	Applicable
Strzelecki (RR)	No
	No

Are you likely to impact on the environmentally sensitive area identified in the table above?

—

Detail the likely effects the proposed program may have.

Attach Files ⓘ

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Exploration Operations

Exploration Scope

Describe all exploration methods to be covered by the PEPR

Describe the extent of exploration operations – e.g. drillhole spacing and drill line density.

Describe the 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.

Describe the specific environments where exploration operations will not be conducted – e.g. parks, reserves, salt lakes etc.

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.

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

Type of Personnel	Number	Name of contractor company (if applicable)
Geologists	1-3	Alligator Energy Staff
Land access/environmental	1	Alligator Energy Staff
Field assistants/technicians	3	Alligator Energy Staff
Drilling Crew	5	To be confirmed
Site Preparation and rehabilitation	1-3	Alligator Energy Staff
Other (provide details)	1-2	To be confirmed

Shifts worked per day	Hours worked per day	Days worked per week
1	12	7

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

Name	Owner/Operator	Description/capacity	Activity/purpose
Rotary Mud drilling - 4x4 vehicles x2 (Landcruiser/trayback or equivalent)	Alligator Energy Hire vehicles	2-4 persons 4x4 and utility support vehicles	Personnel and equipment transport
Rotary Mud drilling – Truck mounted Rotary Mud drill rig	Drilling contractors	Truck mounted air core drill rig capable of drilling to ~350 m	Primary drilling technique
Rotary Mud drilling – Drill rig support truck (4x4-6x6)	Drilling contractors	14t vehicle with drilling support equipment.	Support truck for drilling equipment and rods
Rotary Mud drilling – 10,000 litre water truck	Drilling contractors (TBC)	Truck mounted water tank for drilling requirements	Water supply (shared between rigs).
Rotary Mud drilling – 4x4 Landcruiser/small downhole geophysical logging truck	Contractor (TBC)	Downhole survey vehicle	Contract team for downhole surveys. Gamma analysis proposed (shared between rigs)
Air core drilling – 4x4 rigid tray truck	Contractor (TBC)	Large flatbed	General haulage/consumables supply to and from drill sites
Air core drilling – 4x4 vehicles x 3 (Landcruiser ute or equivalent)	Alligator Energy Hire vehicles	2 – 4 persons 4x4 utility support vehicles	Personnel and equipment transport
Air core drilling – Truck mounted air core drill rig	Drilling contractors	Truck mounted air core drill rig capable of drilling to ~150 m.	Primary drilling technique
Air core drilling – Drill rig support truck (4x4)	Drilling contractors	14t vehicle with drilling support equipment	Support truck for drilling equipment and rods
Air core drilling – 4x4 Ute (Hilux or similar) x 2	Drilling contractors	2-4 persons 4x4 and utility support vehicles.	Personnel and equipment transport
Air core drilling – Caterpillar 4x4 backhoe loader or equivalent	Alligator Energy	1 person Caterpillar 438D 4x4 or equivalent	Sump excavation and rehabilitation (shared between rigs if required).

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)?

Yes

Describe each type of low impact operations proposed.

Airborne geophysical surveying may be considered for better targeting in areas where detailed seismic, drill or other geoscience datasets are limited.

Drilling Operations

Will exploration drilling Operations be conducted?

Yes

Identify all the drilling methods that will be used.

Fill out the below table

Tene ment	Drillin g Types	Maximum number of drillholes	Maximum drillhole depth (m)	Number of drill pads	Maximum number of sumps required at each site	Maximum size of sumps (lenght x depth x width)	Averag e size of each drill pad	Number of sites requiring pad excavatio n	Average volume of material to be excavated
EL 6367	Rotary Mud	50	350.00	50	2	27.00	625.00	0	0.00
EL 6367	Aircore	150	200.00	150	1	12.00	625.00	0	0.00

Other Drilling Method(s)

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.

Vegetation clearance requirements and site leveling:

- All Air Core drill sites are adjacent to existing and historic tracks to minimise the clearing of new tracks.
- Rotary Mud drill sites will be both adjacent to existing tracks and on interdunal flats with no track access.
- It is anticipated that, in a worst-case scenario, proposed drill sites and access tracks will be prepared by simply using a backhoe blade-up approach to scrape the sparse vegetation where required. Additionally, mud mats may also be used.
- Any cleared vegetation/debris will be pushed to one end of the drill site, so it can be easily salvaged and re-spread during the rehabilitation process.
- On a local scale there will be some degree of flexibility siting the proposed drill collars. It is intended that wherever feasible, drill collars will be placed on the flattest terrain possible, thereby minimising the need for excavation and levelling of terrain.
- Drill sites are located within the interdunal corridor. There is no drilling on dune ridges.
- Where dune fields exist, vehicles will follow interdunal corridors wherever possible. Personnel will avoid travelling on clay pans to minimise surface disturbance.
- Topsoil will not be removed in the preparation of drill pads or tracks.

Procedures for the construction and closure of sumps:

- At each site requiring a sump the machine operator takes a single bucket scoop and examines the material to decide, on the basis of colour and texture, what constitutes topsoil. The objective is to identify surficial soil horizon materials which have the potential to contain organic matter and seed resources.
- The topsoil is then removed from the working area and stockpiled in a location where it will not be contaminated by other materials or damaged by vehicle movements.
- Each Air Core sump will be approximately 4 m x W 1.5 m x D 2 m and will be designed with one sloped wall to allow for fauna egress.
- Each Rotary Mud sump will be approximately 9 m x W 1.5 m x D 2 m and will be designed with one sloped wall to allow for fauna egress.
- Each sump will be large enough to contain the drill cuttings anticipated from the hole and have sufficient depth that mineralised material returned from the drill hole will be buried at least 1 m below the surface.
- Mineralised drilling returns will be contained within in-ground sumps and cuttings buried to at least 1 m within drill site sumps in accordance with the radiation protection guidelines on mining in South Australia
- On completion of drilling, sumps are left to dry until the material in the bottom is both thick and viscous or dried/cracked and not in a condition where it will splash or move significantly during backfill.
- The material excavated from the sumps is returned as far as is practicable in the reverse sequence to its excavation.
- A slight rise over the top of the infilled sump allows fill to naturally settle and compact over time preventing localised ponding.
- The stockpiled topsoil is then spread out across the site by machine, and the area hand-raked if needed.
- A photographic record of each site will be taken before drilling commences and a subsequent rehabilitation photo taken afterwards.

Drillhole construction and decommissioning

Drillhole construction and decommissioning

Construction – Air core drilling:

- Air Core drilling utilises high-pressure air and dual walled rods to penetrate the ground and return the sample to the surface through the inner tube. The ground is cut using a steel or tungsten blade type bit.
- Air Core drilling in the forthcoming drill program will require no casing or cementing during construction.

Construction – Rotary mud drilling:

- A common method used in mineral exploration and constructing water bores. The drilling is advanced by a spinning rod string with a rotary bit cutting the rock at depth. Fluid (water and mud additives) is pumped down the hole during drilling to return cuttings to the surface. Muds and additives in the fluid form a coating around the drill hole wall as it progresses to stabilise the hole to enable downhole geophysical wireline logging.

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

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.

Holes will not be cased.

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.

Decommissioning (see Figure 5):

- Materials that will be used while decommissioning drillholes may include drillhole cuttings, cement grout (where confined aquifer conditions are encountered) and possibly a non-degradable plastic top of hole plug.
- All drillholes (aircore and rotary mud) will be cemented from bottom of hole to surface to avoid any uncertainty in identifying whether aquifers encountered are confined or unconfined.
- Backfill above the cement plug will be mounded and compacted over the hole to allow for subsidence and limit the pooling of surface water.
- Pre and post radioactivity (gamma) of all drill sites using a scintillometer will be undertaken and recorded at the collar location and at 5 m intervals in both a north/south and east/west direction to 25 m.
- There is no intention for future re-entry, and as such, drillholes will not be cased.

Attach Files ⓘ

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Costeans and bulk sample disposal pits

Will costeans/bulk sample disposal pits be required for the proposed program?

No

Tenement	Number of costeans/pits	Size of costean (length x width) (m2)	Average depth (m)	Volume excavated (m3)	Total Volume Excavated (m3)	Total area of disturbance
----------	-------------------------	---------------------------------------	-------------------	-----------------------	-----------------------------	---------------------------

There are no records to display.

Describe site preparation methods, vegetation clearance, and safety and maintenance requirements

N/A

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).

Air Core Samples:

- The sample laydown area is located outside the driller/rod handler working zone at the rear of the rig.
- Air core cuttings (the sample) are collected and laid out in large green sample bags representing 1m intervals. The bagged samples are then measured for natural gamma radiation.
- A representative subset of each 1 m sample is placed in both a chip tray for geological logging and a calico bag (approximately 500g) for geochemical analysis.
- On completion of drilling and after logging the remaining sample is returned to the hole or placed in the sump.
- Emptied sample bags are removed and the site rehabilitated.
- There is no requirement for splitting of samples, bag farms, core processing or storage.

Rotary Mud Samples:

- Samples of rotary-mud drill cuttings (the sample) are collected by shovel at the drill collar spill over point and laid out in small piles (~3 handfuls) representing 1 or 2m intervals.
- The sample laydown area is located well outside the rod drop zone.
- The samples are placed on industrial plastic of sufficient size to contain the anticipated number of samples for that drillhole.
- The samples are measured for natural gamma radiation, and a subset of each 2m sample is placed in a chip tray for geological logging by the geologist.
- On completion of drilling and after geological logging the remaining sample material is returned to the hole sump and the plastic retained for re-use and the site rehabilitated.

Access routes to work areas

Will existing tracks require upgrading and/or maintenance?

No

Detail the work required to upgrade/maintain existing tracks.

- As far as possible, existing tracks will be utilised for access with the approximately two thirds of drilling to be located on, or very close to, established and historic routes.
- No major track works are anticipated.
- Where minor track works are required details of clearing requirements and remediation process will be documented.
- Strict slow speed limits (20km/hr) will be enforced to minimise erosion where repeated track use occurs.

Will access be required across adjoining tenements?

Yes

Detail the method(s) for gaining access, and if an agreement is in place with all stakeholders. Include the total area of disturbance required (i.e. length (km) and width (m) of tracks) and provide on a locality map.

Access to across adjoining tenements:

- Access across adjoining tenements will be on established tracks and gazetted roads.

Access to coincident Petroleum Exploration Licences (PEL's):

- Stakeholders have been contacted by phone regarding planned activities, emailed a seeking consent to undertake works request and will be emailed a Notice of Entry as per section 58A of the Mining Act to undertake advanced exploration operations.
- No maintenance or new track construction is planned.

Will access off existing tracks be required?

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.

- Final drill locations are yet to be confirmed, however, the existing track infrastructure within the work area is extensive and will be utilised as much as possible.
- Interdunal access to areas without established tracks may be required and in such instances, access tracks will be prepared by simply using a backhoe ‘blade-up’ approach to clear the sparse vegetation where required. Additionally mud mats may also be used.
- Modest vegetation disturbance may occur with the passage of vehicles in such areas, as such, a strict slow speed limits (20km/hr) will be enforced to minimise erosion.
- Topsoil will not be removed to create off-track access.
- The area of disturbance, if off-track interdunal access is required, is estimated to be 3 meters wide and no more than 5 – 10km in length.
- All drill collars will be placed on the flattest terrain possible, thereby avoiding the need for excavation and levelling for drill pads.
- In cases where off-track ground disturbance cannot be avoided details including total area of disturbance (length and width) will be recorded.
- Any cleared vegetation/debris will be pushed to one end of the drill site, so it can be easily salvaged and re-spread during the rehabilitation process.

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Campsites and equipment laydown areas

Indicate where staff and contractors will be accommodated during the exploration program.

- There are two options available for staff during the 2025/2026 program, these include:
- Alligator Energy’s portable mobile camp located adjacent to the disused Merty-Merty airstrip.
 - Moomba accommodation facility, in collaboration with Santos.
 - Accommodation on Moomba 202 camp pad, in collaboration with Santos.

What is the maximum number of personnel requiring accommodation?

16

Is a campsite required to be established?

Yes

Provide a description and justification of the camp location (e.g. previously cleared areas etc.), and any other relevant information.

- The Moomba 202 camp pad is situated on a disused oil/gas drill pad located 2.5km southwest of the Big Lake Gas Satellite Station.
 - The camp is situated on sparsely vegetated low relief plains and accessed by well-established tracks.
 - The site location was identified via consultation with key stakeholders.
 - The location ensures camp facilities will not obstruct ongoing oil and gas operations.
 - The site is located on disturbed ground and is not subject to a heritage clearance survey. The Traditional Owners have been contacted in relation to this site.
 - The site is proximal to drilling operations and was not subject to flooding in 2025.
-
- The Merty-Merty mobile camp is situated on sparsely vegetated low relief plains and accessed by well-established tracks.
 - The site location was identified via consultation with key stakeholders.
 - The location ensures camp facilities will not obstruct ongoing oil and gas operations.
 - The site was subject to a heritage clearance survey in April 2024.

What will be the total area (ha) of the campsite(s)?

1.00

Will native vegetation clearance be required?

No

What will be the total area (ha) of vegetation clearance for the campsite?

0.00

Describe the methods used to prepare the campsite including vegetation requirements and site levelling.

N/A

Will any excavations be required?

Yes

Describe the purpose of the excavation

- No excavation required for Moomba 202 camp pad.
- 1m3 excavation to house a macerator pump and tank (100 litre capacity) for ablution facilities at the Merty-Merty camp.

Describe the maximum volume (m3) of material to be excavated.

1.00

Provide confirmation that the proposed ablution facilities have been endorsed for use by the Department of Health or local council, where applicable.

Yes

Indicate why endorsement approval is not required by the Department of Health or local council.

N/A

Proposed infrastructure (includes caravans, tents, offices, hydrocarbon and water storage requirements etc)

Proposed infrastructure	Quantity	Description / capacity
Mobile turnkey bathroom, kitchen and laundry module.	1	Especially designed for remote work including kitchen, showering, laundry and office facilities.
Mobile turnkey camp accommodation modules	3	2-3 x four-bedroom modules.
Water tanks for potable water	2	2 x 10, 000 litre tanks, with water to be transported from Moomba as required.
Tanks for black/grey water storage	2	2 x 10, 000 litre capacity, with waste removal via Moomba.
Genset	1	Transportable diesel generator.
Camper Trailer	1	For extra staff if required
Canvas Tents	4	For extra staff if required
Large spill kits	3	Kept and maintained at select locations including the drill rig
Small 8x5 trailer.	1	For moving samples and consumables around site
10,000 litre double banded diesel tank	1	Fuel to be transported from Moomba as required

Will laydown areas be required?

Yes

Will the laydown area(s) be located at the same location as the campsite?

Yes

Provide a description and justification of the location (e.g. previously cleared areas), and any other relevant information if required.

The above infrastructure will be located at the campsite. Any surplus stock or materials will be stored at Moomba.

For the Merty Merty site:

- The laydown area is situated on sparsely vegetated low relief plains and accessed by well-established tracks.
- The site location was identified via consultation with key stakeholders.
- The location ensures stored equipment will not obstruct ongoing oil and gas operations.
- The site was subject to a heritage clearance survey in April 2024 (for Merty Merty camp).

For the Moomba 202 site:

- The laydown is situated on sparsely vegetated low relief plains and accessed by well-established tracks.
- The site location was identified via consultation with key stakeholders.
- The location ensures stored equipment will not obstruct ongoing oil and gas operations.
- The site is located on disturbed ground and is not subject to a heritage clearance survey. The Traditional Owners have been contacted in relation to this site.
- The site is proximal to drilling operations and was not subject to flooding in 2025.

What will be the maximum area (ha) required for the laydown area(s)?

1.00

Will native vegetation clearance be required?

No

What will be the total area (ha) of vegetation clearance for the site?

0.00

Describe the methods used to prepare the laydown area including vegetation requirements and site levelling.

N/A

Will any excavations be required?

No

Describe the purpose of the excavation.

N/A

What will be the volume (m3) of material to be excavated.

0.00

Proposed infrastructure (includes hydrocarbon and water storage requirements)

Proposed infrastructure	Quantity	Description / capacity
2 – 4 spill pallets with underlying plastic bunding	4	Plastic bunding with capacity for 2 spill pallets
Driller's trailer or equivalent	2	Mobile tool shed utilised by drillers for tools and equipment
Pallet of drilling consumables	4	Flagging and pegging material, sample bags, cement, safety equipment etc
Pallet of mechanical equipment (drill rod grease, machine lubricants/oils, etc)	2	To be stored on a spill pallet in accordance with SA EPA Guideline for Bunding and Spill Management (EPA, 2016).
Water pump	3	Small firefighting pumps for emergencies or possible dust suppression.

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Other exploration methods and/or ancillary operations

Are any other proposed exploration methods (e.g. seismic) and/or ancillary exploration operations required?

No

Describe the activity(s), site preparation, vegetation clearance, and safety and maintenance requirements.

N/A

Water supply and management

Will camp and/or drilling water be required?

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.

Camp:

Potable water will be sourced from Santos' Moomba RO facility and stored in a 10,000 litre tank.

Drilling:

Water for drilling purposes will be sourced from either Santos' Moomba RO facility, a metered hydrant (standpipe), surface water (dams), groundwater wells or commercial agreements with the local pastoralists. Multiple sources of water are the favoured option when working in arid environments. The decision on the preferred water source will be made prior to drilling.

Wastewater:

Wastewater is captured on site in two 10,000 litre tanks and routinely sent for treatment/disposal at Moomba, or other EPA approved facility.

Groundwater:

- Two water wells may be required if other means of sourcing water are unavailable.
- The location of the wells will be proximal to drilling activities, most likely within the heritage cleared Site 10 (Map 4).
- The exact location of the wells will be determined in consultation with key stakeholders and previous drilling data collected during the 2024 program.
- The wells will be used for drilling water supply and not be subject to any further groundwater investigations (i.e. pumping tests) at this time.
- Wells will be drilled in accordance with AGE's 'drillhole construction and decommissioning' procedures detailed in this PEPR and built in accordance with the Minimum Construction Requirements for Water Bores in Australia (4th edn.), National Uniform Drillers Licensing Committee 2020.
- Wells will be drilled using Rotary Mud
- Wells will be installed into the water table and will not intersect multiple aquifers. Screen depth will be chosen at the time of drilling with the main consideration being well yield.
- Wells will be constructed using class 12 PVC. Screen will be slotted PVC casing and may be gravel packed or natural packed depending on the formation sediments encountered.
- Wells will be cemented and capped to prevent groundwater contamination of aquifer.
- In the case of the landowner seeking retention of the wells, a request in writing must be provided to AGE and the appropriate permits/licences obtained.

Site preparation:

- Site preparation will be in accordance with AGE's 'drillhole construction and decommissioning' procedures detailed in this PEPR.

Vegetation clearance:

- No vegetation clearance is required.

Safety and maintenance requirements:

- At the conclusion of drilling activities, the wells will be decommissioned in accordance with AGE's 'drillhole construction and decommissioning' procedures detailed in this PEPR and the South Australian government M21: General specifications for construction and backfilling of mineral exploration drillholes.

Permits:

- Groundwater well construction permits and/or licences will be obtained prior to commencement of drilling activities (Attached).
- Despite the investigation wells being located within the Far North Prescribed Wells Area, no water license is required as the volume to be extracted is below 2 ML per program per year and will not be closer than 5kms from a spring, as per Principle 47 Water Allocation Plan for the Far North Prescribed Wells Area.

Will surface water and/or mineral drillholes be used as a water source/supply?

Yes

Indicate if a licence for water extraction/usage is required (refer to relevant Natural Resources Management water allocation plan available on the Department for Environment and Water (DEW) website.

No

Attach a copy of the licence or include a statement confirming that a licence will be obtained before the extraction and/or usage of water.

Surface water:
A licence is not required.

Groundwater:
A licence for water is only required for investigation holes where water extraction is greater than 2 ML per program/per year and the well is greater than 5 km from a spring. Water requirements for this program are expected to be approximately 0.4 ML and will therefore not require a license.
https://cdn.environment.sa.gov.au/landscape/docs/saal/6097_wap_guide_final.pdf

Groundwater investigation and water affecting activities

Will any water investigation (e.g. pump testing, water monitoring sites, water storage, turkey nests/dams) and/or water affecting activities, be undertaken (refer to s. 127 of the Landscape South Australia Act 2019)?

No

Describe the water investigation and/or water affecting activities, including site preparation, vegetation clearance, and safety and maintenance requirements.

N/A

Indicate if water affecting activities permits (eg well and water extraction/discharge permits) have been obtained and in accordance with the Landscape South Australia Act 2019.

Yes

Attached Files ⓘ

				Expand/Collapse
File Name	File Size (Mb)	Created On	Download	
WaterPermits_-_WCP_Approved_20250611_154855.pdf	0.21 Mb	25-02-2026 14:54:09	Download (MERS/EPR-04054/Groundwater investigation/WaterPermits_-_WCP_Approved_20250611_154855_2026-02-25T04-24-08.351Z.pdf)	
Well_Construction_Permit_20250611_154913.pdf	0.2 Mb	25-02-2026 14:54:09	Download (MERS/EPR-04054/Groundwater investigation/Well_Construction_Permit_20250611_154913_2026-02-25T04-24-08.337Z.pdf)	

File Name	File Size (Mb)	Created On	Download
Well_Construction_Permit_20250611_154922.pdf	0.2 Mb	25-02-2026 14:54:09	Download (MERS/EPR-04054/Groundwater investigation/Well_Construction_Permit_20250611_154922_2026-02-25T04-24-08.338Z.pdf)

Management of hazardous materials

Will activities be conducted in areas of known uranium and thorium mineralisation?

Yes

Attach Files 

Expand/Collapse

File Name	File Size (Mb)	Created On	Download
Appendix 2_BLU Radiation Management Plan.pdf	0.33 Mb	25-02-2026 15:03:11	Download (MERS/EPR-04054/Management of hazardous/Appendix 2_BLU Radiation Management Plan_2026-02-25T04-33-10.236Z.pdf)
Appendix 3_Big Lake Uranium project_ERMP endorsement letter.pdf	0.32 Mb	25-02-2026 15:04:52	Download (MERS/EPR-04054/Management of hazardous/Appendix 3_Big Lake Uranium project_ERMP endorsement letter_2026-02-25T04-34-51.185Z.pdf)

Will any other hazardous material be encountered when exploring in the area?

No

List the types of hazardous materials and provide a management plan on how these materials will be managed.

N/A

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.

Existing Tracks:

- Proposed drilling and primary access to drill sites will be largely carried out on existing tracks. If rehabilitation is required, tracks will be restored to at least their prior condition on completion of the proposed work.

New Tracks:

- New tracks will be kept to a minimum.
- Track placement will be carefully planned to minimise impacting vegetation, machinery will only be used for access and egress, hence disturbance will be minimal. Tracks are rolled in over established grasses and shrubs to retain the topsoil and vegetation.
- No earth works will be undertaken to obtain access to proposed drill sites.
- Approximately 3 months after completion of drilling and initial rehabilitation the site is re-visited, re-photographed and further remediation scheduled as required.

Drill sites – General Information:

- To facilitate minimum disturbance and best rehabilitation, drill collars will be moved to accommodate site conditions (e.g. trees, drainage lines etc.)
- Prior to the commencement of work a photo point is established ~25m away and a series of photographs taken to record surface and vegetation conditions.
- On completion of drilling and initial rehabilitation a wooden peg marked with the drill hole number is placed on the north side of the drill collar and a second series of photos taken as a record.
- Subsequent rehabilitation auditing will use the photo marker as a reference point.
- Approximately 3 months after completion of drilling and initial rehabilitation the site is re-visited, re-photographed and further remediation scheduled as required.
- On completion of drilling and subsequent downhole logging all machinery and equipment will be removed and excess samples disposed of.
- Post drilling site clearance is undertaken with a focus on reducing all visible aspect of ground disturbing activities.

Exploration camps and laydown areas (if used):

- Rehabilitation will include removal of all infrastructure followed by standard restoration works (e.g. respreading of topsoil, respreading of vegetation, ripping of compacted areas and excavation remediation in accordance with slump closure procedures).
- Buried infrastructure, such as pipelines or cables, removed.
- Any hydrocarbon contaminated material will be removed from site and disposed of at appropriately licensed facilities.

State the estimated budget required to rehabilitate all impacted sitesState the estimated budget required to rehabilitate all impacted sites. Include a breakdown of the cost associated with each rehabilitation component

Anticipated costs are based on a total of 2 drill holes in progress at any one time and no more the four sumps requiring rehab. The estimated cost for machine hire, drillhole grouting during decommissioning, and two field technicians is estimated at \$42,000

Vegetation Clearance

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

No

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.

N/A

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.

Every attempt will be made to avoid impacts on native vegetation, including but not limited to possible relocation of the exploration activity, redesigning how it will be undertaken, assessing low impact ingress and egress to the site etc.

Tenement Name ↑	Tenement Holder	Tenement Operators	Grant Date	Expiry Date	Tenement Type	Location Description	Tenement Area	Tenement Status	Shape Identifier
EL 6367	Big Lake Uranium Pty Ltd	Alligator Energy Ltd; Big Lake Uranium Pty Ltd (Operator)	22/07/2019	21/07/2030	Exploration Licence	Merty Merty area approximately 20km south of Moomba	818.00	Active	10010790-0000

Management of Environmental Impacts

Applicable environmental aspects and potential impacts

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Fire	Community/landowners	Damage to infrastructure and loss of income through fire.	• All worksites will have appropriate levels of vegetation clearance from active and hot machinery to mitigate the risk of fire. • Drill rigs are required to have an emergency stop and a minimum of 2 fire extinguishers. • Additional fire extinguishers will be supplied at site by AGE. • No "hot works" are to be conducted proximal to vegetation. • Active drill sites will also have a water source for drilling purposes which may be used in emergencies additional to fire extinguishers. • Existing tracks in the proposed work area are anticipated to form effective fire breaks near all works. Combined with livestock grazing pressures, flammable vegetation levels are deemed very low across the work area. • The project is located ~20km from Moomba and the local fire services are to be called if merited.	Low	No loss of infrastructure or income through fire as a result of exploration activities.	Provide a statement within the 'Compliance with approved programs' section of the annual exploration compliance report confirming that no uncontrolled fires* occurred. 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.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
General Public	General Public	Injury or death to members of the public as a result of exploration activities.	• The proposed work area is located far from residences and neighbours within expansive grazing lands. The closest residences are approximately ~15km from proposed works with additional residences located 70km or more from the proposed work area. It's expected any public interaction during exploration works will be negligible. • All operational staff and contract personnel are required to have full site inductions before being permitted on site. • Visitors to site will be required to undergo a visitor's induction for site access and be accompanied by AGE staff or contractors at all times. • All personnel visiting and supporting works with drilling will be required to undergo a specific drill site and rig induction, performed by drilling contractors in addition to AGE induction. • Only necessary and appropriately inducted staff and visitors will be permitted within proximity of active drilling activities during the proposed exploration work program. • Throughflow traffic is anticipated to be minimal. Appropriate barriers such as bunting and cones will be established as	Mod erate	No accidents involving the public that could have been reasonably prevented by the licensee.	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. 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.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
			necessary to restrict site access during active drilling operations. • Warning signs highlighting drilling hazards and operations will be erected around the active drill site.			

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Hazardous materials - Uranium	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.	- An accredited Radiation Safety Officer will be appointed to the program for radiation management. - Recordings of gamma levels at drill sites will be taken before and after drilling to ensure no surface contamination occurs and levels remain consistent. - Mineralised drilling returns will be contained within inground sumps and cuttings buried to at least 1 m within drill site sumps in accordance with the radiation protection guidelines on mining in South Australia. - All staff permitted on site will be required to have full site and radiation safety inductions. A record of all inducted staff will be kept, and daily reports taken to record daily personnel on site. - All field personnel involved with drilling will be issued with radiation monitor badges during drilling operation. - ARPANSA TLD badges will be issued to individuals and worn at all times while on drill site and handling samples. - Personal dose levels are all anticipated to be within safe limits throughout the program with any radiation exposure predicted to be of low levels. To further reduce risk to drill site staff, contractors and	Moderate	No increase in background radiation levels, and employee/contractor exposure levels during the exploration program are within safe limits.	Maintain a database and provide a statement within the 'Compliance with approved programs' section of the annual exploration compliance report demonstrating that: - 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.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
			visitors are required to wear standard PPE. • All drill cuttings will have radiation levels recorded utilising a calibrated scintillometer, with whole metre interval recordings taken and recorded within an active drilling database. • Routine drill site and rig inspections will be conducted by Alligator Energy personnel to monitor and record radiation levels in conjunction with environmental and safety compliance monitoring. • Washdown of site vehicles is to be conducted frequently. • On completion of program drill rigs and equipment leaving site will require washdown before being inspected by Alligator Energy personnel for weed and radiation clearance prior to leaving site. • Radiation monitoring of all vehicles leaving site will be conducted and recorded in AGE's DoneSafe safety system.			

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Fauna	All fauna	Entrapment of fauna through open drillholes and excavations.	• Open drill holes are to be covered/capped to prevent fauna entrapment. • Progressive rehabilitation of drill sites is to be conducted during the program ensuring holes and sumps are rehabilitated to regulatory standards. Typically, holes will be backfilled immediately after completion and sump backfilled once dry. • All sumps are to have egresses to ensure safe exit for fauna. Plastic barrier fencing will be erected around open sumps. Sumps are to be backfilled once no longer required. • All rehabilitation to be completed within 3 months of expiry of the ePEPR approval (for ePEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for ePEPRs approved for an ongoing period), unless otherwise authorised.	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: • 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.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Stakeholders	Stakeholders	Interference to: • 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.	• Ongoing discussions with landowner over proposed work area to continue to ensure all parties remain well informed of all works and a good working relationship maintained. • Conduct in person/phone meetings and updates as appropriate and organised or requested by landholder to ensure they are well informed in the development and execution of the exploration program. • Contact details provided to landowners for a primary liaison officer/senior onsite officer. All landholders have the contact of AGE's COO to call for any other ad-hoc issues. • Regular toolbox meetings with all AGE staff and contractors communicating key ePEPR requirements and any potential/identified site issues. • Community Engagement Plan for exploration in place outlining complaints and grievance resolution procedures and timeframes. • Use existing tracks where possible, imposing appropriate speed limits. • Rehabilitate all new tracks and drill sites at completion of program and appropriate maintenance to	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.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
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			existing utilised tracks. • Coordinate vehicle use to minimise track disturbance as much as possible.			
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Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Contamination	Soil/vegetation/fauna	Soil/vegetation contamination (e.g. hydrocarbons, rubbish, drill samples/cuttings, ablutions, other sources)	- Any hydrocarbon storage is to be bundled in accordance with EPA guidelines. If required, fuel transport between Moomba/Innaminka and the drill site will utilise a self-bundled fuel trailer. - Large spill kits are to be kept and maintained at select locations including the drill rig. - All rubbish to be securely placed in bins and removed from site frequently to appropriate EPA approved waste disposal sites. - No rubbish to be left on site on completion of program. - All personnel on site are to be inducted on maintaining a clean site and litter awareness. - Personnel are also to be inducted on the importance of preventing hydrocarbon spills and contamination. - All drill cuttings (including those that are mineralised) will be buried at least 1 m below surface in drill sumps along with any disturbed calcrete from sump excavation. - Photos of all drill sites prior to disturbance, post drilling will be recorded to show restoration of the site and clearance of all equipment and rubbish following exploration. Photos will also be recorded of proposed laydown areas prior and after use, to demonstrate clean	Moderate	No contamination of soil and vegetation as a result of exploration activities.	Demonstrate that all domestic or industrial waste (includes general rubbish and hydrocarbons) is disposed of in accordance with the Environment Protection Act 1993 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: - 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. Maintain photographs of all exploration sites and provide representative photos within the annual exploration compliance report demonstrating that drill cuttings are: - removed from site and disposed of at a licensed facility - buried 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, or - backfilled 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. Provide the information requested within the 'Rehabilitation' section of the annual exploration compliance report.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
			practices and removal of all waste. • Any hydrocarbon spills >5L to be reported using AGE's DoneSafe safety system.			
Third party access	Soil/vegetation/fauna	Degradation of rehabilitated access tracks caused by third party access (includes previously closed and rehabilitated access tracks).	• A record of all additional new and existing tracks will be established during the drilling program with before and after photographs demonstration rehabilitation and closure of new tracks. • Existing tracks will be used where possible with strict speed limits imposed to minimise dust and erosion during the program. • On completion of the proposed work program all appropriate tracks will be closed and rehabilitated to best practices, removing windrows, infilling, whoaboys and reseeding where necessary.	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. Provide the information requested within the 'Rehabilitation' section of the annual exploration compliance report.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Aboriginal heritage	Aboriginal heritage sites	Disturbance to Aboriginal heritage	- Proposed drilling sites to be subject of a heritage clearance survey(s) prior to commencement of the drill program (clearance will be valid for a period of five years). - No drilling in identified sites of significance. - Identification of any unknown potential sites will result in consultation with appropriate specialists and heritage groups. - If previously unidentified heritage items, sites or remains are identified, work will cease in that area until the appropriate native title representative body is notified (with expectation they will report to SA state government) and advice is provided. - Vehicle movements will be restricted to existing tracks where possible. - All staff and contractors will be informed of the possibility for the presence of heritage sites despite existing surveys and the importance of not disturbing such sites.	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: - 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.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Other	Hazardous Materials-Uranium. General public, employee s, contractor s and the environment	Contamination of the environment when exploring for known uranium and thorium deposits. Public and employee/contractor exposure to low level radiation.	An accredited Radiation Safety Officer will be appointed to the program for radiation management. • Recordings of gamma levels at drill sites will be taken before and after drilling to ensure no surface contamination occurs and levels remain consistent. • Mineralised drilling returns will be contained within inground sumps and cuttings buried to at least 1 m within drill site sumps in accordance with the radiation protection guidelines on mining in South Australia. • All staff permitted on site will be required to have full site and radiation safety inductions. A record of all inducted staff will be kept, and daily reports taken to record daily personnel on site. • All field personnel involved with drilling will be issued with radiation monitor badges during drilling operation. ARPANSA TLD badges will be issued to individuals and worn at all times while on drill site and handling samples. • Personal dose levels are all anticipated to be within safe limits throughout the program with any radiation exposure predicted to be of low levels. To further reduce risk to drill site staff, contractors and		No increase in background radiation levels, and employee/contractor exposure levels during the exploration program are within safe limits.	Maintain a database and provide a statement within the 'Compliance with approved programs' section of the annual exploration compliance report demonstrating that: • 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.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
			visitors are required to wear standard PPE. • All drill cuttings will have radiation levels recorded utilising a calibrated scintillometer, with whole metre interval recordings taken and recorded within an active drilling database. • Routine drill site and rig inspections will be conducted by Alligator Energy personnel to monitor and record radiation levels in conjunction with environmental and safety compliance monitoring. • Washdown of site vehicles is to be conducted frequently. • On completion of program drill rigs and equipment leaving site will require washdown before being inspected by Alligator Energy personnel for weed and radiation clearance prior to leaving site. • Radiation monitoring of all vehicles leaving site will be conducted and recorded in AGE's DoneSafe safety system.			

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Weeds and Pathogens	All flora and fauna, especially listed species.	Loss/modification of the environment (biological, social and economic) through the introduction of weeds and pathogens.	• Maintain up to date records of SARIG and relevant SA and Commonwealth Govt. data sources to identify records of significant Flora & Fauna within Project area. • Utilise environmentalist for identification of significant flora & fauna including weeds and pest species. Induct field staff on best practices and provide training on weed species identification. • All vehicles and machinery to be thoroughly cleaned and inspected before being allowed on site. Vehicles requiring access to pastoral stations to be cleaned and inspected prior to entering. • Risk of weed introduction to be discussed with all field staff and environmental consultant. • Records of any weed species to be taken during initial reconnaissance and appropriate eradication/avoidance of existing weeds to be taken following environmental consultant advice and discussion with landholders. • Rehabilitated sites to be revisited periodically to monitor for any introduced weed species or sustained increase in weed species. Weeds to be controlled where appropriate.	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: • 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.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Soil	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).	- Existing tracks will be used where possible. - Erosion on new tracks and pads will be minimised through the restricted clearing of existing vegetation – leaving all low-lying vegetation and rootstocks in place through “tracking in” or rolling where practical. - Avoidance of tight corners will also be employed to minimise disturbance. - All vehicles will be required to remain on existing tracks and pads as much as possible. - The utilisation of existing clearings has been employed for camps, laydown areas and new pads where possible. - Rehabilitation of new tracks and pads will be conducted to best practices, including replacing any displaced topsoil, replacing any cleared vegetation debris and removing any windrows where appropriate.	Low	Where soil disturbance occurs as a result of exploration activities, ensure that: - topsoil quality and quantity is maintained - the soil profile and topography is reinstated to original conditions - there is no accelerated soil erosion.	Maintain before, during and after photographic evidence of all excavations, drillsites, camps, laydown areas and new tracks demonstrating that: - 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. Representative photos to be included within the annual exploration compliance report. Provide the information requested within the ‘Rehabilitation’ section of the annual exploration compliance report.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Groundwater users	Groundwater users	Interference to existing water users when extracting water from existing dams, water bores or mineral drillholes.	• Relevant stakeholders/landholders will be consulted prior to sourcing any water from dams and bores. • Sources will only to be used with the relevant stakeholders/landholders authority. • Arrangements for sourcing water from approved external sources, such as the purchase of water from council standpipes and water supply companies, have also been arranged for 2025.	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.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Native Vegetation	Flora and fauna and their habitats; includes Common wealth and state scheduled species.	Loss/modification of native vegetation and associated habitats through the clearance of vegetation.	• Maintain up to date records of SARIG and relevant SA and Commonwealth Govt. data sources to identify records of significant flora & fauna within project area. • Alligator's Energy's Environmental Manager to identify significant flora & fauna and best practices of identification for field staff during inductions. Maintain up to date field induction. • Regular toolbox meetings with all AGE staff and contractors communicating key ePEPR requirements and any potential/identified site issues. • Always use existing tracks where possible. • Planned drill sites will be inspected prior to clearing during reconnaissance. - Hole locations to be adjusted/moved accordingly to minimise disturbance where practicable. - Natural clearings to be utilised where possible. • To minimise adverse environmental impacts when constructing new tracks, a 'blade up' method will be employed to help retain vegetation, soil and root stock. - This approach will reduce potential erosion, promote vegetation rebound and encourage faster rehabilitation once works are completed. • Hot	Low	No permanent loss/modification of native flora and fauna populations and their habitats through: • clearance • fire • other 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: • 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.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
			works such as grinding, welding, oxy cutting are to be carried out in the townships of Innamincka or Moomba. • Extinguishers with all machinery and vehicles at all times.			
Groundwater	Groundwater/aquifer	Groundwater contamination: • contamination of aquifers through entry of pollutants from the surface • interconnection between aquifers • degradation of natural hydrostatic conditions (maintain pre-drilling pressures).	• Alligator Energy will ensure that appropriate materials for the abandonment and rehabilitation of drillholes are available on-site. • All drillholes (aircore and rotary mud) will be cemented from bottom of hole to surface to avoid any uncertainty in identifying whether aquifers encountered are confined or unconfined. Backfill above the cement plug will be mounded and compacted over the hole to allow for subsidence and limit the pooling of surface water. • Only appropriately licenced and experienced drillers will be permitted to undertake drilling activities on site. • Drilling contractors will be required to use suitably approved products such as bio-degradable rod grease. Disposal of any unwanted chemicals/hydrocarbons downhole is not permitted.		Drillholes restored to 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.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Groundwater	Soil/vegetation/fauna	Discharge of groundwater into the surrounding environment.	- During drilling any intersected waters are to be contained within an in-ground sump at each drill site. There will be no discharge of groundwater into the surrounding environment. - On completion of drilling, sumps will be allowed to dry out before being backfilled. - Should excess water be intersected drilling operations are to be halted to ensure no groundwater runs beyond the drill pad. Note: Aquifers likely to be intersected are not artesian.	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.

Not applicable environmental aspects and potential impacts

Environmental Aspect	Potential Impact	Show/Hide Outcome
Heritage and scientific sites	Disturbance to European heritage sites and sites of scientific and environmental significance (e.g. geological monuments, fossil reserves).	Hide
Surface Water	Alteration to surface water – interference to surface drainage.	Hide
Other (Hazardous Materials)		Hide

Supporting Information

Photos

Upload Photos 

Expand/Collapse

File Name	File Size (Mb)	Created On	Download
Figure 1_20251210_14_08_15.jpg	4.39 Mb	03-03-2026 13:49:24	Download (MERS/EPR-04054/Supporting information/Photos/Figure 1_20251210_14_08_15_2026-03-03T03-19-22.972Z.jpg)
Figure 2_20251210_14_08_15.jpg	6.87 Mb	03-03-2026 13:50:42	Download (MERS/EPR-04054/Supporting information/Photos/Figure 2_20251210_14_08_15_2026-03-03T03-20-40.518Z.jpg)
Figure 3_20251210_14_08_16.jpg	5.4 Mb	03-03-2026 13:50:49	Download (MERS/EPR-04054/Supporting information/Photos/Figure 3_20251210_14_08_16_2026-03-03T03-20-47.435Z.jpg)
Figure 4_20251210_14_08_15.jpg	6.36 Mb	03-03-2026 13:50:55	Download (MERS/EPR-04054/Supporting information/Photos/Figure 4_20251210_14_08_15_2026-03-03T03-20-53.519Z.jpg)
Figure 5 Confined conditions_20251210_14_08_15.jpg	0.79 Mb	03-03-2026 13:51:03	Download (MERS/EPR-04054/Supporting information/Photos/Figure 5 Confined conditions_20251210_14_08_15_2026-03-03T03-21-00.898Z.jpg)

Site identification	Date taken	Photo number & PEPR section reference	Easting (GDA94)	Northing (DGA94)	Zone	Details and comments	Document ID
A) Site 5; B) Site 10; C) Drillhole 17	08/10/2024	Figure 1. Located in 'Description of the Environment' section			54	On-ground exploration activities.	Figure 1
A) Site 9; B) Site 1	24/05/2023	Figure 2. Located in 'Description of the Environment' section.			54	Landscape features at Sites 1 and 9.	Figure 2
A) Site 5; B) Site 12; C) Moomba.	23/05/2024	Figure 3. Located in 'Description of the Environment' section.			54	Oil and Gas infrastructure.	Figure 3
20200318; 20200901	01/09/2020	Figure 4. Located in 'Description of the Environment' section			54	Vegetation and soils on dunes	Figure 4

Supporting Maps

Upload Maps ③

				Expand/Collapse
File Name	File Size (Mb)	Created On	Download	
Map 1.jpg	3.61 Mb	03-03-2026 14:11:16	Download (MERS/EPR-04054/Supporting information/Maps/Map 1_2026-03-03T03-41-14.030Z.jpg)	
Map 2.jpg	1.98 Mb	03-03-2026 14:11:16	Download (MERS/EPR-04054/Supporting information/Maps/Map 2_2026-03-03T03-41-13.838Z.jpg)	

File Name	File Size (Mb)	Created On	Download
Map 3.jpg	17.08 Mb	03-03-2026 14:11:16	Download (MERS/EPR-04054/Supporting information/Maps/Map 3_2026-03-03T03-41-13.725Z.jpg)
Map 4.jpg	5.91 Mb	03-03-2026 14:11:16	Download (MERS/EPR-04054/Supporting information/Maps/Map 4_2026-03-03T03-41-14.060Z.jpg)
Map 5.jpg	3.99 Mb	03-03-2026 14:11:16	Download (MERS/EPR-04054/Supporting information/Maps/Map 5_2026-03-03T03-41-14.089Z.jpg)
Map 6.jpg	5.51 Mb	03-03-2026 14:11:16	Download (MERS/EPR-04054/Supporting information/Maps/Map 6_2026-03-03T03-41-13.695Z.jpg)
Map 7.jpg	1.06 Mb	03-03-2026 14:11:16	Download (MERS/EPR-04054/Supporting information/Maps/Map 7_2026-03-03T03-41-13.932Z.jpg)
Map 8.jpg	0.67 Mb	03-03-2026 14:11:16	Download (MERS/EPR-04054/Supporting information/Maps/Map 8_2026-03-03T03-41-13.843Z.jpg)

Figure Description	Document ID
EL 6367 - Exploration Licences and Cadastral Information	Map 1
EL 6367 - Exploration Licences and Native Title Overlay	Map 2
EL 6367 - Vegetation Overlay	Map 3
EL 6367 - Heritage Cleared Drillsites	Map 4

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.

N/A.

Payment

Payment Status: Paid

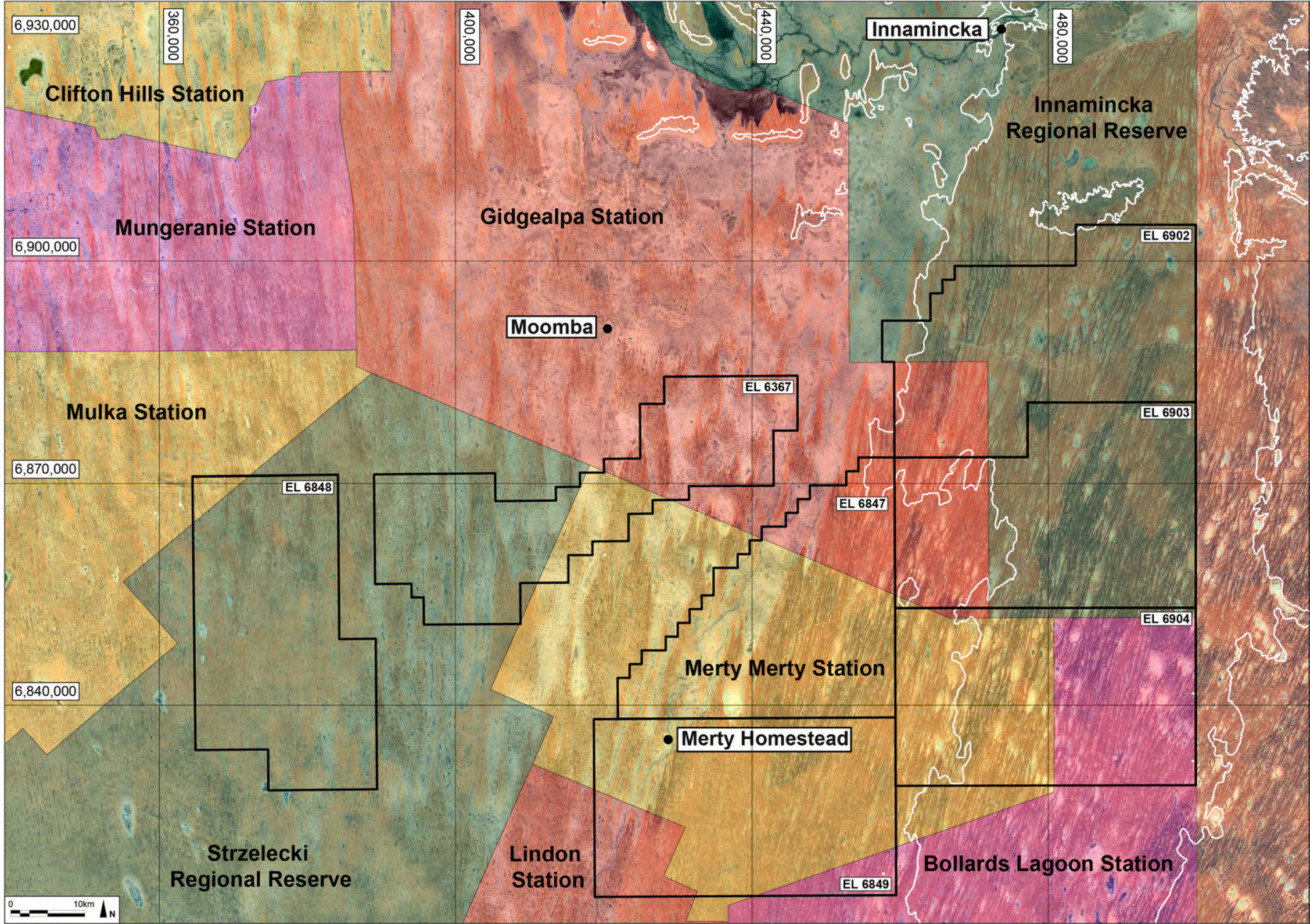


Mineral Exploration PEPR
Big Lake Project
Exploration Licences
and Cadastral Information

LEGEND

- Contours (50m)
- BLU Exploration Licences
- Pastoral Stations
- Township

ILLUSTRATION REFERENCE: AGE25-019 Cadastral	
DATE: 19/5/2025	AUTHOR: bwilliams
PROJECTION: MGA94	DATUM: GDA94





Mineral Exploration PEPR
Big Lake Project
Exploration Licences
and Native Title Overlay

LEGEND

BLU Exploration Licences

Access roads and tracks

Township

Native Title Claims

Yandruwandha/
Yawarrawarrka

Dieri

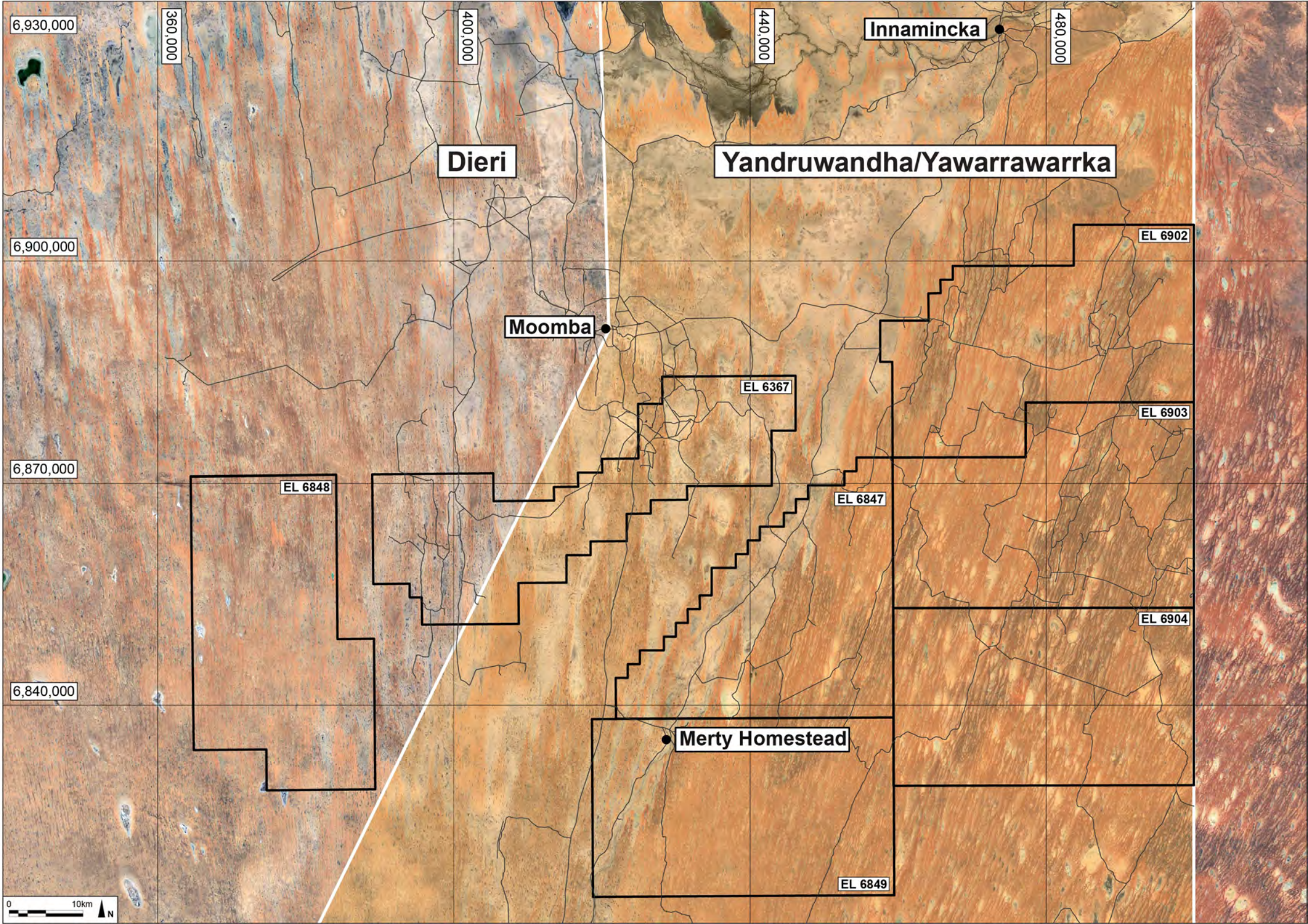
ILLUSTRATION REFERENCE:
AGE25-019 NTO

DATE:
19/5/2025

AUTHOR:
bwilliams

PROJECTION:
MGA94

DATUM:
GDA94



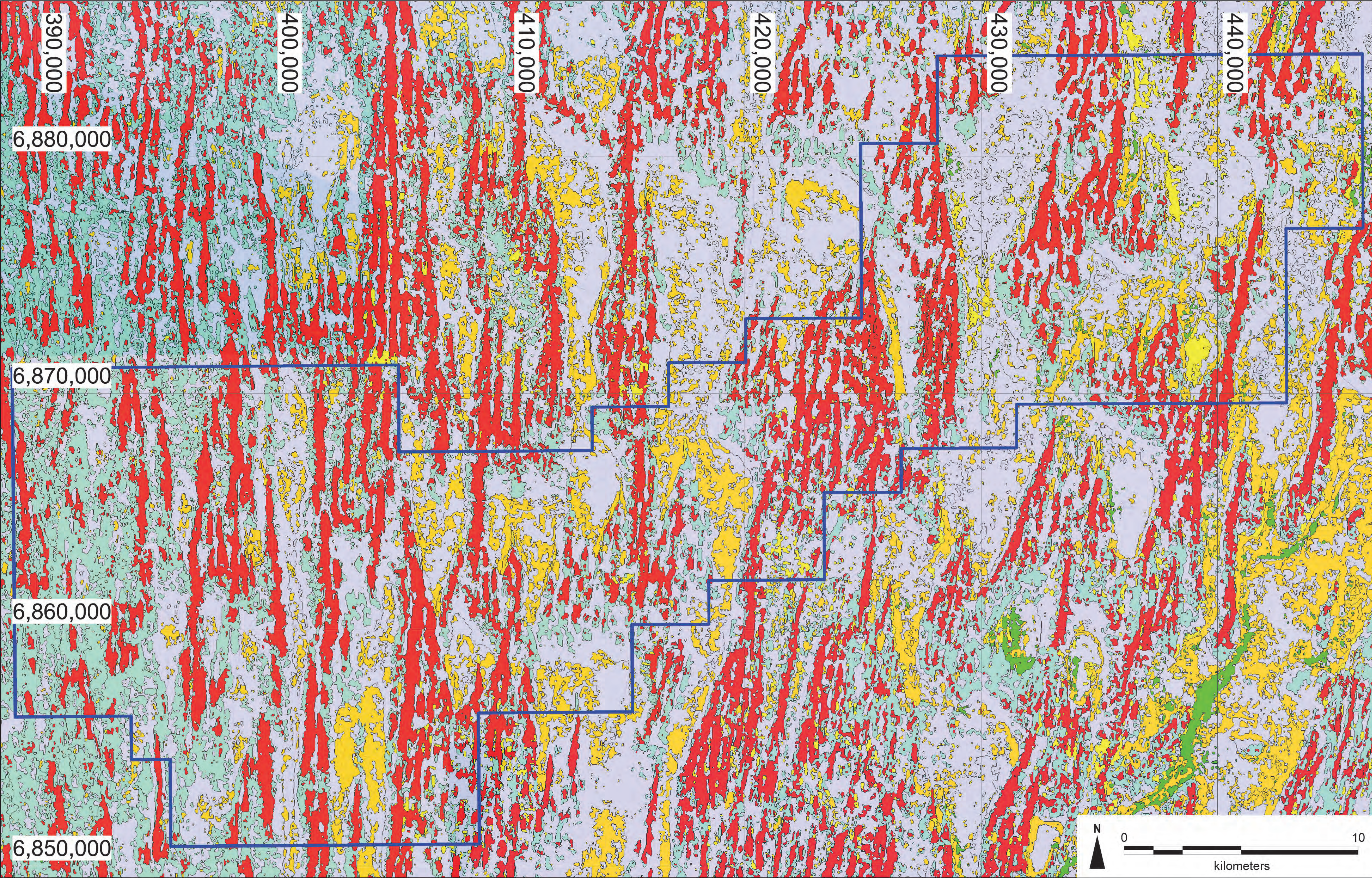


EL 6367
Mineral Exploration PEPR
Big Lake Project
Vegetation

LEGEND	
Avicennia forest and woodland	Shrubland >1m
Callitris forest and woodland	Shrubland <1m
Eucalyptus forest and woodland	Coastal shrubland
Melaleuca forest and woodland	Chenopod shrubland
Acacia woodland	Samphire shrubland
Casuarina woodland	Tussock grassland
Woodland	Hummock grassland
Eucalyptus mallee	Grassland
Acacia shrubland	Rushland/sedgeland
Melaleuca shrubland >1m	Alectryon woodland and shrubland
Melaleuca shrubland <1m	Fernland/herbland
Myoporum woodland	Vegetation mapping (no floristic data)

ILLUSTRATION REFERENCE:
AGE23-015

DATE: 4/4/2023	AUTHOR: bwilliams
PROJECTION: MGA2020	DATUM: GDA2020





EL 6367
Mineral Exploration Licence
Big Lake Project
Heritage Cleared Drill Sites

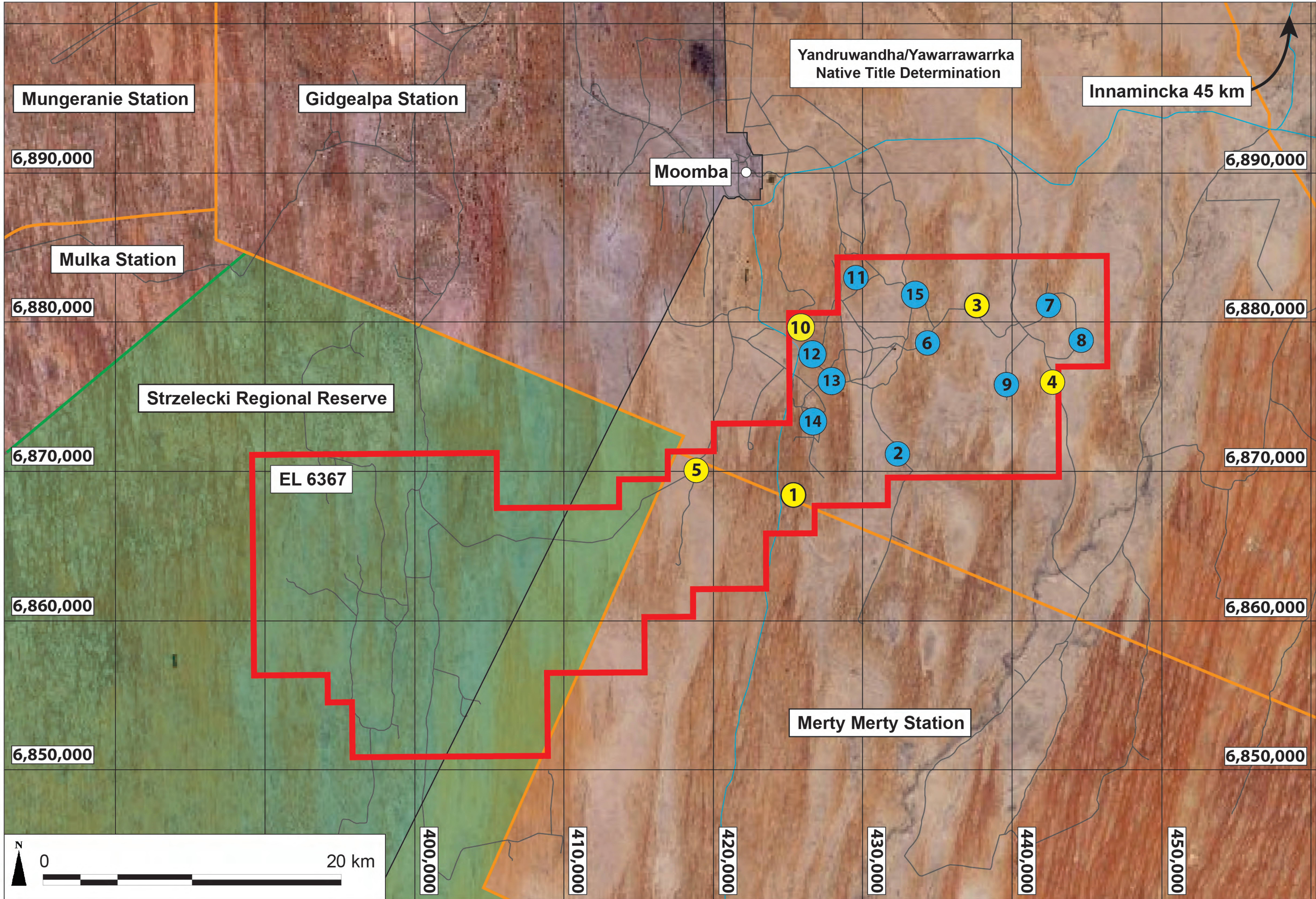
LEGEND

- Exploration Licence 6367
- Yandruwandha/Yawarrawarrka
- Strzelecki Regional Reserve
- 2024 drill sites
- 2025-2026 proposed drill sites

ILLUSTRATION REFERENCE:
AGE25-020

DATE: 27/5/2025	AUTHOR: bwilliams
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PROJECTION: MGA94	DATUM: GDA94
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Mineral Exploration PEPR Big Lake Project Surface and Groundwater Conditions

LEGEND

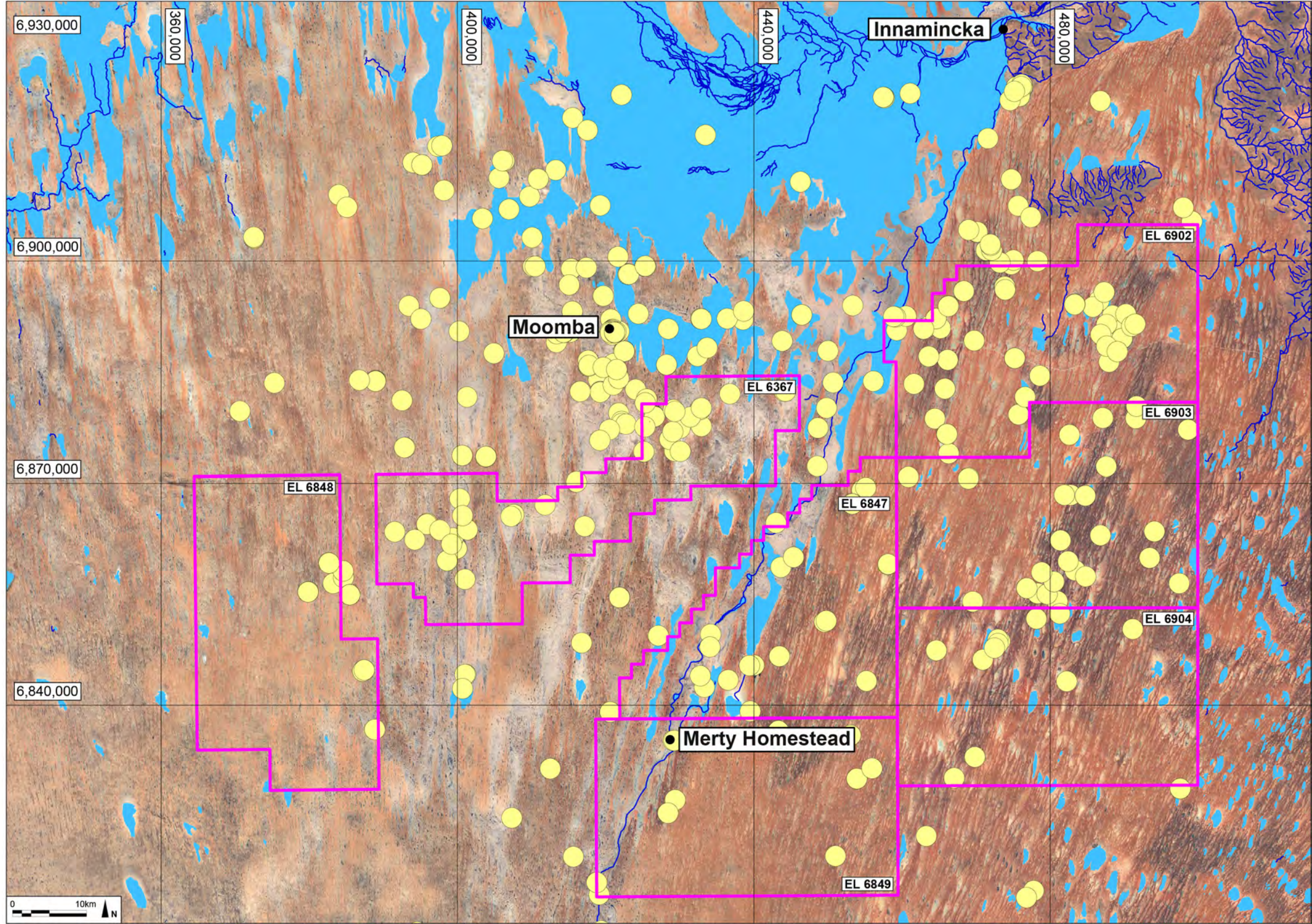
- Borehole
- BLU Licences
- Waterways

Aquatic GDE Assessment

- Low potential for GW interaction

ILLUSTRATION REFERENCE:
AGE25-019 Water

DATE: 19/5/2025	AUTHOR: bwilliams
PROJECTION: MGA94	DATUM: GDA94



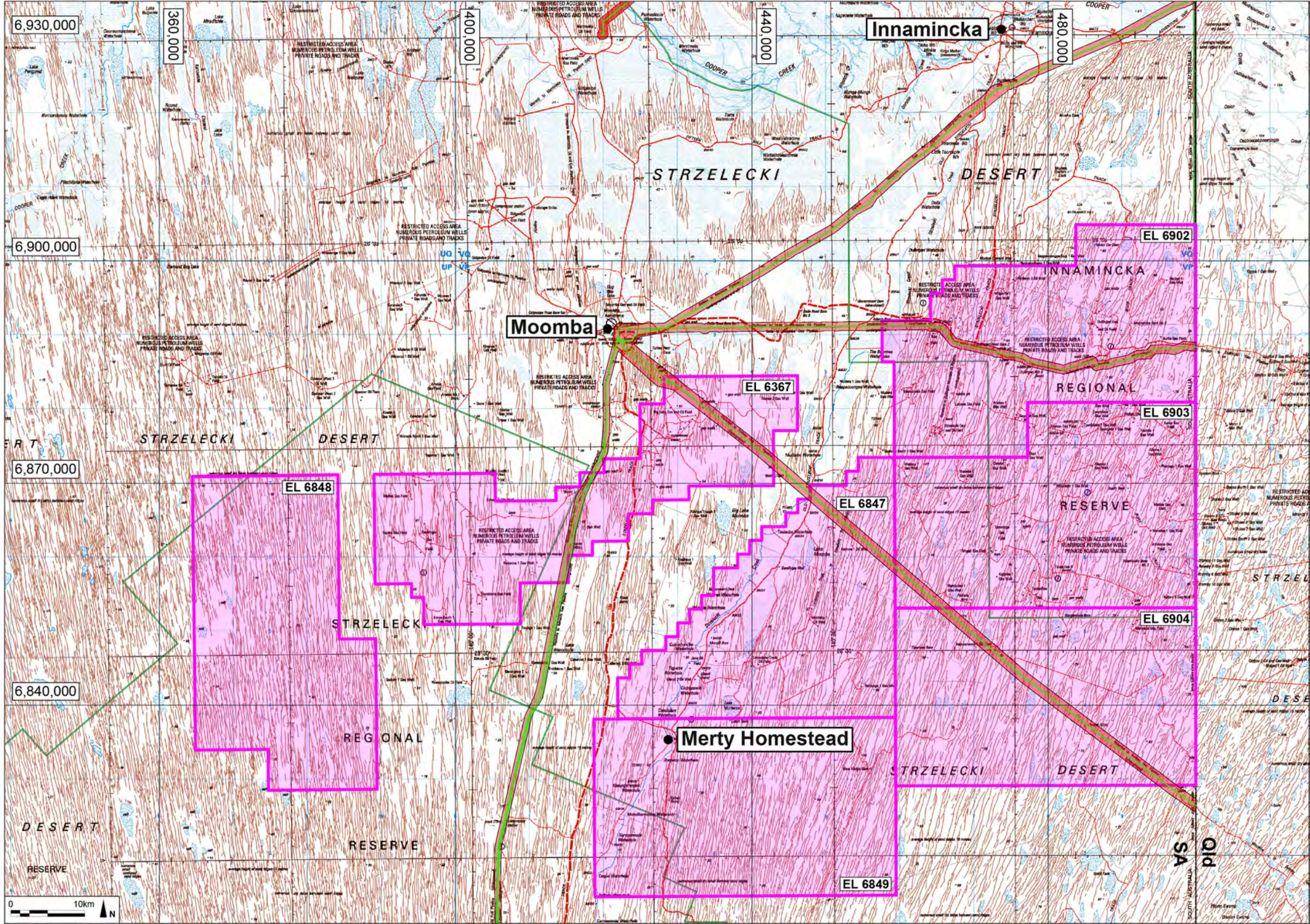


Mineral Exploration PEPR
Big Lake Project
Proximity to Infrastructure

LEGEND

- BLU Exploration Licences
- Access Roads and Tracks
- Township
- Petroleum Pipeline Licences
- Pipelines

ILLUSTRATION REFERENCE: AGE25-019	
DATE: 19/5/2025	AUTHOR: bwilliams
PROJECTION: MGA94	DATUM: GDA94





Mineral Exploration PEPR
Big Lake Project
Sightings of Listed Species

LEGEND

- BLU Exploration Licences
- Access Roads and Tracks
- Township

ILLUSTRATION REFERENCE:
AGE25-019

DATE:
14/11/2025

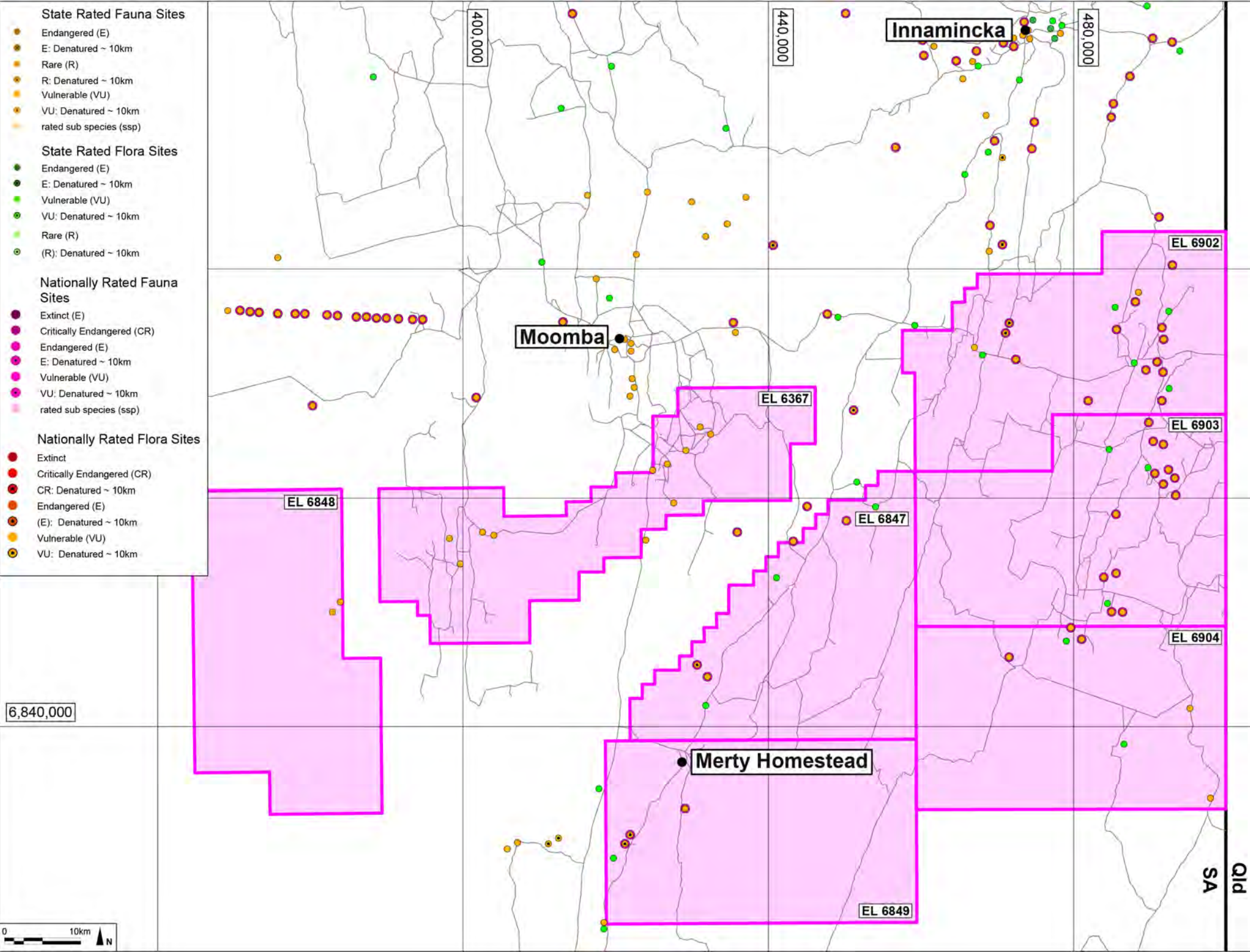
AUTHOR:
bwilliams

PROJECTION:
MGA94

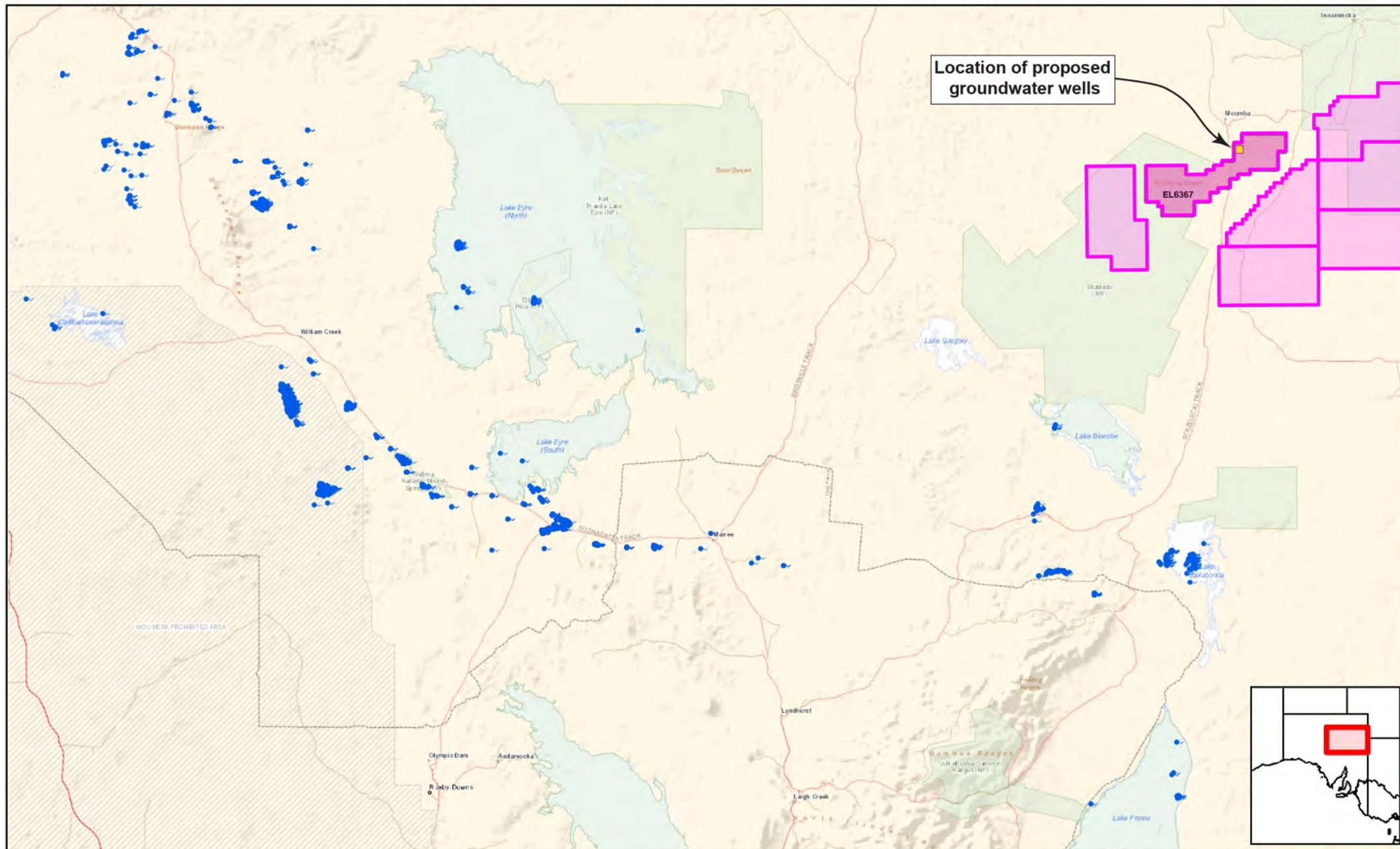
DATUM:
GDA94



- State Rated Fauna Sites**
- Endangered (E)
 - E: Denatured ~ 10km
 - Rare (R)
 - R: Denatured ~ 10km
 - Vulnerable (VU)
 - VU: Denatured ~ 10km
 - rated sub species (ssp)
- State Rated Flora Sites**
- Endangered (E)
 - E: Denatured ~ 10km
 - Vulnerable (VU)
 - VU: Denatured ~ 10km
 - Rare (R)
 - (R): Denatured ~ 10km
- Nationally Rated Fauna Sites**
- Extinct (E)
 - Critically Endangered (CR)
 - Endangered (E)
 - E: Denatured ~ 10km
 - Vulnerable (VU)
 - VU: Denatured ~ 10km
 - rated sub species (ssp)
- Nationally Rated Flora Sites**
- Extinct
 - Critically Endangered (CR)
 - CR: Denatured ~ 10km
 - Endangered (E)
 - (E): Denatured ~ 10km
 - Vulnerable (VU)
 - VU: Denatured ~ 10km



GAB Springs in Relation to Big Lake Exploration Tenements



Map data is compiled from a variety of sources and hence its accuracy is variable.

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- GAB Spring
- Big Lake Tenements
- Location of groundwater wells

0 95 Kms



Compiled: 16-Jan-2025
Generated at: www.naturemaps.sa.gov.au
Datum: Geocentric Datum of Australia, 2020
Projection: Web Mercator (Auxiliary Sphere)



Government of South Australia
Department for Environment
and Water

NSXCODE	CLASS NAME	SPECIES	COMMON NAME	NATIVE	NATIONAL RATING	STATE RATING	NUMBER OF RECORDS	DATE OF LAST RECORD
C04509	AVES	<i>Amytornis modestus</i>	Thick-billed Grasswren	Y	VU		1	29-May-1988
K00101	AVES	<i>Anhinga novaehollandiae novaehollandiae</i>	Australasian Darter	Y		R	1	26-Dec-1983
C00177	AVES	<i>Antigone rubicunda</i>	Brolga	Y		V	5	29-Oct-2013
E00186	AVES	<i>Ardea intermedia plumifera</i>	Plumed Egret	Y		R	1	16-Aug-2010
A00176	AVES	<i>Ardeotis australis</i>	Australian Bustard	Y		V	7	14-Aug-2022
K00129	AVES	<i>Arenaria interpres interpres</i>	Ruddy Turnstone	Y		R	1	01-Jan-1990
Q21136	AVES	<i>Biziura lobata menziesi</i>	Musk Duck	Y		R	2	30-Mar-2001
K00161	AVES	<i>Calidris ferruginea</i>	Curlew Sandpiper	Y	CR	E	1	01-Jan-1990
Z00147	AVES	<i>Cladorhynchus leucocephalus</i>	Banded Stilt	Y		V	3	04-Sep-2014
Y09304	AVES	<i>Coturnix ypsilophora australis</i>	Brown Quail	Y		V	1	16-Aug-2010
C00001	AVES	<i>Dromaius novaehollandiae</i>	Emu	Y	ssp	ssp	33	06-Aug-2019
K00233	AVES	<i>Elanus scriptus</i>	Letter-winged Kite	Y		V	17	17-Oct-2021
Q00236	AVES	<i>Falco hypoleucos</i>	Grey Falcon	Y	VU	R	9	27-Oct-2020
U00238	AVES	<i>Falco subniger</i>	Black Falcon	Y		R	6	25-Oct-2013
U00598	AVES	<i>Grantiella picta</i>	Painted Honeyeater	Y	VU	R	1	08-Jun-1980
G00231	AVES	<i>Hamirostra melanosternon</i>	Black-breasted Buzzard	Y		R	3	01-Jan-1990
K04077	AVES	<i>Hieraaetus morphnoides</i>	Little Eagle	Y		V	3	29-Oct-2020
U04118	AVES	<i>Manorina flavigula</i>	Yellow-throated Miner	Y	ssp	ssp	115	31-Aug-2016
K04173	AVES	<i>Myiagra inquieta</i>	Restless Flycatcher	Y		R	2	31-Mar-2001
M00306	AVES	<i>Neophema chrysostoma</i>	Blue-winged Parrot	Y		V	10	26-May-2019
S00297	AVES	<i>Northiella haematogaster</i> (NC)	Bluebonnet (Eastern and Naretha)	Y		ssp	47	28-Sep-2011
A00036	AVES	<i>Phaps histrionica</i>	Flock Bronzewing	Y		R	30	14-Aug-2022
E00178	AVES	<i>Plegadis falcinellus</i>	Glossy Ibis	Y		R	2	30-Mar-2001
A00060	AVES	<i>Podiceps cristatus australis</i>	Great Crested Grebe	Y		R	1	30-Mar-2001
M04182	AVES	<i>Spatula rhynchotis</i>	Australasian Shoveler	Y		R	2	26-Oct-2013
E00214	AVES	<i>Stictonetta naevosa</i>	Freckled Duck	Y		V	2	29-Oct-2013
M00154	AVES	<i>Tringa glareola</i>	Wood Sandpiper	Y		R	4	30-Oct-2013
M01482	MAMMALIA	<i>Notomys fuscus</i>	Dusky Hopping-mouse	Y	VU	V	230	23-Sep-2019
S01469	MAMMALIA	<i>Pseudomys australis</i>	Plains Mouse	Y	VU	V	1	13-Jan-2012
S02613	REPTILIA	<i>Aspidites ramsayi</i>	Woma	Y		R	49	25-Sep-2019
Q04192	REPTILIA	<i>Austroblepharus kinghorni</i>	Blacksoil Skink	Y		R	2	28-Oct-2020
G02695	REPTILIA	<i>Pseudonaja guttata</i>	Speckled Brown Snake	Y		R	2	23-Feb-2012

Table 1: Big Lake Project Rated Flora and Fauna

Site identification	Date taken	Photo #	Easting (GDA94)	Northing (GDA94)	Zone	Details and Comments
A: Site 5	17/11/2023	Photo 1	417,960	6,869,640	54	Exploration activities are only undertaken in areas that have a heritage clearance survey.
B: Site 24	10/8/2024	Photo 2	425,495	6,879,997	54	Ground penetrating radar surveys are undertaken at each site prior to drilling activities.
C: Site 17	16/6/2024	Photo 3	425,470	6,879,765	54	Air Core drilling activities at site 17.



A

Above: 2023 cultural heritage survey conducted by Yandruwandha Yawarrawarrka traditional land owners.



B

Above: Imaging the sub-surface using ground penetrating radar.



C

Above: Air Core drilling at Site 17.

Site identification	Date taken	Photo #	Easting (GDA94)	Northing (GDA94)	Zone	Details and Comments – Landform, Topography and Surface Cover
A: South of Site 9	24/05/2023	Photo 4	439,820	6,882,750	54	Landscape features on access track to Site 9.
B: Site 20230524	24/05/2023	Photo 5	424,342	6,866,765	54	Low relief and sparsely vegetated interdunal complexes and longitudinal sand dunes (highlighted).



Above: Low relief interdunal complexes.



Above: Longitudinal sand dunes and interdunal complexes.

Site identification	Date taken	Photo #	Easting (GDA94)	Northing (GDA94)	Zone	Details and Comments – Oil and Gas infrastructure
A: Site 5	20/5/2024	Photo 6	437,585	6,880,232	54	<u>Environmental & Operational aspects (Oil & gas infrastructure):</u> Permanent oil and gas infrastructure, including producing and abandoned petroleum wells, above and below ground pipelines, tanks, towers, transmission lines, compressor stations, etc are commonplace. In consultation with Santos AGE drillsites will not be positioned within 50m of oil and gas infrastructure.
B: Site 12	23/5/2024	Photo 7	426,534	6,877,600	54	
C: Moomba	20/5/2024	Photo 8	422,060	6,890,020	54	



A

Above: Optic fibre cables located at Site 5.



B

Above: Buried high pressure gas pipeline in the vicinity of Site 12.

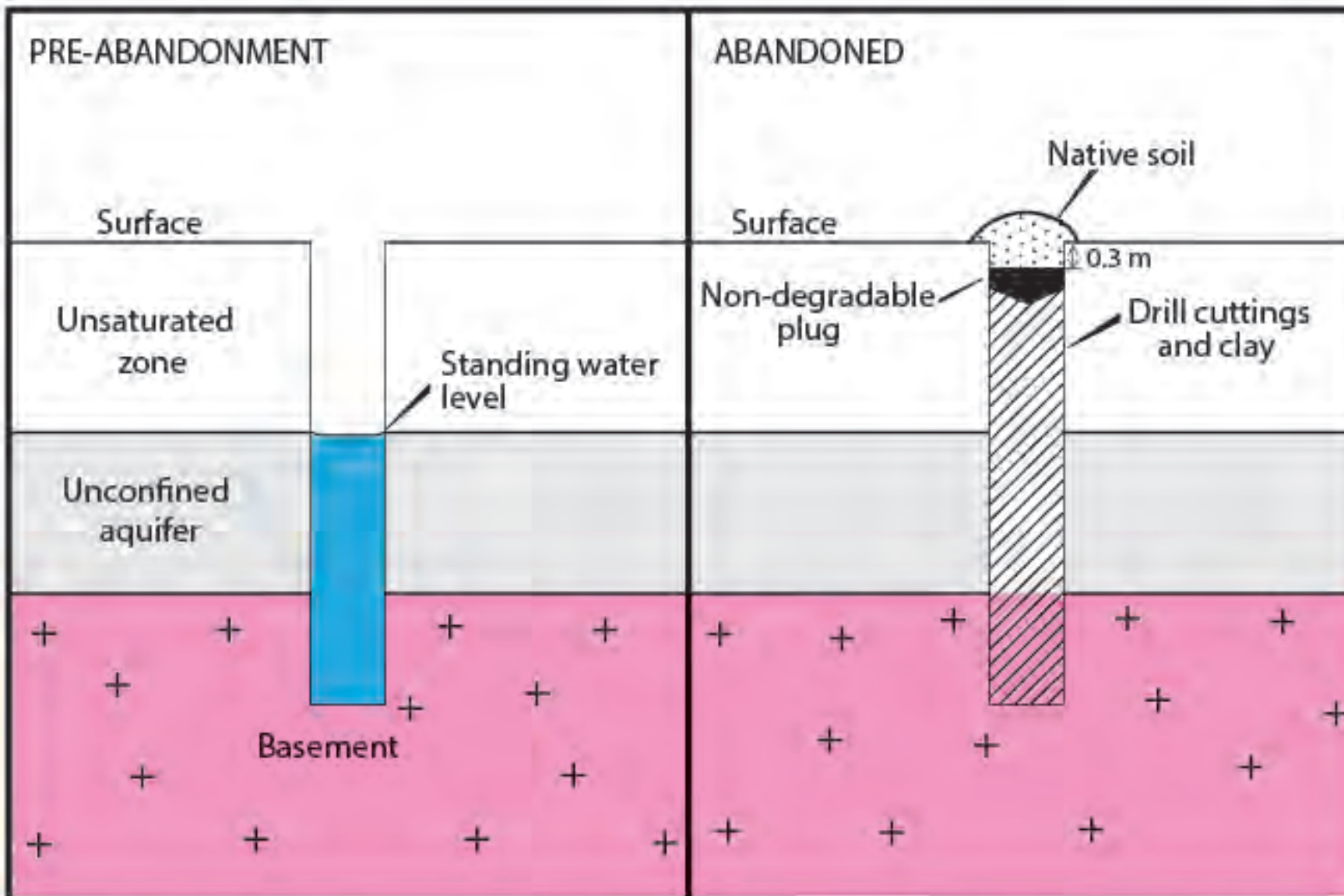


C

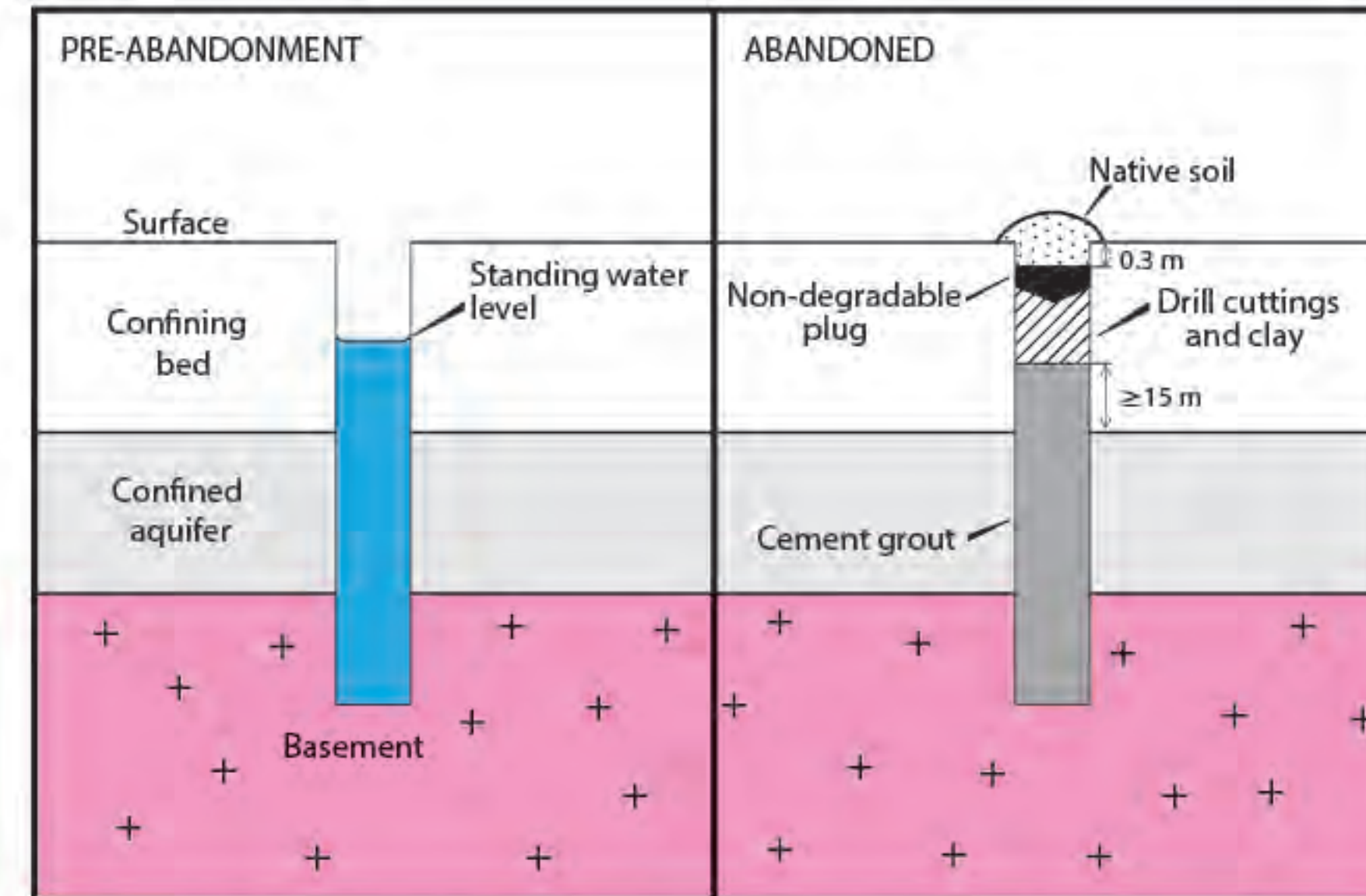
Above: Moomba Gas and Liquid Processing Facility.

Site identification	Date taken	Photo number & PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Details and Comments
A: 20200318	18/03/2020	Photo 9	446,619	6,893,435	54	Low relief and sparsely vegetated interdunal complex.
B: 20200901	01/09/2020	Photo 10	472,611	6,897,042	54	On the dunes an <i>Acacia ligulata</i> , <i>Atalaya hemiglauca</i> , <i>Hakea</i> spp. tall shrubland dominates the red siliceous sands, while the whitish siliceous sands support <i>Zygochloa paradoxa</i> , <i>Triodia basedowii</i> hummock grassland.

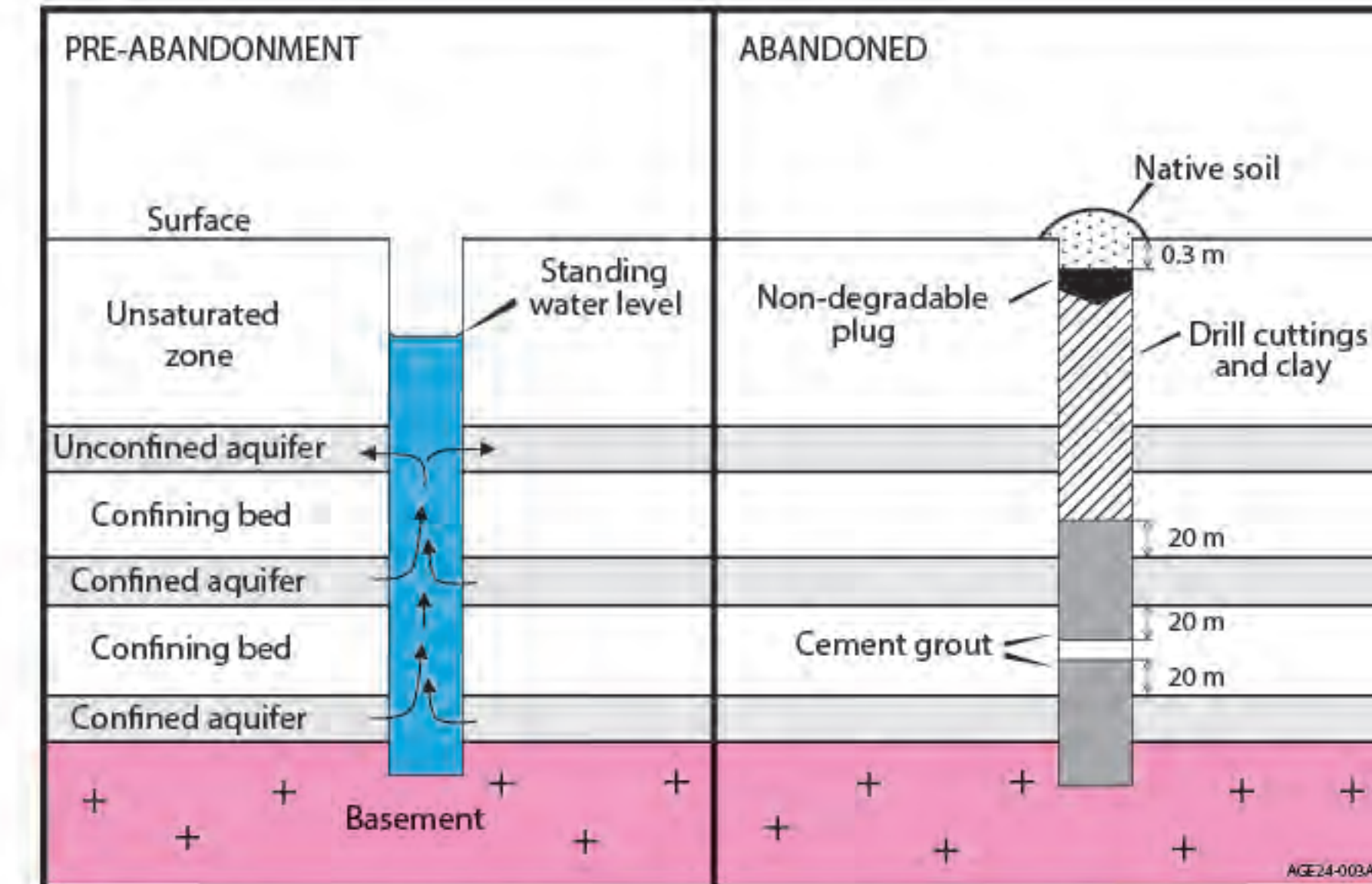




Above: Drillholes which penetrate a single unconfined aquifer will be backfilled with surplus drill cuttings, clean fill containing clay, or cement.



Above: Drillholes which penetrate a single confined aquifer will be plugged from the level at which the aquifer was penetrated with cement grout back to a minimum of 15 m into the confining bed above, then backfilled.



Above: For drillholes which penetrate more than one aquifer: separate each aquifer by a cement grout plug and then backfill. The length of plug used will be dependent on aquifer pressure and thickness. The plug should extend through the aquifer back into the confining bed above, with a total minimum length of 20 m of grout. In an intermediate aquifer the plug should be emplaced from 15 m below the aquifer and extend upwards through the aquifer and to a distance of 15 m above the aquifer. Generally a minimum of 20 m of cement should be positioned between aquifers. Shallow holes (<200 m) can be back-filled from the bottom back to surface with grout.

Reference Number: PA-724479



Government of South Australia
Department for Environment
and Water

Zachary Rossato
Alligator Energy, Level 1
103 King William STREET
Kent Town SA 5067

11 June 2025

**Water and River Murray Division
Water Licensing Branch**

<https://access.mywater.sa.gov.au>
<https://environment.sa.gov.au>

81-95 Waymouth Street
GPO Box 1047
Adelaide SA 5001
08 8463 6876
DEWWaterLicensing@sa.gov.au

152 Jubilee Highway East / PO Box
1046
Mount Gambier SA 5290
08 7133 7332
DEW.LCWaterLicensing@sa.gov.au

28 Vaughan Terrace / PO Box 240
Berri SA 5343
08 8595 2053
DEWWaterTrade@sa.gov.au

Dear Zachary Rossato,

I am pleased to advise that your application PA-724479 for one or more Well Construction Permits has been approved, pursuant to section 112 of the *Landscape South Australia Act 2019* ('the Act'). Please find attached your Permit(s) P-509099, and P-509100, which will expire on 11 June 2027.

Please take note of your permit(s), which details the specific location to which the permit(s) applies, along with your obligations which are set out within the permit conditions. Note that this permit approval does not authorise the taking of water. You can also view your permit(s) in your mywater customer portal (<https://access.mywater.sa.gov.au>).

Only a licensed well driller authorised to work in South Australia may carry out the work required. This work must be carried out in accordance with the permit conditions and the Well Driller's General Specifications (<https://www.environment.sa.gov.au/files/sharedassets/public/water/gen-spec-well-drilling-operations.pdf>).

Under Section 216 of the Act, you have a right of appeal to the Environment Resources and Development Court ('ERD Court') against the imposition of any conditions on the permit(s). The appeal must be lodged within six weeks of the date of issue of the permit. A copy of the appeal must also be served on the Minister for Environment and Water. For information on how to lodge an appeal, please refer to the website of the ERD Court: <https://www.courts.sa.gov.au/going-to-court/representing-yourself/lodging-an-appeal/>.

If you have any questions regarding the above, please contact your regional office, via the details shown above.

Yours sincerely,

Dean Zeven

Delegate of the Minister for Climate, Environment and Water
DEPARTMENT FOR ENVIRONMENT AND WATER

Well Permit

Permit to undertake a Water Affecting Activity

Pursuant to section 112 of the Landscape South Australia Act 2019

Subject to full compliance with all the procedures, specifications and limitations contained or referred to in the conditions set out below.



Permission is hereby granted to

Big Lake Uranium Pty Ltd

Permit Number: **P-509099**

Permit Term: **2 year(s)**

Expiry Date: **11 June 2027**

To undertake the following water affecting activity

Activity **Construct a new well**
Well Use **Monitoring or Investigation**
At location **140.24117618000002,-28.20286064999999**
CL6175/809, Allotment 2025 Deposited Plan 35579

Conditions

- 378456 WAA-100 - The activity authorised by this permit must only be undertaken on the land identified as follows:
CL6175/809 D35579 A2025
- 378457 WAA-102 - The equipment, materials and methods used in drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, shall not adversely affect the quality of an underground water resource.
- 378458 WAA-103 - Aquifers shall be protected during drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, to prevent adverse impacts upon the integrity of the aquifer.
- 378464 WAA-110 - The authorised activity must be undertaken by a licensed driller.
- 378473 WAA-318 - The well driller must submit a Well Completion Report to the Department within 30 days of completion of each activity authorised by this well construction permit.
- 378459 WAA-105 - Water samples are required from all wells drilled in respect of this permit.
- 378460 WAA-106 - Strata samples are not required.
- 378461 WAA-107 - The licensed well driller must forward with the report a plan obtained from the permit holder, who must mark thereon the location of all wells drilled in respect of this permit.
- 378462 WAA-108 - All wells must be drilled vertical unless written permission is obtained from the Minister.
- 378463 WAA-109 - Where a well passes or will pass through two or more aquifers, an impervious seal shall be made and maintained between the aquifers to prevent leakage between the aquifers.
- 378465 WAA-111 - If the well is considered unsatisfactory, it may be abandoned and a replacement well may then be constructed provided that the abandoned well is backfilled prior to the drill rig leaving the site.
- 378466 WAA-112 - The authorised activity must be undertaken by the holder of a Class 2 or Class 3 Well Driller's Licence (as defined by the National Uniform Drillers Licensing System) who must notify this Departments Drilling Inspector at least 24 hours prior to the commencement of drilling.
- 378467 WAA-124 - If the extracted groundwater supply is required for human consumption, it is recommended that the water be quality tested.
- 378468 WAA-133 - All groundwater extracted during sampling and/or purging must be contained and disposed of in an appropriate manner to minimise risk to health and the environment.
- 378469 WAA-134 - This permit does not authorise the taking of water from the well for any purpose other than testing.
- 378470 WAA-136 - Wells are to be backfilled when no longer required for ongoing monitoring or investigation purposes.
- 378471 WAA-137 - The well subject to this permit must not be completed as an industrial water supply well unless prior approval has been obtained from the department.
- 378472 WAA-224 - The issue of this permit does not negate the requirement to comply with the provisions of the Aboriginal Heritage Act 1988.

AUTHORISATION: MINISTER FOR CLIMATE, ENVIRONMENT AND WATER

Date: 11 June 2025

Additional information about this permit

Under section 216(1)(b)(ii) of the Act, you have a right of appeal to the Environment, Resources and Development Court against the imposition of any condition on this permit. The appeal must be instituted within six weeks of the date of permit issue. The appeal must also be served upon this department within that time.

The authority to undertake the water affecting activity, defined in the permit, is limited to the holder of the permit and cannot be assigned to another person. If the property upon which the permit work is to be undertaken is sold prior to the commencement of any work, the new landowner must make an application for a new permit.

The well construction permit is not an authorisation for a person to enter private property and prior authority must be obtained from the land owner in all circumstances.

The issue of this permit does not negate the requirement to comply with the provisions of other Acts that may impact on the activity undertaken pursuant of this permit.

This permit is not an approval to clear native vegetation. In South Australia, native vegetation is protected by the *Native Vegetation Act 1991*. Clearance includes the draining or flooding of land, including actions that result in the substantial damage to native vegetation, this might include activities that lower the water tables and, as a result, impact on water dependent wetland communities. In most cases the clearance of native vegetation requires the consent of the Native Vegetation Council. Further information regarding native vegetation clearance approvals, is available from: <http://www.environment.sa.gov.au/managing-natural-resources/native-vegetation>.

It is recommended that all drilling equipment be decontaminated prior to construction of a new well or rehabilitation of an existing well to prevent the introduction or transfer of iron bacteria. Similar precautions should also be taken with pump installation equipment.

The equipment, materials and methods used in drilling, plugging, backfilling or sealing of a well or the replacement or alteration of the casing, lining or screen of a well shall not adversely affect the quality of an underground water resource.

Aquifers shall be protected during drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, to prevent adverse impacts upon the integrity of the aquifer.

The activity must not adversely affect water-dependent ecosystems nearby.

Activities shall not have an unacceptable detrimental impact on cultural, heritage or social values.

This work may be subject to inspection by the Department's Drilling Inspectors.

If the name or contact details of the holder or their company changes, then the holder must notify this department within 21 days of the change occurring. Names and contact details can be updated online through the mywater customer portal (mywater.sa.gov.au).

Take note that the permit holder, or a person acting on behalf of the permit holder, who contravenes or fails to comply with a condition of the permit is guilty of an offence, and such acts or omissions may result in the variation, suspension or revocation of the permit.

Well Permit

Permit to undertake a Water Affecting Activity

Pursuant to section 112 of the Landscape South Australia Act 2019

Subject to full compliance with all the procedures, specifications and limitations contained or referred to in the conditions set out below.



Permission is hereby granted to

Big Lake Uranium Pty Ltd

Permit Number: **P-509100**

Permit Term: **2 year(s)**

Expiry Date: **11 June 2027**

To undertake the following water affecting activity

Activity **Construct a new well**
Well Use **Monitoring or Investigation**
At location **140.24117618000002,-28.20286064999999**
CL6175/809, Allotment 2025 Deposited Plan 35579

Conditions

- 378479 WAA-100 - The activity authorised by this permit must only be undertaken on the land identified as follows:
CL6175/809 D35579 A2025
- 378480 WAA-102 - The equipment, materials and methods used in drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, shall not adversely affect the quality of an underground water resource.
- 378481 WAA-103 - Aquifers shall be protected during drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, to prevent adverse impacts upon the integrity of the aquifer.
- 378487 WAA-110 - The authorised activity must be undertaken by a licensed driller.
- 378496 WAA-318 - The well driller must submit a Well Completion Report to the Department within 30 days of completion of each activity authorised by this well construction permit.
- 378482 WAA-105 - Water samples are required from all wells drilled in respect of this permit.
- 378483 WAA-106 - Strata samples are not required.
- 378484 WAA-107 - The licensed well driller must forward with the report a plan obtained from the permit holder, who must mark thereon the location of all wells drilled in respect of this permit.
- 378485 WAA-108 - All wells must be drilled vertical unless written permission is obtained from the Minister.
- 378486 WAA-109 - Where a well passes or will pass through two or more aquifers, an impervious seal shall be made and maintained between the aquifers to prevent leakage between the aquifers.
- 378488 WAA-111 - If the well is considered unsatisfactory, it may be abandoned and a replacement well may then be constructed provided that the abandoned well is backfilled prior to the drill rig leaving the site.
- 378489 WAA-112 - The authorised activity must be undertaken by the holder of a Class 2 or Class 3 Well Driller's Licence (as defined by the National Uniform Drillers Licensing System) who must notify this Departments Drilling Inspector at least 24 hours prior to the commencement of drilling.
- 378490 WAA-124 - If the extracted groundwater supply is required for human consumption, it is recommended that the water be quality tested.
- 378491 WAA-133 - All groundwater extracted during sampling and/or purging must be contained and disposed of in an appropriate manner to minimise risk to health and the environment.
- 378492 WAA-134 - This permit does not authorise the taking of water from the well for any purpose other than testing.
- 378493 WAA-136 - Wells are to be backfilled when no longer required for ongoing monitoring or investigation purposes.
- 378494 WAA-137 - The well subject to this permit must not be completed as an industrial water supply well unless prior approval has been obtained from the department.
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AUTHORISATION: MINISTER FOR CLIMATE, ENVIRONMENT AND WATER

Date: 11 June 2025

Additional information about this permit

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The equipment, materials and methods used in drilling, plugging, backfilling or sealing of a well or the replacement or alteration of the casing, lining or screen of a well shall not adversely affect the quality of an underground water resource.

Aquifers shall be protected during drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, to prevent adverse impacts upon the integrity of the aquifer.

The activity must not adversely affect water-dependent ecosystems nearby.

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This work may be subject to inspection by the Department's Drilling Inspectors.

If the name or contact details of the holder or their company changes, then the holder must notify this department within 21 days of the change occurring. Names and contact details can be updated online through the mywater customer portal (mywater.sa.gov.au).

Take note that the permit holder, or a person acting on behalf of the permit holder, who contravenes or fails to comply with a condition of the permit is guilty of an offence, and such acts or omissions may result in the variation, suspension or revocation of the permit.



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 20-May-2025

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	13
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	13
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	2
Regional Forest Agreements:	None
Nationally Important Wetlands:	2
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	1

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Coongie lakes	Within Ramsar site	In feature area

Listed Threatened Species	[Resource Information]
---------------------------	--------------------------

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat likely to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area

MAMMAL			
Notomys fuscus Dusky Hopping-mouse, Wilkiniti [125]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pseudomys australis Plains Rat, Palyoora, Plains Mouse [108]	Vulnerable	Species or species habitat may occur within area	In feature area

PLANT			
Frankenia plicata [4225]	Endangered	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Innamincka	Regional Reserve	SA	In feature area
Strzelecki	Regional Reserve	SA	In feature area

Nationally Important Wetlands			[Resource Information]
Wetland Name		State	Buffer Status
Coongie Lakes		SA	In feature area
Strzelecki Creek Wetland System		SA	In feature area

EPBC Act Referrals					[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Controlled action					
Expansion of the Olympic Dam copper, uranium, gold and silver mine, processing plant and associated	2005/2270	Controlled Action	Post-Approval	In feature area	
Not controlled action					
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area	
QSN3 Project, expand 935km gas pipeline and supporting infrastructure	2009/5072	Not Controlled Action	Completed	In feature area	
Not controlled action (particular manner)					
QSN Underground Gas Pipeline	2008/4043	Not Controlled Action (Particular Manner)	Post-Approval	In feature area	

Bioregional Assessments			[Resource Information]
SubRegion	BioRegion	Website	Buffer Status
Cooper	Lake Eyre Basin	BA website	In feature area

Geological and Bioregional Assessments			[Resource Information]
Name	State	Website	Buffer Status
Cooper GBA region	QLD, SA, NSW	GBA website	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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Big Lake Uranium Project

RADIATION MANAGEMENT PLAN

Rev 2

December 2023

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1 INTRODUCTION

1.1 Project Description

Alligator Energy Limited (Alligator Energy), an ASX listed company, is exploring for uranium in the Cooper Basin region of South Australia (SA) approximately 45km south of Innamincka.

The Big Lake Uranium Project (BLU) focusses on the REDOX-controlled “roll front” uranium mineralisation primarily in the Eyre and Namba formations of the Lake Eyre Basin. The potential uranium source is interpreted to be from weathering/leaching of the uranium enriched Big Lake Granite Suite. The Big Lake Granite Suite was initially recognised from regional heat flow maps and elevated geothermal gradients. They were subsequently recognised in geophysical data and later intersected in petroleum wells.

The current Big Lake Uranium project licences held and/or operated by Alligator Energy or its wholly owned subsidiaries as of August 2023 are shown below:

Tenement Number	Name	Km ²
EL6367	Big Lake	819
EL6847	Big Lake	843
EL6848	Big Lake	878
EL6849	Big Lake	979
EL6902	Big Lake	941
EL6903	Big Lake	996
EL6904	Big Lake	976

The Radiation Management Plan is intended to cover the above EL's.

1.2 Project Personnel

The workforce for exploration programs on the above tenements will typically comprise between about 6 and 20 personnel, including geologists, field assistants and drilling contractors. Site radiation safety implementation and supervision will be provided by designated and trained personnel with the appropriate licencing requirements under the SA Radiation Protection and Control Act 2021 to use and handle radioactive substances and act as radiation safety officers for Alligator Energy. Senior management, including the Chief Executive Officer, will be responsible for approving and facilitating the implementation of the radiation management plan.

1.3 Purpose and Objectives of the Radiation Management Plan

Uranium is widely present in the Earth's crust, averaging about 3 parts per million (ppm) in ordinary soil, and up to approximately 30 ppm in some granites. Uranium ores range from 0.03% (300 ppm) up to a few percent (> 10,000 ppm).

During exploration activities (e.g.) drilling and sampling materials containing uranium, workers are potentially exposed to radiation. Corporate ‘duty of care’ and risk management requirements specify the need to *monitor* and *manage* radiation to control and minimize worker's radiation doses to acceptable levels. It is also necessary to minimize spills of materials which could cause contamination of the environment, and to avoid release of radioactively contaminated items and equipment off site before they have been cleaned of any radioactive contamination.

The Alligator Energy Radiation Management Plan for the Big Lake Project has been prepared to comply with the requirements of the EPA SA and Department for Energy and Mining (DEM) for the management of radiation.

Guidelines provided by the EPA require companies exploring for uranium to:

- Manage radiation risks during exploration.
- Develop and implement a radiation management plan.
- Designate a suitably competent radiation safety officer (Mike Barlow – AGE Exploration Manager).
- Implement measures to minimise radiation exposure to workers and members of the public.
- Provide general training in radiation safety to all employees and contractors.
- Monitor workers radiation exposure.
- Manage the transport of radioactive materials by following the ARPANSA Code of Practice for Safe Transport of Radioactive Materials.
- Manage the storage of radioactive materials by warehousing samples securely, away from members of the public and monitoring the dose rates in the storage area.

1.4 Legislation

Current SA and Commonwealth legislation and other requirements including Codes, Guides and so on relevant to radiation management include the following:

- Dangerous Goods Act 1998 and Regulations.
- Mineral Titles Act and Regulations.
- Mining Management Act 2008 and Regulations.
- Radiation Protection and Control Act 2004.
- Radioactive Ores and Concentrates (Packaging and Transport) Act 2007 and Regulations Atomic Energy Act 1953.
- Code of Practice for Safe Transport of Radioactive Materials 2019, ARPANSA.
- Code of Practice for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing 2005, ARPANSA.
- International Atomic Energy Agency Safety Standard Series SSR-6, Regulations for the Safe Transport of Radioactive Material 2018.
- Safety Guide for the Management of Naturally Occurring Radioactive Material (NORM), 2008, ARPANSA.
- Radiation protection guidelines on mining in South Australia: Mineral exploration (EPA) (Feb 2010).
- Radiation Protection and Control Act 2021(RPC Act).
- Radiation Protection and Control Regulations 2022.
- Code for Radiation Protection in Planned Exposure Situations (2020).
- ICRP 137: Occupational Intakes of Radionuclides: Part 3 (2017).

2 RADIATION

Radioactive atoms, including atoms of uranium, radium, and thorium, carry excess energy and are unstable. These atoms break down, or decay, to make new 'daughter' atoms and give up some of their excess energy in tiny 'packets' of energy called alpha, beta, and gamma radiation. Uranium is the 'parent' of a series of other radioactive elements shown in the U-238 Decay Chain table below. Alpha, beta and gamma radiations have different penetration into solid matter:

- **Alpha particles** are electrically charged helium nuclei, ejected at very high speed from the atom at the instant of breakdown. They are slowed down and stopped by about the thickness of a sheet of paper (say 50 microns, 0.05 mm), and by about 3 cm of air. However, they make a dense ionization damage trail along the stopping track.
- **Beta particles** are electrons formed by the transformation of a neutron to a proton, emitted by the atom at a very high speed. They can travel a few centimetres in solids and many centimetres or metres in air before stopping, but carry less energy, and give it up in a much more spread out and less dense track (so the damage is very much less).
- **Gamma rays** are electromagnetic energy, like x-rays, and are very penetrating, and can pass with only a little reduction in intensity, through several centimetres of solids.

U-238 Decay Chain

Nuclide	Radiation	Half-life
Uranium 238	α	4.5 billion years
Thorium 234	β, γ	24 days
Protactinium 234	β	1.2 minutes
Uranium 234	α	250,000 years
Thorium 230	α	80,000 years
Radium 226	α, γ	1,600 years
Radon 222 (gas)	α	3.8 days
Polonium 218	α	3 minutes
Lead 214	β, γ	27 minutes
Bismuth 214	β, γ	20 minutes
Polonium 214	α	160 microsecs
Lead 210	β, γ	22 years
Bismuth 210	β	5 days
Polonium 210	α	140 days
Lead 206	---	Stable

α = alpha particle, doubly charged helium nucleus, 2 protons + 2 neutrons.

β = beta particle, high speed electron emitted from nucleus.

γ = gamma ray, electromagnetic radiation.

2.1 Radiation Dose

When radiation is absorbed by matter it causes damage to the chemical molecules making up the material, and the amount of damage is proportional to the energy delivered per unit mass. Because radiation can ionize atoms, it can damage chemical structures in living cells, such as DNA, the information-carrying molecules that control what the cell does. The biological damage to living tissue by radiation energy is described as the “dose”.

2.2 Dose Units

Radiation dose to humans is measured in units called sieverts (Sv). One (1) sievert is a large dose, and therefore in normal situations, doses are discussed in units of millisieverts (mSv), which equal one-thousandth of a sievert, and micro-sieverts (μ Sv), which equal one millionth of a sievert.

2.3 Radiation Dose Limits

Radiation dose limits are based on the observed health effects in people exposed to radiation in the past (e.g.) Japanese atom bomb survivors, overexposed medical patients and radiologists. A dose of 1 sievert is assumed to produce a risk of radiation-caused cancer of 5% in the exposed person's lifetime.

The International Commission on Radiological Protection (ICRP) recommends 1 Sievert of dose as the lifetime limit for radiation workers and, *assuming fulltime work for 50 years in a “radiation job”*, has set one-fiftieth of a Sievert as the yearly dose maximum. This is equal to 20 millisieverts per year for radiation workers.

Typical Doses for Radiation Workers

- Most full-time radiation workers receive an annual dose generally between 1 and 3 millisieverts, up to a maximum of about 5 to 6 millisieverts. Typical professions are uranium miners, mineral sand mine separation plant operators, industrial pipeline radiographers, medical radiologists, nurses and radiotherapy technicians.
- Fulltime work on a drill rig on a uranium prospect could result in a dose of approximately 0.2 to 0.6 mSv in a year, depending mainly on dust control and ore grade.

Typical Doses for Members of the Public

- The average dose from natural background radiation received by the general public is about 2 or 3 mSv per year.
- Medical radiation procedures generally give the patient somewhat more radiation. For example, a ‘CAT’ scan covering the chest and abdomen gives about 10 to 20 mSv; a heart stress test scan using radiopharmaceuticals gives about 12 mSv and other nuclear medicine scans generally give 5 or 6 mSv.
- The Annual Limit for members of the public is set at 1 mSv per year over and above natural background. This considers the need for lower dose limits for children and pregnant women and the fact that non-workers may have ongoing health problems.

2.4 Radiation Dose Delivery Pathways

There are four possible pathways for the delivery of radiation doses to the human body that should be considered in any mining/exploration situation. These pathways may require active control, depending on the circumstances.

- **Inhalation** (radon and radon daughters, and airborne dust containing long-lived alpha-emitting uranium, thorium, and radium).
- **Ingestion** (radioactive dust contamination on hands transferred to mouth whilst eating or smoking).

- Irradiation (gamma radiation from mineralised drill cuttings, core, sludges or radiation sources), and
- Absorption (through broken skin - cuts and abrasions).

The potential for inhalation of radon gas progeny will generally be trivial in pre-mining activities such as exploration and is potentially only important in underground uranium mines where a high standard of ventilation is necessary.

For work on the Big Lake Uranium Project, inhalation and ingestion of dust containing radioactive atoms, and gamma irradiation, are the main pathways that could potentially require control. Gamma radiation monitoring using survey instrument is very useful, as it gives 'early warning' of the presence of radioactive materials so that controls can be put in place as necessary.

2.5 Performance Targets

The following dose limits are applicable:

- 1 mSv per year for a member of the public.
- 20 mSv per year, averaged over a period of 5 consecutive calendar years, for a worker. The dose for a worker may not exceed 50 mSv in any one year.
- Doses shall also be ALARA (As Low As Reasonably Achievable) with social and economic considerations taken into account.

3 RADIATION DOSE CONTROL MEASURES

The general guiding principle in all radiation protection is to try to keep doses “As Low As Reasonably Achievable” (ALARA), with social and economic factors considered.

3.1 Protection Against External Radiation Sources (direct exposure to x-rays or gamma rays)

- Time - minimise the time you are exposed to the radiation.
- Distance - keep your distance from the radiation source (the inverse square law says that double the distance will give a quarter of the dose rate).
- Shielding - use some absorbing shielding between you and the radiation source (like sand, lead, steel or soil).

Note: there are no gamma ray exposure situations in uranium exploration that will need active control such as listed above.

3.2 Protection Against Inhalation of Airborne Contamination (airborne dust)

During uranium exploration, the main requirement is control of radioactive dust. Radioactive dust can be inhaled and/or ingested (“Don’t eat the dust; don’t breathe the dust”).

- Implement effective dust controls and ventilation (see section 4.1) - this is important in both drilling operations (particularly RAB/AC drilling) and in sample preparation (splitting, pulverizing, cutting).

3.3 Protection against Ingestion of Surface Contamination (dirt on your hands)

- Implement good housekeeping and personal hygiene practices, simple washing is effective - washing your hands adequately removes all dirt and mud, whether it is carrying radioactive substances or not.

4 WORK PROCEDURES

4.1 Occupational Hygiene and Dose Control

Hygiene

- When handling soils, drill core or cuttings, workers should be aware that samples may contain radioactive material. It is important to reduce the amount of dust generated during exploration activities and minimize inhalation of that dust. If the work activities are unavoidably dusty, workers must:
- Use dust masks or respirators - simple P1 standard half face disposables are satisfactory.
- Sweep/clean up any visible dust.
- Stay out of any dust plumes, mist or spray.
- Prior to eating, drinking or smoking it is important to wash your hands and face to remove dust and thus prevent or minimise ingestion of that dust.
- Shower and change clothes at the end of shift.

Dose control

- Radon progeny (radon daughters) in air will not require any active control but will be monitored and reported. A baseline radiation survey (measured in micro-sieverts) will be undertaken prior to the commencement of drilling operations. The same instrumentation will be used for all measurements thereafter for continuity purposes.
- Where uranium minerals are stored in sealed containers or poorly ventilated locations, natural ventilation shall be utilized for 15 minutes prior to worker access (e.g. opening drums or containers containing uranium mineralized ore 15 minutes prior to undertaking any work with samples or within containers).
- Employees made aware gamma dose can arise when working on a substantial outcrop of mineralization.

Provided these rules are followed, the radiation dose that you will receive will be well below the member of public limit (1msv per year).

4.2 Environmental Contamination Control

- All drill cuttings and drilling sludge should be cleaned up and appropriately disposed of as soon as practicable after the drillhole has been completed.
- Any mineralised cuttings/sludge (material with a surface count rate in excess of 2.5 times background) can be disposed of down hole or otherwise buried to a depth of at least 0.2m or greater to prevent future dispersion by rain and/or wind action.

4.3 Site Departure Clearance Checks

- Nothing should go off site if it is contaminated with radioactive dust or mud. This includes personal tools, heavy equipment, vehicles, drill rigs, or personnel and clothing.
- Radioactive contamination can be easily removed like any other dirt simply by washing.
- After washing, items can be checked with an alpha probe for any residual contamination. Repeated washing and checking should continue until under the surface contamination limit of 0.4 Bq/cm².
- Plant and equipment must be issued with a clearance certificate prior to leaving the site.
- Clearance for leaving the site is given by the RSO.

5 MONITORING FOR THE BIG LAKE PROJECT

Radiation monitoring will be carried out to:

- Provide data for radiation dose estimation.
- Check the efficiency of control/mitigation measures that have been put in place.
- Provide feedback to workers, management, and regulatory agencies as required.
- Provide baseline radiation survey data for any future feasibility or environmental impact assessments.

5.1 Gamma Irradiation Monitoring

OSL Badges

- Personal OSL (Optically stimulated luminescence) radiation dose badges will be issued to every site worker. These badges are to be always worn during working hours and kept on a badge board at camp during non-working hours.
- The badges are obtained as a commercial service from the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Laboratory in Melbourne, a section of the Commonwealth Department of Health.
- Badges will be sent for analysis after 12 weeks and a replacement will be issued. Workers are responsible for their badges and will be charged a replacement fee if the badge is lost.
- The results from the badge analysis will be available to workers as an annual dose letter, or as an individual report upon request.

Personal Dosimeter

- Personal dosimeters may be issued to workers for short term use to check radiation exposure at any time and at any location.
- The dosimeters provide digital readout of radiation exposure.

Gamma Survey Monitoring

- Gamma radiation during exploration work, including drilling, is not expected to require any active control measures. However, a scintillometer or geiger counter will be used to check drill core and cuttings for the presence of radioactive elements.
- The scintillometer or geiger counter may also be used for other general gamma radiation monitoring.

5.2 Dust Inhalation

- The potentially highest exposed workers (i.e. those closest to the drill rig cyclone) will be required to wear a personal air sampling pump once a month to provide information on airborne dust contamination levels. The pump draws air from the wearers 'breathing zone' through a filter on which airborne dust is trapped. The filter is later counted by an alpha radiation counter to assess the level of contamination in the air.
- On dusty jobs where there is known uranium mineralisation, or uranium concentrations greater than 400 ppm have been intersected while drilling, radionuclides in airborne dust will be monitored using a personal air sampler for shift-average assessments.
 - The intent is to take an adequate but limited number of shift samples so as to obtain a statistically sound average.

- The filter from the personal air sampler will be counted in an alpha drawer assembly to determine the shift-average airborne alpha-emitting radionuclides concentration, after a period of 24 hours (to allow short lived products to decay).
- Dose estimates will be calculated based on personal dust monitoring results and area dust monitoring results using the following formula:

$$\text{Dust Dose} = \text{average } \alpha\text{dps/m}^3 \times \text{DCF}(\mu\text{Sv}/\alpha\text{dps}) \times \text{exposure period in hours} \times 1.2 \text{ m}^3/\text{hr}$$

where αdps = α disintegrations per second; DCF = Dose Conversion Factor = $13.53 \mu\text{Sv}/\alpha\text{dps}$ for $5\mu\text{m}$ AMAD dust particle size (from ICRP 137) and $1.2\text{m}^3/\text{hr}$ = assumed standard breathing rate

(see ARPANSA Amended RPS9 Tables – <https://www.arpansa.gov.au/amended-tables-rps-9-and-rps-91>)

- The workplace airborne radionuclide data will assist decisions about the need to use respiratory protection during work activities.

5.3 Radon Progeny Dose Monitoring

- Radon-222 gas is released during the uranium decay process. Radon-222 itself is short lived and relatively insignificant for dose estimation but decays to produce “radon progeny” or “radon daughters” which are α emitters that can attach to lung tissue and cause significant local irradiation.
- Radon progeny exposure in well-ventilated outdoor environments is generally not significant but build up can occur in poorly ventilated areas such as core sheds if not properly constructed or in costeans during early morning calm periods.
- Limited radon daughter (radon progeny) monitoring may be carried out in a short campaign in areas of potential radon concentration to obtain indicative figures for local background and its variability. The sample results will potentially only be providing environmental baseline data and will to be interpreted as such.
- Radon daughter monitoring is performed by taking “grab” samples of air through a filter paper and then immediately assessing the radon daughter activity collected on it by carrying out a short period gross alpha count (utilizing the Borak Method).

5.4 Radiation Dose Ingestion Monitoring

- A Large Area Surface Alpha Contamination Probe is used to conduct monitoring for potential ingestion.
- Surface contamination monitoring may be conducted by the RSO to spot check workers hands for contamination.
- Tables, desks, chairs and other miscellaneous equipment will also be monitored from time to time as part of the monitoring program.
- The alpha probe is also used to test vehicles before they are given clearance to drive on public roads.

6 XRF DEVICES

- Handheld XRF devices shall be used in accordance with the handheld XRF procedure.
- XRF devices must be registered in SA for use by the owner of the apparatus, or in accordance with the SA Radiation Protection and Control regulations.
- XRF devices shall be inspected regularly for unintended radiation emissions, and to ensure interlocks are operating effectively. The inspection frequency is dependent on use, but at least 6 monthly inspections are recommended.

7 INTRODUCED SOURCES

Alligator Energy will, from time to time, engage contractors that utilize sealed radioactive sources (e.g. borehole loggers). The radioactive source mobilization checklist shall be used when a sealed source is to be used/stored at any Alligator Energy facility. All sealed radioactive sources shall be registered and source users must have an appropriate radioactive materials licence (or a licence recognized as acceptable under mutual recognition).

8 EMERGENCY PROCEDURES

In the event of an incident or emergency involving radioactive substances, implement control measures to minimise the exposure time of personnel to the source and maximise the distance of personnel from the potential source:

- Secure the area by means available.
- Move personnel to a safe distance from the spill or potential source of radiation.
- Notify the site supervisor and the Radiation Safety Officer.

9 NOTIFIABLE INCIDENTS

- Workers shall report incidents to their supervisor or manager via a written report (using internal safety reporting procedure is appropriate).
- Notifiable incidents must be reported to the SA EPA.

The following incidents are foreseeable for ionizing radiation sources at Alligator Energy:

- Stolen/missing XRF machine – orally report to regulator within 24h, written report within 7 days.
- Worker or member of public exceeding annual dose limits (via misuse of an XRF or radioactive sources) – orally report to regulator ASAP, written report within 7 days.
- Damage to XRF – orally reported to supervisor or manager ASAP, written report within 7 days.

Where radioactive materials may cause environmental damage (e.g. spill of unsealed radioactive materials to the environment), the regulator shall be notified orally immediately, with a written report within 7 days. Specialist advice will also be required.

10 SPECIALIST ADVICE

Alligator Energy has access to the following specialist advice when dealing with potential radiation incidents:

Daniel Emes
Radiation Consulting Australia
0439879737
Daniel.emes@radiationconsulting.com

11 TRAINING, RECORDING AND REPORTING

11.1 Worker Inductions and Training

- All employees and contractors are to receive general training in radiation safety and be aware of the risks of working with radioactive materials and steps which can be taken to minimise their exposure.
- Training will be initiated with a Radiation Safety Induction briefing shortly after arrival on site and will be issued with a Radiation Safety Manual.
- Records of inductions will be maintained together with a signed receipt for the Radiation Safety Manual.
- Additional radiation safety briefings will be given as the occasion arises, (e.g.) at toolbox meetings, to reinforce personal monitoring, dust control, spillage control, or site clearance control measures. All briefings and/or additional training will be recorded.
- Worker training will emphasise the importance of personal hygiene to minimise the risk of health issues.
- The Radiation Safety Officer(s) will maintain the currency of their qualifications and knowledge.

11.2 Recordkeeping

Records

Records are to be kept of the following information or events:

- The identity and qualification dates of Radiation Safety Officer and Assistant Radiation Safety Officers employed by the Company.
- Results of employees' personal dosimeter (OSL badge). These dose results are recorded and reported to the relevant workers on a regular basis.
- Calibration of radiation monitoring equipment.

Registers

A "register" is to be maintained in accordance with the S.A. Regulations for Radiation Protection and Control for each of the following:

- Radiation worker dose records.
- Radiation Area Monitoring.
- Incidents and notifiable incidents
- Apparatus, Sealed Sources, Unsealed Sources and Equipment.

These registers are maintained by the RSO and assistants.

12 GLOSSARY OF TERMS

Activity	The activity of a radionuclide is the number of disintegrations per second, or becquerels.
ALARA	<i>As low as reasonably achievable, economic and social factors being taken into account.</i>
Alpha radiation	A charged particle emitted from a disintegrating radionuclide consisting of two protons and two neutrons, i.e., a helium nucleus.
Appropriate authority	Means the statutory authority that is responsible for enforcing the provisions of the relevant Act and Regulations.
Becquerel (Bq)	The unit of measurement of radioactive decay defined as one radioactive disintegration per second.
Beta radiation	A charged particle emitted from a disintegrating radionuclide consisting of an electron or a positron.
Gamma radiation	A form of electromagnetic radiation, similar to light or X-rays, but originating as an emission from the nucleus of an atom
Gray (Gy)	The unit of absorbed dose. It is the quantity of energy from ionizing radiation that is imparted to a unit mass of matter such as tissue. One gray corresponds to one joule per kilogram.
Half-life	The time taken for the activity of a radioisotope to reduce by one half of its current activity.
ICRP	International Commission on Radiation Protection
Ionizing radiation	Radiation which interacts with matter to remove electrons from (i.e., to ionize) the atoms of the material absorbing it, producing electrically charged atoms called ions
Member of the public (for radiation purposes)	A person who is exposed only incidentally to radiation as a consequence of the use of radioactive material.
Radioactive	Spontaneously emitting radiation by nuclear transformation.
Radiation	Energy flux associated with electromagnetic (X-ray, gamma rays) or particles (alpha, beta and neutron) emissions.
Radionuclide	A nuclide of an atom that is radioactive.
Radioisotope	An isotope of an element which is radioactive.
Radon	The radioactive decay product of radium. It occurs as an inert gas. The radioisotope of radon in the ²³⁸ U decay series is ²²² Rn which has a half-life of 3.8 days. The radioisotope of radon in the ²³² Th decay series is ²²⁰ Rn which has a half-life of 55.6 seconds.
Secular equilibrium	When all the decay products in a radioactive decay series have the same activity.
Sievert (Sv)	The unit of measurement of radiation dose equivalent. One sievert is equal to the product of the absorbed dose by the quality factor and any modifying factor(s). It allows a comparison of the biological damage caused by different forms of radiation.
Specific activity	The activity of a unit mass of a radioactive substance, measured in Bq g ⁻¹ .
²³² Th	The most abundant naturally occurring isotope of thorium.
²³⁸ U	The most abundant naturally occurring isotope of uranium.

OFFICIAL



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Mandy Slattery

Exploration & Development Compliance Support Officer

Alligator Energy Ltd

PO Box 338

Spring Hill QLD 4004

Dear Mandy

RE: Endorsement of Exploration Radiation Management Plan

I refer to your email of 17 November 2023 concerning the application for endorsement of an *exploration Radiation Management Plan for the Big Lake Uranium Project, Alligator Energy Limited* (undertaking exploration for uranium in the Cooper Basin region of South Australia).

The revised ERMP supplied to the EPA on 11 December 2023 is endorsed for the purposes of the *Radiation protection guidelines on mining in South Australia: Mineral exploration 2010* published by the EPA.

For further information on this matter, please contact me directly at hani.romana@sa.gov.au or 08 8463 7824.

Yours sincerely

Hani Romana

Scientific Officer, Authorised Officer

Mining and Radiation

ENVIRONMENT PROTECTION AUTHORITY

Date: 20 December 2023

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