



Our Ref: EPR-04223

Regulation and Compliance
Division

GPO Box 618
Adelaide SA 5001

ABN 83 768 683 934
DEM.exploration@sa.gov.au
www.energymining.sa.gov.au

Mandy Slattery
Tenement Manager
S Uranium Pty Ltd
Level 1, 5-7 King William Street
UNLEY SA 5061

Via email: ms@alligatorenergy.com.au

Dear Ms Slattery

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

In reference to your final submission dated 19 August 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	S Uranium Pty Ltd
Tenement Type & Number	Exploration Licence EL 5926, EL 6350
Program Number	EPR-04223 review
EPEPR Description	To update the approved program to reflect current and proposed exploration activities on EL5926 and EL6350

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	PEPR Conditions In accordance with section 70B(7a)(b) of the Mining Act, the approved EPEPR is subject to the conditions listed in the Notice of Approval Conditions – EPR04223. (Appendix 1)
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2	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 tenements.
3	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 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.
4	Work, Health and Safety Compliance In accordance with Chapter 10 of the Work Health and Safety Regulations 2012 (SA), you must meet the requirements for mine operators in South Australia, which include a notification for mining operations, the establishment of a Safety Management System, the identification of Principal Mining Hazards and development of a Principal Mining Hazard Management Plan. Further information on your responsibilities, including a guide to Chapter 10, and the Mine Operator Notification Form, is available on the SafeWork SA website.
5	Water Licence Under the requirements of the Landscape South Australia Act 2019 a water licence may be required. You are advised to consult with the Department for Environment and Water, Water Licensing Branch to seek further information regarding licensing requirements.
6	EPEPR Timeframe The EPEPR is approved for the term of Exploration Licence(s)/Retention Lease(s): EL5926 and EL6350. A further 3 months after expiry of the program notification 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

Jason Perry
Senior Assessment Officer, Exploration Regulation
DEM.exploration@sa.gov.au

Yours sincerely



Simon Constable

DIRECTOR, MINERALS REGULATION

In accordance with delegated powers and functions

27/08/2026

Attachment:

1. Appendix 1

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>

Appendix 1**Notice of Approval Conditions – EPR-04223**

In accordance with section 70B(7a)(b) of the *Mining Act 1971*, EPR-04223 is approved subject to the following conditions:

Notice of Approval Conditions – EPR-04223	
1	For ongoing EPEPR Prior to conducting exploration operations an EPEPR Program Notification must be submitted to the Department for Energy and Mining via MERS Portal in accordance with the approved EPEPR, 21 days prior to commencement of operations. The EPEPR notification must be submitted using the MERS Portal.

Exploration PEPR - EPEPR | Ongoing PEPR Review

Reference Number: **EPR-04223** • Status: **Assessment**

Begin

PEPR Type

Ongoing PEPR Review

Region

Request for Information

Listed below are any RFIs that impact your application. Confirmation of which RFI you are responding to may be required on the Review step.

Select Applicable PEPR

Previous MERS EPEPR?

☒ No ☐ Yes

Previous PEPR ID

EPEPR2023-008

Search PEPRs

Applicant and General Details

Applicant Details

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

David Brink
General Manager - Operations
db@alligatorenergy.com.au
0448 237 445

General Details

Tenement Details

Tenement Type	Tenement Name	Tenement Holder
Exploration Licence	EL 6350	S Uranium Pty Ltd
Exploration Licence	EL 5926	S Uranium Pty Ltd

Operating Company

Alligator Energy Ltd

If there is another Operating Company, please provide

Account Name	Entity Type	Registered Address	Registered Email
S Uranium Pty Ltd	Private Company	Level 1, 5-7 King William Street UNLEY SA 5061 Australia	ms@alligatorenergy.com.au (mailto:ms@alligatorenergy.com.au)

Project/prospect name

Samphire Project/Blackbush Deposit and Plumbush Prospect

Mineral Model

The Samphire project is targeting sedimentary hosted uranium mineralisation in the Pirie Basin Kanaka Beds in a paleochannel system approx. 50-90m depth. Uranium SA Ltd were prior operators of this project and identified two main areas of uranium mineralisation potentially amenable to In-Situ Recovery (ISR) (Blackbush deposit and the Plumbush prospect).

Primary Commodities

Commodity Name ↑	Commodity Group
Uranium	Exploration

Secondary Commodities

Commodity Name ↑	Commodity Group
Gold	Exploration
Lead	Exploration
Silver	Exploration
Tungsten	Exploration
Zinc	Exploration

Project Description

The aim of the drilling programs (included rotary mud, coring and investigation well/water supply well drilling) is to:

- 1) Continue to verify historical drilling results via rotary-mud drilling
- 2) Infill rotary-mud drilling to enable periodic updates to the In-Situ Recovery Mineral Resource Estimate
- 3) Commence stepping out from the existing defined resource to test extensions and add to the Mineral Resource Estimate via rotary-mud drilling
- 4) Obtain core (via core drilling) for detailed mineralogical information and samples for lab-scale metallurgical testwork
- 5) Commence regional exploration for satellite uranium occurrences (rotary-mud drilling and ground and/or airborne gravity surveying), and
- 6) Sample groundwater (investigation well drilling) to characterise the groundwater chemistry/water quality and commence evaluation of baselines and aquifer properties for the Blackbush deposit as a whole
- 7) Aquifer (closed-circuit) pump testing (using tanks for water management) to ascertain key hydrogeologic parameters
- 8) Install water supply wells to support exploration drilling activities

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.

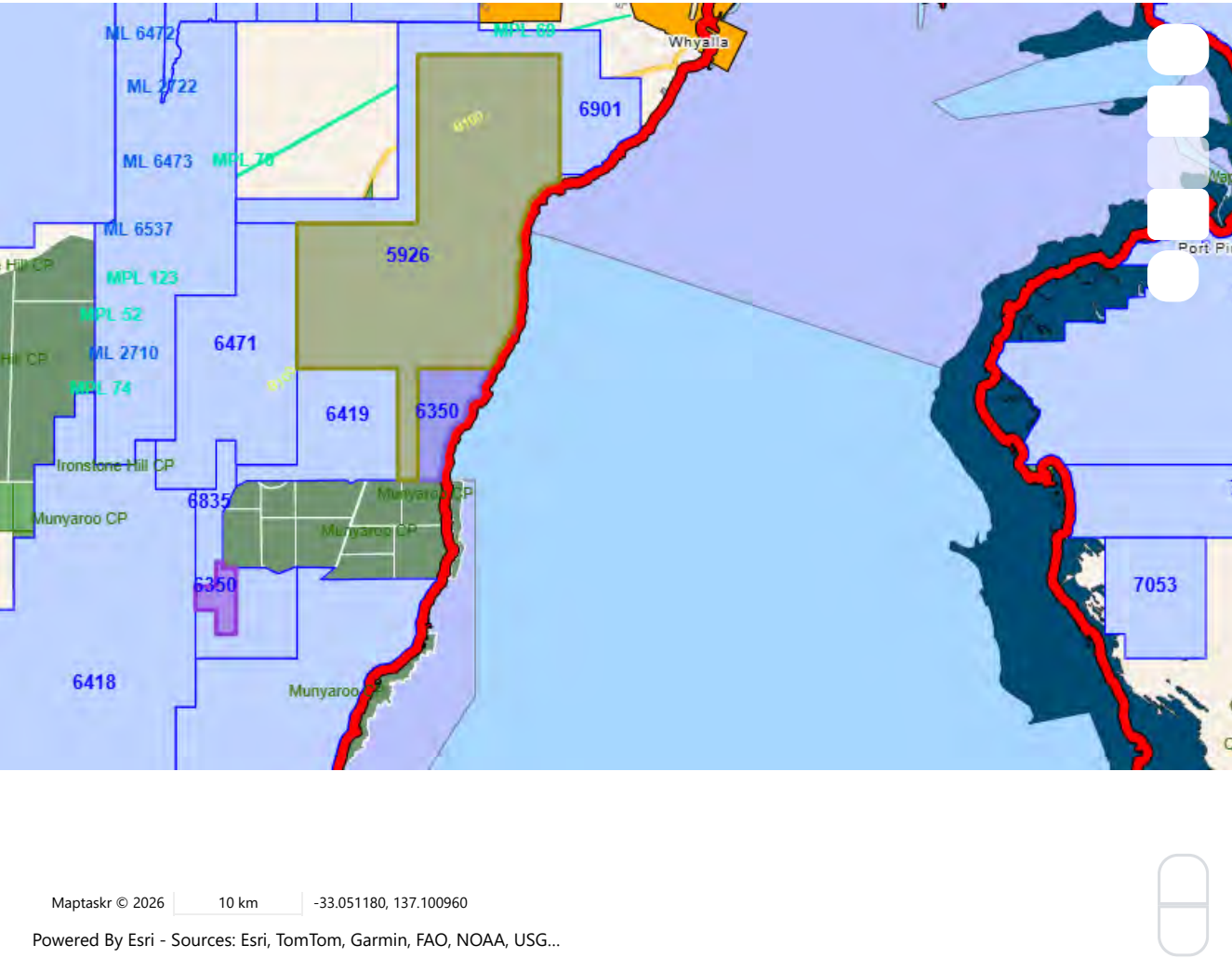
This PEPR review is required to update the approved program to reflect current and proposed exploration activities on EL5926 and EL6350 and to transfer the program into the MERS format. A land access agreement, including a call option to purchase the Mullaquana Crown lease, has been entered into, facilitating access and a number of the operational updates included in this review.

The review removes the previously approved rabbit and sheep proof enclosure associated with the RL area, as RL137 has since been granted and the field recovery trial completed. Temporary fencing will instead be installed around open pits where required until rehabilitation is completed. Vegetation management measures have also been revised to remove the use of mud mats and provide for vegetation to be rolled where practicable, with limited vegetation clearance undertaken where necessary for safe access and working conditions.

The review also provides for an additional laydown area, updated permits for drilling water-supply wells, and updates to equipment, infrastructure and resourcing arrangements to reflect current operational requirements.

Further updates reflect completion of the gravity survey, approval of the RL SEB, recent stakeholder consultation and the 2026 heritage survey, together with consequential updates to environmental information. Previously approved supporting maps and annexures will be retained where they remain current and consistent with this review. An expedited assessment is requested to enable the proposed water-supply wells to be drilled promptly and avoid delays to planned exploration activities.

Identify Application Area



Map Layer Intersects

Application Area Details

Location Description

Eyre Peninsula approximately 20km South of Whyalla

Area (Sqkm)

370.54

Spatial Data Intersects - Summary Table

Show

10

 entries

Search:

Spatial Layer Name	Category	Referral	Intersect Count
1:250K mapsheets	Other		3
Areas reserved from the Mining Act, 1971 and Opal Act, 1995	No-Go Area		2
Cadastral Parcels	Other		57
Exploration licences (mineral/opal)	No-Go Area		4
Geological Monuments (e.g. fossil reserve)	Other	Yes - Advice	1
Miscellaneous purposes licences (MPL)	No-Go Area		2
Native Vegetation Heritage Agreements	Other	Yes - Advice	3
Planning and Design Code Zones - conservation	Other		2
Registered and Notified ILUAs	Other		1
Retention leases (RL)	No-Go Area		1

Showing 1 to 10 of 11 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	WHYALLA	View attributes	Other
1:250K mapsheets	Shape 2	WHYALLA	View attributes	Other
1:250K mapsheets	Shape 3	WHYALLA	View attributes	Other
Areas reserved from the Mining Act, 1971 and Opal Act, 1995	Shape 2	SA Coastal Reserve	View attributes	No-Go Area
Areas reserved from the Mining Act, 1971 and Opal Act, 1995	Shape 3	SA Coastal Reserve	View attributes	No-Go Area

Spatial Layer Name	Shape	Primary Attribute	All Attributes	Category
Cadastral Parcels	Shape 1	H530600SE17	View attributes	Other
Cadastral Parcels	Shape 1	H531800SE10	View attributes	Other
Cadastral Parcels	Shape 1	H530600SE18	View attributes	Other
Cadastral Parcels	Shape 1	H530600SE2	View attributes	Other
Cadastral Parcels	Shape 1	H531800SE9	View attributes	Other

Program Preparation

Work Undertaken in Preparing the Proposal

Alligator acquired S Uranium Pty Ltd in 2020, and undertook a desktop review of historical exploration, geological, geophysical, hydrogeological and resource data across the Samphire Project. This included review of historical drilling completed by UraniumSA, re-processing of ground gravity data, re-logging historical drillholes, review of Mineral Resource Estimates and assessment of the suitability of the Blackbush and Plumbush uranium deposits for In-Situ Recovery (ISR) mining. Alligator Energy also commissioned Inception Consulting Engineers to undertake an assessment of ISR development potential and ANSTO to undertake metallurgical test work. Review of historical drilling, geological logging and ground gravity data demonstrated a strong correlation between mapped palaeochannel systems and known uranium mineralisation. This work has been used to identify potential resource extensions and regional exploration targets and guide future drilling and geophysical surveys. Field inspections and ongoing site visits have been undertaken to assess access requirements, existing infrastructure, rehabilitation performance, vegetation condition and land management opportunities. Rehabilitation monitoring of historical drill pads and access tracks has continued since 2020. Contractor consultation has been undertaken with Watson Drilling, and Borehole Wireline regarding proposed drilling methods, equipment requirements and operational logistics. This information has been incorporated into program planning and disturbance estimates. Program planning has also been informed by ongoing consultation with the landholder, including pastoral operations, access track maintenance, erosion control, vegetation management, rehabilitation requirements, fencing locations, minimisation of vegetation clearance and scheduling activities around grazing and lambing operations. Proposed works have been designed to minimise environmental impacts while maintaining compatibility with existing land use.

Operator Capability

Alligator Energy Ltd (AGE) is the parent company of S Uranium Pty Ltd and acting as operator of EL5926 and EL6350. 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.

Manuals and operating procedures:

- Induction manual – Containing all staff induction information ranging from radiation safety, vehicle operation protocols, safety manual to toolbox 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
- Daily reports – include site staff, operations and incidents (during active on groundwork under an approved PEPR)

Registers:

- Rehab status register
- Site induction register
- Community Consultation Register

Feedback – generic email address on AGE's website to capture any complaints from the wider community

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
CT 5990/949	H530600SE2						Unchecked
CT 5990/949	H531800SE9						Unchecked
CL 6198/823	H560100SE6	Crown	Eric and Sophie Ashby				Checked
CL 6198/826	H560500SE42	Crown	Eric and Sophie Ashby				Checked
CL 6210/975	D89185AL3003	Crown	Eric and Sophie Ashby				Checked
CL 6198/824	H560500SE11	Crown	Eric and Sophie Ashby				Checked
CL 6201/587	H560500SE6	Crown	Eric and Sophie Ashby				Checked
CT 6223/680	H560500SE9	Freehold	Eric and Sophie Ashby				Checked
CL 6198/825	H560500SE31	Crown	Eric and Sophie Ashby				Checked
CL 6201/586	H560500SE4	Crown	Eric and Sophie Ashby				Checked
CL 6198/827	H560500SE131	Crown	Eric and Sophie Ashby				Checked
CL 6198/827	H560500SE133	Crown	Eric and Sophie Ashby				Checked
CL 6198/827	H560500SE137	Crown	Eric and Sophie Ashby				Checked
CL 6198/824	H560500SE12	Crown	Eric and Sophie Ashby				Checked
CL 6201/587	H560500SE5	Crown	Eric and Sophie Ashby				Checked

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 6198/826	H56050 0SE41	Crown	Eric and Sophie Ashby				Checked
CL 6201/587	H56050 0SE7	Crown	Eric and Sophie Ashby				Checked
CL 6198/827	H56050 0SE138	Crown	Eric and Sophie Ashby				Checked
CL 6198/825	H56050 0SE30	Crown	Eric and Sophie Ashby				Checked
CT 6327/300	D13938 9AL10	Freehold	Franklin and Barber Nominees Pty Ltd				Checked
CT 6327/300	H53180 0SE9	Freehold	Franklin and Barber Nominees Pty Ltd				Checked
CT 5529/308	F20995 7AL92	Freehold	M R and J D Webb				Checked
CT 5936/543	H56020 0SE19	Freehold	M R and J D Webb				Checked
CT 5936/543	H56040 0SE55	Freehold	M R and J D Webb				Checked
CT 5936/543	H56020 0SE23	Freehold	M R and J D Webb				Checked
CL 6229/825	H56010 0SE12	Crown	M R and J D Webb				Checked
CL 6171/766	H56020 0SE18	Crown	Mark and Kathy Turnbull				Checked
CT 5989/514	H56020 0SE21	Freehold	Mark and Kathy Turnbull				Checked
CL 6171/768	H56040 0SE7	Crown	Mark and Kathy Turnbull	Service of Notice of Entry	24/06/2026	57221	Checked
CL 6171/767	H56040 0SE9	Crown	Mark and Kathy Turnbull				Checked
CL 6171/766	H56040 0SE6	Crown	Mark and Kathy Turnbull				Checked

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
CT 6057/546	H56020 0SE5	Freehold	Mark and Kathy Turnbull				Checked
CL 6171/767	H56040 0SE5	Crown	Mark and Kathy Turnbull	Service of Notice of Entry	24/06/2026	57221	Checked
CT 5989/514	H56020 0SE26	Freehold	Mark and Kathy Turnbull				Checked
CL 6171/765	H56040 0SE4	Crown	Mark and Kathy Turnbull				Checked
CL 6211/8	H56040 0SE10	Crown	Mark and Kathy Turnbull				Checked
CL 6211/7	H56040 0SE49	Crown	Mark and Kathy Turnbull				Checked
CL 6171/765	H56020 0SE17	Crown	Mark and Kathy Turnbull				Checked
CR 5763/167	H56040 0SE64	Crown	Minister for Environment and Water				Checked
CR 5749/638	H56040 0SE77	Crown	Minister for Environment and Water				Checked
CR 5904/208	D56246 QP108	Crown	Minister for Environment and Water				Checked
CR 5768/690	H56050 0SE491	Crown	Minister for Environment and Water				Checked
CR 5768/689	H56050 0SE490	Crown	Minister for Environment and Water				Checked

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
CR 5759/685	H56040 0SE63	Crown	Minister for Environment and Water				Checked
CR 5763/171	H56050 0SE413	Crown	Minister for Environment and Water				Checked
CR 5690/497	H56050 0SE492	Crown	Minister for Environment and Water				Checked
CT 5563/933	H53060 0SE17	Freehold	R J and J L Walsh				Checked
CT 5370/566	H53180 0SE10	Freehold	R J and J L Walsh				Checked
CT 5370/566	H53060 0SE18	Freehold	R J and J L Walsh				Checked
CL 6186/1	H56040 0SE51	Crown	Tom and Bianca Joyce	Land Access Agreement	18/06/2026	57243	Checked
CL 6186/1	H56040 0SE79	Crown	Tom and Bianca Joyce	Land Access Agreement	18/06/2026	57243	Checked
CL 6186/1	H56040 0SE52	Crown	Tom and Bianca Joyce	Land Access Agreement	18/06/2026	57243	Checked
CL 6186/2	H56040 0SE53	Crown	Tom and Bianca Joyce	Land Access Agreement	18/06/2026	57243	Checked
CL 6186/2	H56040 0SE54	Crown	Tom and Bianca Joyce	Land Access Agreement	18/06/2026	57243	Checked
CL 6186/3	H56040 0SE56	Crown	Tom and Bianca Joyce	Land Access Agreement	18/06/2026	57243	Checked
CT 6005/59	H56040 0SE11	Freehold	Tom and Bianca Joyce	Land Access Agreement			Checked

Regulation 4 Consent – Exercise a right 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.			

Do you have a resource exploration permit in place?

—

Permit No.

—

What is the expiry date of the exploration 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

—

Enter the 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
Middleback Ranges SA ILUA			No

Provide any additional relevant information

There is a small area of EL5926 where native title exists in the NW, but not over the area proposed for exploration. (Figure 2 - Supporting Information).

The Native Title Mining Agreement (NTMA) for exploration entered into between S Uranium Pty Ltd and the Barngarla Native Title Claim Group on 21 April 2008 was registered in the Mining Register against EL3652 as Instrument 137 on 8 July 2008. EL3652 is now EL5926.

At present, a Letter of Exchange is being progressed to add additional granted tenements, including EL6350, to the original NTMA. No exploration works will be conducted on EL6350 until this document has been executed and registered in the Mining Register.

Land access will not be made without NOE's/Land Access Agreements in place. These will be registered in the Mining Register.

Exempt Land

Has Exempt land been identified?

No

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
CL 6198/827	H560500 SE137	Eric and Sophie Ashby			
CL 6198/825	H560500 SE31	Eric and Sophie Ashby			
CT 6223/680	H560500 SE9	Eric and Sophie Ashby			
CL 6198/823	H560100 SE6	Eric and Sophie Ashby			
CL 6198/824	H560500 SE11	Eric and Sophie Ashby			
CL 6198/827	H560500 SE131	Eric and Sophie Ashby			
CL 6201/587	H560500 SE6	Eric and Sophie Ashby			
CL 6201/586	H560500 SE4	Eric and Sophie Ashby			
CL 6198/824	H560500 SE12	Eric and Sophie Ashby			
CL 6198/827	H560500 SE138	Eric and Sophie Ashby			
CL 6198/826	H560500 SE42	Eric and Sophie Ashby			
CL 6210/975	D89185 AL3003	Eric and Sophie Ashby			
CL 6201/587	H560500 SE5	Eric and Sophie Ashby			
CL 6198/827	H560500 SE133	Eric and Sophie Ashby			
CL 6198/826	H560500 SE41	Eric and Sophie Ashby			
CL 6198/825	H560500 SE30	Eric and Sophie Ashby			
CL 6201/587	H560500 SE7	Eric and Sophie Ashby			
CT 6327/300	D139389 AL10	Franklin and Barber Nominees Pty Ltd			
CT 6327/300	H531800 SE9	Franklin and Barber Nominees Pty Ltd			
CT 5529/308	F209957 AL92	M R and J D Webb			
CT 5936/543	H560200 SE23	M R and J D Webb			

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
CT 5936/543	H560200 SE19	M R and J D Webb			
CT 5936/543	H560400 SE55	M R and J D Webb			
CL 6229/825	H560100 SE12	M R and J D Webb			
CL 6171/768	H560400 SE7	Mark and Kathy Turnbull			
CL 6171/767	H560400 SE5	Mark and Kathy Turnbull			
CT 5989/514	H560200 SE26	Mark and Kathy Turnbull			
CL 6211/7	H560400 SE49	Mark and Kathy Turnbull			
CL 6171/766	H560400 SE6	Mark and Kathy Turnbull			
CL 6171/765	H560200 SE17	Mark and Kathy Turnbull			
CL 6171/766	H560200 SE18	Mark and Kathy Turnbull			
CT 6057/546	H560200 SE5	Mark and Kathy Turnbull			
CL 6171/765	H560400 SE4	Mark and Kathy Turnbull			
CT 5989/514	H560200 SE21	Mark and Kathy Turnbull			
CL 6171/767	H560400 SE9	Mark and Kathy Turnbull			
CL 6211/8	H560400 SE10	Mark and Kathy Turnbull			
CR 5904/208	D56246 QP108	Minister for Environment and Water			
CR 5768/690	H560500 SE491	Minister for Environment and Water			
CR 5690/497	H560500 SE492	Minister for Environment and Water			
CR 5749/638	H560400 SE77	Minister for Environment and Water			
CR 5768/689	H560500 SE490	Minister for Environment and Water			
CR 5763/171	H560500 SE413	Minister for Environment and Water			

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 5759/685	H560400 SE63	Minister for Environment and Water			
CR 5763/167	H560400 SE64	Minister for Environment and Water			
CT 5370/566	H530600 SE18	R J and J L Walsh			
CT 5563/933	H530600 SE17	R J and J L Walsh			
CT 5370/566	H531800 SE10	R J and J L Walsh			
CL 6186/2	H560400 SE53	Tom and Bianca Joyce			
CL 6186/1	H560400 SE79	Tom and Bianca Joyce			
CL 6186/2	H560400 SE54	Tom and Bianca Joyce			
CL 6186/1	H560400 SE51	Tom and Bianca Joyce			
CL 6186/3	H560400 SE56	Tom and Bianca Joyce			
CT 6005/59	H560400 SE11	Tom and Bianca Joyce			
CL 6186/1	H560400 SE52	Tom and Bianca Joyce			

Consultation

Stakeholder ↑	Land Use	Matters raised	Stakeholder concerns raised and how addressed
Eric and Sophie Ashby	Grazing	Andrea Marsland-Smith (COO-AGE) and Philip Mill (Senior Geologist-AGE) met with Eric Ashby in Whyalla in July 2022. They provided a general update on AGE's growth in the last year, including Blackbush drilling results and potential work programs that may involve access to his property.	Eric Ashby and AGE have agreed to continue discussions regarding access to Nonowie for future ground gravity surveys. Note: Undertaking a ground gravity survey is unlikely to be undertaken in the near future due to higher priorities with respect to the exploration program on Moonabie and Mullaquanna pastoral leases. 13/06/2023 - AGE delivered 1.5km of recycled 90mm HDPE pipework, as agreed in 2021.
Eric and Sophie Ashby			
Eric and Sophie Ashby			
Eric and Sophie Ashby			
Eric and Sophie Ashby			
Eric and Sophie Ashby			
Eric and Sophie Ashby			
Eric and Sophie Ashby			
Eric and Sophie Ashby			
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Eric and Sophie Ashby			
Eric and Sophie Ashby			
Eric and Sophie Ashby			
Eric and Sophie Ashby			
Eric and Sophie Ashby			
Eric and Sophie Ashby			
Franklin and Barber Nominees Pty Ltd	Grazing	Consultation with Stakeholder will be undertaken before access	
Franklin and Barber Nominees Pty Ltd			
M R and J D Webb	Grazing	Consultation with Stakeholder will be undertaken before access	

Stakeholder ↑	Land Use	Matters raised	Stakeholder concerns raised and how addressed
M R and J D Webb			
M R and J D Webb			
M R and J D Webb			
M R and J D Webb			
Mark and Kathy Turnbull	Grazing	22/07/2022 - A friendly and cooperative relationship exists between the Turnbull's and AGE. They are supportive of the exploration activities. 22/09/2022 - No concerns re the program proposed 1/02/2023 and 16/05/2023 - Discussion about where to put stock fencing to allow continued pastoral activities during exploration activities. Also discuss fencing requirements of the field recovery trial area, gates versus grids, access roads, dust, revegetation and grazing for the medium term (3 years?) A discussion on timing of lambing and sustained annual drilling operations. Turnbull's requested AGE cease drilling for lambing season. 2026 - No unresolved stakeholder concerns have been identified.	1/02/2023 and 16/05/2023 - Andrea Marsland-Smith and Matt Daniel met Mark and Kathy Turnbull at their Cleve property – Meeting approximately 3 hours. Discussed how the Whyalla public session went on the proposed retention lease application/ field recovery trial held the previous day. Turnbuls had heard positive feedback from the local federal member Rowan Ramsey who had attended the meeting. AGE provided hard copies of the power point presentation, some maps of the site showing proposed trial infrastructure. Agreed to 3 week break stopping from ~ 24th April. 2026 - A strong and cooperative working relationship has been maintained with the landowners, with any concerns raised since the approval of EPEPR 2023-008 addressed promptly and efficiently through ongoing communication.
Mark and Kathy Turnbull			
Mark and Kathy Turnbull			
Mark and Kathy Turnbull			
Mark and Kathy Turnbull			
Mark and Kathy Turnbull			
Mark and Kathy Turnbull			
Mark and Kathy Turnbull			
Mark and Kathy Turnbull			
Mark and Kathy Turnbull			
Mark and Kathy Turnbull			
Minister for Environment and Water	Other (e.g. historic mining)	Consultation with Stakeholder will be undertaken before access	
Minister for Environment and Water			

Stakeholder ↑	Land Use	Matters raised	Stakeholder concerns raised and how addressed
Minister for Environment and Water			
Minister for Environment and Water			
Minister for Environment and Water			
Minister for Environment and Water			
Minister for Environment and Water			
Minister for Environment and Water			
R J and J L Walsh	Grazing	Consultation with Stakeholder will be undertaken before access	
R J and J L Walsh			
R J and J L Walsh			
Tom and Bianca Joyce	Grazing	01/06/2022 - The Joyces requested that the gravity contractors limit the use of All-Terrain Vehicles (ATVs) in areas where the saltbush is of a sufficient height to be damaged by these vehicles. Broader landholder concerns regarding uranium exploration in general were also identified. 2026 - No unresolved stakeholder concerns have been identified.	01/06/2022 - Andrea Marsland-Smith (COO AGE) and Matt Daniel (Environmental Manager – AGE) met with the Joyces at Mullaquana Station. They discussed AGE's current work program, communication protocols, and ground gravity surveys that AGE would like to carry out on their property. The Joyces were not opposed to this work being undertaken. The gravity contractors agreed to use ATVs only when there is no risk of causing significant damage to the vegetation, and most of the work will likely be done on foot, with vehicular support via existing station tracks. Undertaking this ground gravity survey has been postponed until broader landholder concerns regarding uranium exploration in general are addressed with the landholder. 19/12/2022 - Andrea Marsland-Smith (COO AGE) and Matt Daniel (Snr. Environmental Consultant) met with Tom and Bianca Joyce on 19.12.2022. They provided a general update on AGE's growth in the last year, including Blackbush drilling results and potential work programs that will involve access to his property, namely for a ground gravity survey in 2023. 2026 - A cooperative working relationship has been maintained with the Joyce family through extensive engagement over the past several years. This engagement has resulted in the execution of a land access agreement and a call option agreement providing for the potential purchase of the land in approximately 18 months. Any matters raised continue to be addressed promptly through ongoing communication with the landowners.

Stakeholder ↑	Land Use	Matters raised	Stakeholder concerns raised and how addressed
Tom and Bianca Joyce			
Tom and Bianca Joyce			
Tom and Bianca Joyce			
Tom and Bianca Joyce			
Tom and Bianca Joyce			
Whyalla City Council	Other (e.g. historic mining)		November 2022 - Meeting with recent mayor elect Mayor Phill Stone, Justin Commons (CEO) and Jodie Perone (Planning Manager). Provided an update on the project and forward plans. Positive feedback received. Queries re product transport, potential to export via Whyalla port facility and local employment. 2026 - AGE has continued to engage with the City of Whyalla and the broader community through a number of stakeholder engagement activities. Council has been kept informed of project progress and proposed future activities.

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

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.

A Search of PlanSA for Lots 4/6 Lincoln Highway, Middleback Ranges, SA, (being the addresses which cover the proposed work areas), lists the following policies following review of the planning and design code that apply to the properties:

Part 2 - Zones and Sub Zones

- Conservation Zone
- Remote Areas Zone

Part 3 - Overlays

- Coastal Areas Overlay
- Hazards (Bushfire - Outback) Overlay
- Hazards (Bushfire - Regional) Overlay
- Hazards (Flooding - Evidence Required) Overlay
- Native Vegetation Overlay
- Water Resources Overlay

Part 4 - General Development Policies

- Resource Extraction
- Site Contamination

Description of any known plans for future land use changes by other parties:

The current land use remains predominantly pastoral grazing. A proposed Northern Water Project may result in future land-use changes within or near the work area, including a desalination plant at Mullaquana Station and associated pipeline and supporting infrastructure. The project is still subject to assessment and approvals, and the final extent of any impact on the exploration area has not been confirmed.

Provide any additional relevant information.

Any areas identified as exempt land are managed with buffer zones of 150m (e.g. dams) and 400m (e.g. houses).

Description of Environment

Proximity to Infrastructure and Housing

Proximity to infrastructure and housing

EL5926 and EL6350 are located approximately 25 km South of Whyalla with three pastoral properties located within or directly adjacent to the EL's.

Mullaquana station homestead, shearing yards and shed are located closest to the proposed work area, approximately 2 km WSW.

Nonowie station homestead is located almost 7 km to the N.

Moonabie station homestead is located approximately 14 km to the SW.

Cowled's Landing is also located 4.25 km to the E of the primary proposed work area and contains several dwellings. See Figure 1 - Supporting Information.

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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.

Landform and Topography

Elevation rises steadily and uniformly from sea level in the east parallel with the coast to ~40m at the foot of the escarpment. The program will be carried out across the coastal plain area which extends from coastal mangroves in the east, outside of the proposed work area, to the foot of a low north-south trending topographic escarpment in the west – a distance of ~5km. Due to the flat low-lying nature of the area and semi-arid climate, erosion susceptibility is minimal. This is demonstrated through the SA government spatial web application NatureMaps, in which soil erosion attributes for water erosion potential over similar terrain to the south of the project area is low (no special management needed). Additionally, wind erosion potential can be inferred as moderate to low potential from similar surrounding terrain data. No direct data is available covering the proposed work area apart from seasonal drainage lines which feed local dams, soil erosion potential data across comparable terrain is located approximately 15km to the south. All works will be conducted outside of any visible drainage and erosional profiles. Relevant data provided in Figure 4 - Supporting Information.

Soil and Surface Cover

The dominant soil across the coastal plain between the Munyaroo Conservation Park and Whyalla (i.e., the area of proposed works) is a calcarosol with laterally discontinuous calcrete pan to ~1m thick occurring in layers at surface and to depths of 1.5m to 2.0m. Calcareous sandy-clay loams overlay and are laterally intercalated with the calcrete pans and there are interspersed gypsiferous sands in some areas. The ground surface comprises a vestigial “O” horizon characterised by the accumulation of low levels of organic litter and the development of a mycorrhizal crust (which near watering points is extensively broken by sheep tracking exposing the soft underlying calcareous sandy-clay loam). Relevant data provided in Figures 5 to 7 - Supporting Information.

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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 lines exist within the work area, refer to Figure 8 - Supporting Information. No interference of drainage lines is proposed with proposed drill sites to be modified should they fall within a drainage line. Locations will be sighted by a 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 South Australia Act 2019?

No

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

Name	Applicable
There are no records to display.	

Attach Files ⓘ

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Groundwater

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

Yes

Provide evidence or any supporting information why groundwater is unlikely to be intersected.

Description of the localities/area where different groundwater conditions may be encountered

Yes, Groundwater will be intersected when conducting the exploration program. There are 3 aquifers within the EL's, the water table aquifer within the Pooraka Group sediments, the Kanaka formation aquifer and the fractured rock aquifer. In the primary work area the Pooraka Group sediments are unsaturated. The full description of the 3 aquifers is provided in the table below.

Across the Project area, groundwater is saline to hyper-saline (33,000 mg/L to 80,000 mg/L TDS) with no records of groundwater suitable for stock or other purposes. Historic works by Uranium SA established a network of monitoring wells to investigate the hydrogeology of the area, each containing saline to hyper-saline ground water (33,000 mg/L to 80,000 mg/L TDS).

Water level is anticipated generally 10 to 25m below ground level across the proposed work area, occurring close to sea level within quaternary sediments. A stylised section is shown in Figure 9 - Supporting Information showing relative geological condition, groundwater salinity and flow.

A map of wells in the area is provided as Figure 10A - Supporting Information with data sourced from WaterConnect SA.

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 formation name	Aquifer Interval/thinknes s (from-to) (m)	Aquife r Type	Aquifer salinity (TDS)	Depth to groundwat er (m)	Com ment s
Samphir e	Pooraka Group Equivalent (PRGE)	16	Quaternary	Not anticipated within primary work area	Uncon fined	50,000 - 80,000 mg/L	16	Historical hydrogeological monitoring wells have been constructed and screened to this horizon: standing water level is generally 1 - 2.2 mAH D with the aquifer characterised by variable but frequently low flows of saline to hyper-saline waters. The aquifer is dry across the primary work area.

Name ↑	Formation age and/or stratigraphic unit	Stratigraphic intervals (depth range) (m)	Aquifer formation name	Aquifer Interval/thinknes s (from-to) (m)	Aquife r Type	Aquifer salinity (TDS)	Depth to groundwat er (m)	Com ment s
Samphir e	Pliocene Gibbon Beds (GIBB)	30	None	None	Unkno wn	N/A	30	Clay and silty clay units which are effecti vely imper meabl e

Name ↑	Formation age and/or stratigraphic unit	Stratigraphic intervals (depth range) (m)	Aquifer formation name	Aquifer Interval/thickness (from-to) (m)	Aquifer Type	Aquifer salinity (TDS)	Depth to groundwater (m)	Comments
Samphire	Miocene Melton Limestone (MELL)	40	None	40	Unknown	N/A	40	Comprising bioclastic limestone with minor sand and calcareous clay, irregularly silicified and together with the Gibbon Beds, behave as the upper confining layer for the Tertiary confined aquifer system*. *Taylor AR, Pichler MM, Olifent V, Thompson J, Bestland E, Davies PJ, Lamontagne S, Suckow A, Robinson

Name ↑	Formation age and/or stratigraphic unit	Stratigraphic intervals (depth range) (m)	Aquifer formation name	Aquifer Interval/thickness (from-to) (m)	Aquifer Type	Aquifer salinity (TDS)	Depth to groundwater (m)	Comments
								N, Love A and Munday T. 2015 Groundwater Flow Systems of North-eastern Eyre Peninsula (G-FLOW Stage - 2): Hydrogeology, geophysics and environmental tracers. Goyder Institute for Water Research Technical Report Series No. 15/37. Adelaide, South Australia

Name ↑	Formation age and/or stratigraphic unit	Stratigraphic intervals (depth range) (m)	Aquifer formation name	Aquifer Interval/thickness (from-to) (m)	Aquifer Type	Aquifer salinity (TDS)	Depth to groundwater (m)	Comments
Samphire	Miocene Melton Sands (MELS)	50	Teritary	40-80	Confin ed	33,000 - 51,500 mg/L TDS	50	Comprising fine to granular rounded sand, saturated with saline to hyper-saline waters. Historical hydrogeological monitoring wells have been constructed and screened to this horizon: standing water level is generally 0.5 – 3.0 mAH D with the aquifer characterised by high flows of saline to hyper-saline water.

Name ↑	Formation age and/or stratigraphic unit	Stratigraphic intervals (depth range) (m)	Aquifer formation name	Aquifer Interval/thinknes s (from-to) (m)	Aquife r Type	Aquifer salinity (TDS)	Depth to groundwat er (m)	Com ment s
								Pump testin g of purpo se constr ucted well arrays has establ ished that this aquife r is conne cted to the Eoce ne KANA aquife r and isolat ed from the overly ing PRG E aquife r.

Name ↑	Formation age and/or stratigraphic unit	Stratigraphic intervals (depth range) (m)	Aquifer formation name	Aquifer Interval/thickness (from-to) (m)	Aquifer Type	Aquifer salinity (TDS)	Depth to groundwater (m)	Comments
Samphire	Eocene Kanaka Beds (KANA)	80	Teritary	40-80	Confin ed	33,000 - 51,500 mg/L TDS	80	Sand, silt and interc alated lignite . Hydro geolo gical monit oring wells have been constr ucted and scree ned to this horizo n. Stand ing water level is gener ally 1.0 — 2.5 mAH D and the aquife r is chara cteris ed by signifi cant lateral and vertic al variati on from saline to hyper saline water. Pump testin g of purpo se constr ucted well

Name ↑	Formation age and/or stratigraphic unit	Stratigraphic intervals (depth range) (m)	Aquifer formation name	Aquifer Interval/thinknes s (from-to) (m)	Aquife r Type	Aquifer salinity (TDS)	Depth to groundwat er (m)	Com ment s
								arrays has establ ished that this aquife r is conne cted to the Mioce ne MELS aquife r and isolat ed from the overly ing PRG E aquife r.
Samphir e	Weathered Basement (MGRA)	80	Teritary	80	Confin ed	N/A	80	Sapro litic weath ered variou s clays gradin g into clay altere d granit e.
Samphir e	Samphire Granite (MGRA)	90	Fractured Rock	90	Confin ed	TBA	90	Fresh materi al with very low porosi ty.

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

Underground waters 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.

A stylised section is shown in Figure 9 - Supporting Information showing relative geological condition, groundwater salinity and flow.

The water table (Quaternary aquifer) ranges are generally 1 – 2.2 mAHD (approximately 15 to 25 m below surface in the proposed work area), with a salinity ranging between 50,000 and 80,000 mg/L. The water table is considered hypersaline and represents no value as a water source for stock.

Salinity levels and TDS values of the confined aquifer below the Melton limestone (Tertiary aquifer), which occurs approximately 40 to 80 m below surface are considered hypersaline with typical TDS values ranging between 33,000 and 51,500 mg/L. Subsequently, there is no identified environmental value of groundwater within and surrounding the exploration area.

Salinity Levels in the fractured rock aquifer in the vicinity of the exploration activities will be characterised from groundwater samples obtained from underlying investigation wells.

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 (BOM GDE Atlas) shows GDE's located on the coastal fringe, east of the Mullaquanna access road (Figure 7a - Supporting Information). GDE aligns with Subtropical and Temperate Coastal Saltmarsh (Figure 7b - Supporting Information) which is discussed below in "Significant habitats of flora" and "Environmentally sensitive areas" sections.

No exploration activity is proposed to be carried out within these areas.

Additionally, salinity levels in all aquifers are considered too high for stygofauna. 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).

Similarly, the groundwater is also too saline for Acacia species dependence, however perched freshwater could be possible; noting the acacia species are noted within Nonowie station which is also not within the area proposed for exploration activities.

There are also no springs within EL 5926 and EL 6350 according to the BOM GDE Atlas.

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?

No

Select the prescribed wells

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

No

Select the prescribed water resource areas

Provide any additional information

Attach Files 

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Native Vegetation

Will you be working within areas of native vegetation?

Yes

Provide the following information:

UraniumSA previously commissioned flora and fauna surveys in the district which have been carried out during 2009, 2011 & 2012 by Environmental and Biodiversity Services (EBS Ecology) and the landscape has not materially changed since. The initial baseline flora study covered the eastern two thirds of EL5926 and the whole proposed work area within the scope of this PEPR. These previous works mapped;

1. Across the coastal plain topographic domain areas where work will be carried out

- Low Open Shrub land vegetation containing: Maireana sedifolia, M pyramidata and Atriplex vesicaria. However there are small areas, of Acacia papyrocarpa (Western Desert Myall)/Myoporum platycarpum/Alectryon oleifolius ssp canescens open woodland. Trees will not be impacted by drilling activities. Some small areas of Tecticornia pergranulata (Black seed samphire) and Disphyma crassifolium ssp clavellatum (Round leaf pigface) low shrubland.
- Low Open Shrub land vegetation containing: Maireana sedifolia, M pyramidata and Atriplex vesicaria.

2. Across the tableland topographic domain,

- an Acacia papyrocarpa Open woodland vegetation association along and west of the escarpment giving way to the west to a parallel band of Maireana sedifolia, M pyramidata, Atriplex vesicaria
- Low Open Shrub land vegetation association, which was in turn succeeded to the west by more Acacia papyrocarpa Open Woodland vegetation association.
- Eucalyptus and Mallee Woodland dominates the vegetation within the south-western part of EL6350 (southwest of Munyaroo C.P.)

No flora species of conservation significance under either the Environment Protection and Biodiversity Conservation Act 1999 or the National Parks and Wildlife Act 1972 were recorded during previous surveys.

A search of NatureMaps rated flora and fauna records is presented in Figure 12 - Supporting Information. There are no recorded rated species within or proximal to the proposed work area in the northern tenement package, however one state rated flora site exists on the eastern boundary of the southwestern most tenement (EL6350). Field staff will be alerted to rated/protected species with environmental contractors to provide a check book for species to be aware of.

A protected matters report search has been completed to support information provided on listed Flora and Fauna within the EPBC Act supplied as Appendix 1 – Protected Matters Report.

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.

Previous fauna surveys conducted during 2009, 2011 and 2012 by UraniumSA across EL5926 area identified:

1. Eight mammal species have been observed (five native, two feral and domestic sheep), none being of national or state conservation significance.
2. Five bat species have been identified, none being of national or state conservation significance.
3. Sixteen reptile species have captured or observed, none being of national or state conservation significance.
4. Two species of frog have been observed, neither being of national or state conservation significance.
5. Sixty native bird species have been observed in and about the Samphire project area over the years 2009 to 2019 of the surveys, with five being of conservation significance. The Slender-billed Thornbill is listed as vulnerable under the Commonwealth EPBC Act: a habitat assessment found potentially suitable habitat for the Slender-billed Thornbill is present but not common in the vicinity of the Blackbush deposit but exists elsewhere within and outside the Samphire project area.
6. A Blue butterfly (*Theclines thes* sp) was observed on Turnball land in 2020, of conservation interest.

The Western Grasswren (*Amytornis textilis myall*) was also recorded during the 2009-2012 surveys and has been regularly observed in the RL and surrounding areas since 2019. The Western Grasswren is listed as vulnerable under the EPBC Act, with conservation advice being approved for listing in 2014. Additionally, since 2019 the Australian Bustard (*Ardeotis australis*) both singularly and in pairs have been regularly observed on Mullaquana and Moonabie station and on the Mullaquana road, The Australian Bustard is listed as Vulnerable under the National Parks and Wildlife Act 1972(SA).

Note that EL6350 hosts the same fauna species as EL5926 due to the same habitats being present.

Feral animal species identified within the area include the House Mouse (*Mus musculus*), Rabbits (*Oryctolagus cuniculus*), Cats (*Felis catus*) and foxes (*Vulpes vulpes*). Though no foxes have been observed in previous surveys, scats and evidence has been identified with landholders confirming their presence. Rabbits, cats and foxes have been identified in trail camera footage in 2023.

A search of NatureMaps rated flora and fauna records is presented in Figure 12 - Supporting Information. There are no recorded rated species within or proximal to the proposed work area, however field staff will be alerted to rated/protected species with environmental contractors to provide a check book for species to be aware of.

A protected matters report search has been completed to support information provided on listed Flora and Fauna within the EPBC act with a 30km radius to allow for the range of avian species supplied as Appendix 1 – Protected Matters Report.

Significant Habitats, Flora and 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
Acanthiza iredalei iredalei	Slender-billed Thornbill	Rare (RA)	Vulnerable
Amytornis textilis myall	Amytornis textilis myall	Vulnerable (VU)	Vulnerable
Ardeotis australis	Australian Bustard	Vulnerable (VU)	Not applicable
Amytornis striatus	Striated Grasswren	Rare (RA)	Not applicable
Calamanthus cautus	Shy Heathwren	Rare (RA)	Not applicable
Subtropical and Temperate Coastal Saltmarsh	Subtropical and Temperate Coastal Saltmarsh	Vulnerable (VU)	Vulnerable
Tecticornia flabelliformis	Bead glasswort or fan samphire	Vulnerable (VU)	Vulnerable

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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 observed, and or recorded within the area in the past include Saffron Thistle (Carthamus lanatus), Star Thistle (Centaurea solstitialis), Wards Weed (Carrichtera annua), Horehound (Marrubium vulgare), Onion weed (Asphodelus fistulosus), Burr-medic (Medicago polymorpha), False Sowthistle (Riechardia tingitana), Slender Iceplant (Mesembryanthemum nodiflorum), Tobacco weed (Nicotiana glauca), Bathurst Burr (Xanthium spinosum) and African Boxthorn (Lycium ferocissimum – weed of national significance).
Of these Horehound and African Boxthorn are declared weeds under the Landscape SA act 2019. Governments 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.

Aboriginal heritage surveys were undertaken in 2021, 2022 and 2023 over relevant portions of EL5926. A further heritage survey was undertaken in February 2026 over the northern portion of EL6350, with no exclusion zones identified and heritage clearance granted for the surveyed area. As the program expands, subsequent surveys will be conducted prior to works being undertaken where required.

Environmentally Sensitive Locations

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

No

Name	Applicable
Conservation	No
HA 1483	No
DEEP CREEK	No

Are you likely to impact on the environmentally sensitive area?

—

Detail the likely effects the proposed program may have.

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Exploration Operations

Exploration Scope

Describe all exploration methods to be covered by the PEPR

Exploration activities planned for the area include drilling (rotary mud, core, investigation and water well installation) and low impact ground geophysical surveys (e.g. ground gravity, passive seismic).

Temporary fencing will be installed around open pits until rehabilitation is completed to restrict livestock access, reduce grazing pressure and support vegetation rehabilitation. Exploration activities will not be undertaken in areas that do not have heritage clearances or have environmental sensitivities.

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

Drilling activities will typically be carried out on 50 – 100m hole/line spacings but may be as close as 25m dependent upon geological interpretation. The area of interest for exploration activities are highlighted in Figure 13 - Supporting Information.

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.

See Figure 5 - Broad soil zones
See Figure 6 - Coastal acid-sulphate soils risk areas
See Figure 7a - Groundwater Dependent Ecosystems in the region
See Figure 7b - Subtropical and Temperate Coastal saltmarsh (Samphire varieties) and mangroves
See Figure 8 - Surface water features within and adjacent to the ELs
See Figure 11 - Major vegetation types within and adjacent to ELs
See Figure 12 - State-Rated Flora and Fauna sites within and adjacent to ELs
See Figure 13 - Work areas covered under this ongoing EPEPR.
Figures supplied in Supporting Information

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

See Figure 14 - Supporting Information for excluded Land. This shows exempt areas on EL6350 and EL5926 including The Munyaroo Conservation Park (which is excluded from the tenement boundaries).

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.

5x Geologists - AGE employee/contractor
3x Land access/environmental - AGE employee/contractor
5x Field assistants/technicians - AGE employee/contractor
18x Drilling Crew - Watson Drilling/Star Drilling/or other suitably qualified drilling contractor
6x Site preparation and rehabilitation - AGE employee/contractor/Landholder
3x Downhole survey contractors - Borehole Wireline Pty Ltd/or Other

1x 12hr shift per day/per rig (or activity), 7 Days per week

The maximum total number of personnel anticipated on site at any one time is 40. Actual numbers will vary depending on the activities being undertaken and the number of rigs operating

Additional equipment to those items listed below may be used at different stages of the work program where required to support the activities described in this EPEPR.

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
Ancillary exploration and support equipment	AGE and/or suitably qualified contractors	Ancillary equipment of a similar nature and scale to the equipment otherwise identified in this EPEPR, may include (but not limited to) trailers, generators, pumps, lighting plants and hand-held equipment, a roller, telehandler, bobcat and additional water or other service tanks required for approved activities.	To support approved exploration, drilling, environmental monitoring, access and drill-site preparation, dust suppression, site maintenance and rehabilitation activities within approved work areas
Small demountable hut	AGE	Small 1-desk office (~3m x 2m)	For field crew to use during the day for emails/communication and respite from hot weather during summer. The hut is located near the existing tanks, but location may change as required – note no native vegetation clearance required.
Portable poly tanks (saline water)	AGE	10-20,000L hooked up in series near the laydown to a total capacity of 200,000L	Saline water (from existing water bores) to support drilling operations and hydrogeological testwork
Portable poly tanks or bulky pods (potable water)	AGE	Up to 5 x 5000L tanks or 5 1000L bulk pods	Potable water for tree watering and effective establishment of re-seeding areas.
ATV Buggy	AGE	4WD all-terrain vehicle	Support rehabilitation activities (seeding, tree watering, fencing etc).
4x4 vehicles x 4 (Landcruiser/trayback or equivalent)	AGE/Hire vehicles	2-4 persons 4x4 and utility support vehicles	Personnel and equipment transport.
Truck mounted Rotary Mud drill rig x2.	Drilling contractors (Watson Drilling) or similar contractor	Truck mounted rotary mud drill rig capable of drilling through sediments	Rotary mud and investigation/water supply well drilling. Additional rig may need to be sourced at times.
Truck mounted core drilling rig	Star Drilling or similar contractor	Core drill rig capable of drilling up to 200m through sediments and hard rock	Core drilling to obtain samples for detailed geological and mineralogical analysis/assay and laboratory metallurgical testwork.
Drill rig support truck (6x6/8x8) x2	Drilling contractors (Watson Drilling) or similar contractor	Large flatbed truck	Support truck for drilling equipment and rods. Additional support truck may be sourced if required.
Drill rig support truck	Star Drilling or similar contractor	Large flatbed truck	Support truck for drilling equipment and rods
4x4 Ute (Hilux or similar) x5	Drilling contractors (Watson Drilling)/Star Drilling or similar contractor	2-4 person 4x4 and utility support vehicles	Personnel and equipment transport. Additional utes may be sourced if required.

Name	Owner/Operator	Description/capacity	Activity/purpose
Backhoe x2	AGE/Hire/Contractor	~100hp capable of digging sumps down to 2 metres depth.	Sumps/tracks/earthworks/rehabilitation
Excavator x2	Hire/Contractor	Size appropriate for digging sumps down to 2 metres depth.	Sumps/tracks/earthworks/rehabilitation
Grader or Loader	Hire from landowner of other contractor	Station grader or loader	Track maintenance, erosion repair, minor site preparation and rehabilitation
Water Truck (6x6)	Hire/Contractor	10,000L capacity	Water supply to drill sites as required. Additional truck may be sourced if required to support operations.
Water Tanks (x10)	AGE	200,000L capacity	Water supply for drilling, aquifer testing, and/or water well/investigation well development, or potable water supply for dust and revegetation watering.
4x4 Landcruiser/small downhole geophysical logging truck	Contractor (Borehole Wireline) or similar contractor	Downhole survey vehicle	Contract team for downhole surveys. Gamma, Density and Spectral analysis proposed. Additional resources may be sourced to support operations 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.

A ground gravity survey has now been successfully completed over EL6350 and a small portion of EL5926, as shown in Figure 15 - Supporting Information. Further ground-based or airborne geophysical surveys, including gravity and other non-ground-disturbing geophysical methods, may be undertaken across these tenements to support ongoing geological interpretation and target generation. Ground-based surveys will be subject to applicable land access, heritage and environmental clearance requirements.

Drilling Operations

Will exploration drilling operations be conducted?

Yes

Identify all the drilling methods that will be used.

Rotary Mud, Diamond Drilling, Rotary Mud with Diamond Tails, Other

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

Sonic Drilling using high-frequency vibration to recover continuous core samples.

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.

All drill sites are sited along or as close to existing and historic tracks where possible to minimise the clearing of new tracks. No site leveling is required. Photographs of site condition prior to preparation will be undertaken.

Rolling vegetation will be the principal method used to prepare drill pads, as evidence from AGE's previous drilling programs indicates that it produces better rehabilitation outcomes. Where rolling leaves stumps or other vegetation that could present a trip hazard to personnel, limited vegetation clearance may be undertaken to ensure a safe working area. Any such clearance will be kept to the minimum necessary.

Sumps are an integral part of the rotary mud delineation & core drilling (i.e., for the purposes of mud mixing and water circulation during the drilling process) and is the best method for containment of saline drilling fluids (as opposed to portable pits where there is a higher risk of saline water spillage. This also will contain/control any naturally occurring radioactive material (NORM) which may be intersected. Sumps for these hole types are approximately 9m long x 1.5m wide x 2m deep.

For water supply/investigations wells, standard water bore construction techniques apply. The same site preparation is undertaken as above. Two sumps for these holes are required due to the additional casing and well development activities and are up to a maximum of 9m long x 2m wide x 2m deep with a 2.4m drain between the two pits interconnecting them. The size of these pits will depend on the permeability of the formation being drilled to ensure saline water is managed appropriately, and no spillage occurs on the ground.

The procedures for the construction and closure of sumps are intended to minimise the profile discrepancy between excavated and

backfilled ground and the surrounding country and comprise:

1. At each new site the operator takes a single bucket scoop and examines the material to decide on the basis of colour change and

texture what comprises "topsoil" at that location. The objective is to identify surficial soil horizon materials which have the potential to contain seed resources.

2. The topsoil (as identified above) is then removed from the working area and stockpiled at the edge of the proposed working area, in a location where it will not be contaminated by other materials or damaged by vehicle movements.

3. Sumps

a. Immediately after drilling the sump will be fenced to mitigate fauna and personnel access as far as reasonably practicable.

b. In the excavation, soft free-dig material below the topsoil will be stockpiled separately from any underlying hard-dig material such as calcrete, ferricrete or bedrock. Each sump will be large enough to contain the drill cutting anticipated from the hole below the prevailing land profile, and have sufficient depth that material returned from the sample field will be buried at least 1m below the surface.

c. 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.

d. The material excavated from the sumps is returned as far as is practicable in the reverse sequence to its excavation leaving a sufficient slight rise over the top to allow fill to naturally settle and compacts over time and prevent localised ponding.

e. The stockpiled topsoil is then spread out across the site by machine, and the area hand-raked to create furrows perpendicular to the prevailing wind direction. AGE then re-seed the sump areas using either local hand-collected seed and manually spreading the seed or by using a hydroseeder.

Drillhole Construction and Decommissioning

Drillhole construction and decommissioning

See below

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.

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 as it advances. Fluid (water and mud additives) is pumped down the hole during drilling to return the drill 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. Holes will not be cased but will be cemented to surface post drilling (using a dedicated cementing unit by Watson drilling). This procedure is over and above the requirements of DEM Earth Resources Information Sheet 21: Mineral Exploration Drillholes — General specifications for construction and backfilling.

Sonic drilling: Sonic drilling uses high-frequency vibrations combined with rotational force to advance the drill string and recover relatively undisturbed continuous core samples from sediments and rock. Temporary casing may be used to maintain hole stability and will be removed on completion. Sonic drillholes will be decommissioned in accordance with Earth Resources Information Sheet M21, with appropriate sealing undertaken where groundwater or multiple aquifers are intersected.

Water Supply/Investigation Well Installation: Wells will be drilled targeting different aquifers at the primary work area, well construction will vary slightly depending on the target aquifer. All wells will be drilled using the rotary mud method, cased with PVC and cemented to surface in line with the Minimum Construction Requirements for Water Bores in Australia. As some wells in the program will intersect multiple aquifers the works will be completed by a South Australian recognised Class 2 Driller.

Pre and post radioactivity (gamma) of all drill sites using a scintillometer will be conducted and recorded at the collar location and at 5m intervals north and south to 25m at ground level. Readings taken from previous drill campaigns show that anticipated background levels between 0.08 and 0.32 $\mu\text{Sv/hr}$.

Photographs of all drillhole sites will be taken before, post disturbance, post rehabilitation and seeding and 12 months after rehabilitation.

Historical Wells installed by previous project owner: Wells constructed by previous project owner (Uranium SA) that are no longer required will be decommissioned in accordance with Minimum Construction Requirements for Water Bores in Australia (Fourth Edition, 2020), bores currently identified are - MRH7B, MRH1B, MRH8B, MRH9B and MRH2B. Alligator will continue to identify legacy wells that are not fit for purpose for any future use (e.g. groundwater characterisation and ongoing monitoring) and will report all rehabilitated wells in the annual Environmental Compliance Report.

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.

Cementing is conducted by inserting a poly pipe down to near hole bottom and backfilling to surface overflow with a cement slurry mix. The next day shrinkage of the backfill back down the hole is measured to confirm the adequacy of the seal before the open void is filled back to surface with spoil and the final section backfilled.

Attach Files ⓘ

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File Name	File Size (Mb)	Created On	Download
M21 Diagram - Drillhole Decommissioning.pdf	1.3 Mb	10-08-2026 16:38:15	Download (MERS/EPR-04223/Drillhole construction and decommissioning/M21 Diagram - Drillhole Decommissioning_2026-08-10T07-08-16.221Z.pdf)

Costeans and Bulk Sample Disposal Pits

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

No

Indicate the maximum dimensions and size of pits and costeans.

0.00

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).

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 rig 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 or central disposal 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?

Yes

Detail the work required to upgrade/maintain existing tracks.

Existing tracks will be utilised for access where possible with most of the drilling to be located very close to existing and historic tracks across the Project area. No major upgrades or track works are anticipated for these existing tracks, however modest vegetation disturbance may occur with the passage of vehicles. Minimal clearance of vegetation is proposed with vehicles to roll over vegetation where practicable to minimise disturbance. See Figure1 - Supporting Information for locations of station tracks in the local area. Where heavy machinery and repeated track use occur, furrows and rills may need back combing and infilling to maintain level surfaces. Strict slow speed limits (less than 20km/hr) will be enforced to minimise track erosion. Some minor clearance of low vegetation may be required at drill sites to facilitate a safe work environment without trip hazards.

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 proposed work area is extensive and will be utilised, however some additional track clearance is anticipated as drill operations migrate outside of the historical area of drilling at Blackbush. These tracks will branch from existing tracks. Any new track clearance will be “rolled” as much as practicable considering safety without vegetation clearance to facilitate faster rehabilitation. Where rolling is not practical vegetation clearance may be undertaken to ensure safety. New track width will be 2.4m.

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Campsites and Equipment Laydown Areas

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

Staff and contractors will be based out of Whyalla during the exploration program

What is the maximum number of personnel requiring accommodation?

40

Is a campsite required to be established?

No

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

N/A

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

0.00

Will native vegetation clearance 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?

No

Describe the purpose of the excavation

N/A

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

0.00

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

No

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
N/A	1	N/A

Will laydown areas be required?

Yes

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

No

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

A laydown site already exists near existing tank infrastructure. AGE will use this site for any equipment/consumable's storage. Ongoing use of this area has been discussed with the Moonabie landowner as part of ongoing stakeholder communications.

An additional laydown area is proposed. The location will be finalised in consultation with the landowner, and where practicable, will be situated within an existing cleared or previously disturbed area. Where vegetation disturbance is unavoidable, clearing will be limited to the minimum area necessary for the safe establishment and operation of the laydown area. The location will be selected to avoid significant vegetation and environmentally sensitive areas, and any required environmental or native vegetation approvals will be obtained prior to clearing.

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

1.00

Will native vegetation clearance be required?

Yes

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

0.50

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

Site preparation will involve removing surface debris and undertaking only the minimum vegetation clearance required for safe access and operation. Where practicable, vegetation will be cleared using low-impact methods that minimise disturbance to the soil profile and retain rootstock. Minor grading or levelling may be undertaken using a grader, loader or similar equipment to provide a safe and stable surface, with soil disturbance limited to the minimum extent necessary.

Will any excavations be required?

No

Describe the purpose of the excavation.

Minor surface grading or levelling may be undertaken where required to provide a safe and stable surface; however, bulk excavation is not proposed.

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
Miscellaneous exploration infrastructure	1	There may be need for additional infrastructure of a similar nature and scale to the infrastructure otherwise identified in this EPEPR including but not limited to additional fuel pods, pumps, trailers, spill kits, water tanks and consumables required for approved activities.
1 - 2 spill pallets with underlying plastic bunding	2	Plastic bunding with capacity for 2 spill pallets
Driller's trailer or equivalent	2	Mobile tool shed utilised by drillers for tools and equipment
Cement bags	40	Consumable for hole cementing. Only enough bags will be stored at the laydown to cover the cementing of a few holes in advance. Most of the cement is stored in AGE's office warehouse in Whyalla)
1-2 Pallets drill rod grease, machine lubricants/oils	2	To be stored on a spill pallet in accordance with SA EPA Guidelines for Bunding and Spill Management (EPA, 2016)
Drilling consumables	30	Required for a mud system for rotary mud drilling (e.g. mud, PacR, bentonite etc). Only those consumables will be stored at the laydown to cover a few holes in advance. Most of the mud system consumables are stored in AGE's office warehouse in Whyalla) - 30 pallets.
Water pump	2	Small firefighting pumps and diesel mono pumps to pump water
Fuel pod	1	Mounted on trailer/support vehicle

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.

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.

No requirement for camp water.

Rotary-Mud & Water Supply/Investigation Wells:

Fresh water sourced from Whyalla will be used for track maintenance, drillhole cementing and tree watering using either a water truck (for drilling operations) or a trailer mounted water pod with sprayer (for tree watering).

Saline groundwater from existing registered bores (see table below) will be used for rotary mud drilling (this water is not used for stock grazing due to its very high salinity TDS > 30,000 mg/L). Storage of this water will be in poly water tanks next to the waterbore locations.

Water for drilling will be transported to the rig via water truck with the supply being sourced from the most practicable existing registered bores and/or additionally drilled bores with consideration to minimising disturbance impacts.

Site Name	Construction Permit number	Unit Number
MRH9A	193890	6331-578
MRH1A	185439	6331-574
MRE1	193899	6331-582
MRE2	193895	6331-583
MRI5	198397	6331-603
MRI4	198390	6331-596
MRI1	193896	6331-584
MRI2	193894	6331-585
TBA		

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

No

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.

Well Construction Permits for Water Supply Wells attached.

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)?

Yes

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

Note the Blackbush deposit currently has two resources defined within it – Blackbush West and Blackbush East (Figure 1 - Supporting Information).

Justification for the drilling of Investigation Wells

Between 30 January 2010 and 10 May 2011, the previous project owners installed 22 groundwater investigation wells (MRH series well in Figure 10B - Supporting Information) to obtain groundwater quality/baseline chemistries of the Kanaka Bed and overlying Quaternary aquifers). Another 12 wells (MRE & MRI series wells in Figure 10B - Supporting Information) were installed to carry out pump tests for Kanaka Bed aquifer characterisation. Most of these wells are located at either at Blackbush East, ~1.5km downstream from Blackbush East or outside the palaeochannel which hosts the mineralisation. Currently only 3 historical investigation wells exist in the Blackbush West area which contains the majority of the Mineral Resource. These historical investigation wells were installed under an exploration authorisation to support a Retention Lease application and PEPR approval to conduct a field recovery trial at Blackbush East specifically.

Due to the paucity of groundwater investigation wells in Blackbush West and a large majority of historical investigation wells are located over 1-2.5km to the east of Blackbush East (away from Alligator's main focus – Figure 10B - Supporting Information), Alligator proposes to install no more than 20 groundwater investigation wells to obtain baseline groundwater chemistry and water level data and to assess the frequency of sampling sufficient to establish confidence in the natural variability of groundwater quality in the project area as a whole (e.g. seasonal variability may be important for some aquifers and not others). The data collected as part of this program supported the Retention Lease application and PEPR for a pilot three-month field recovery trial (FRT) undertaken at two locations in Blackbush West and one location in Blackbush East. The Retention Lease has since been approved and the FRT completed. Approval of the locations and number of wells was obtained through the applicable exploration Program Notification and approval process.

Investigation wells installed as part of this program may be retained and repurposed as monitoring wells for ongoing groundwater surveillance and compliance with the RL conditions, where suitable. This is intended to reduce the overall environmental impact, footprint and need for additional infrastructure. Any wells not required for ongoing monitoring will be rehabilitated in accordance with the methodologies outlined in this EPEPR, including removal of the upper 100 cm of casing in accordance with the Minimum Construction Requirements for Water Bores in Australia (fourth edition, 2020).

Water Supply Wells: Water supply wells to support exploration drilling activities will be required to be installed. Water supply well permits will be obtained prior to the drilling of these wells.

All water wells will be allocated a well construction permit from the Dept. Environment and Water in line with requirements of Section 112 of the Landscape SA Act 2019.

Well Construction: Wells will be drilled in accordance with the Minimum Construction Requirements for Water Bores in Australia (Fourth Edition, 2020) using rotary mud drilling method, PVC casing and cementing from bottom of casing to surface. Site preparation for drilling the wells will be completed in the method described in the Drillsite Preparation section.

Water Monitoring: Regular water sampling (for groundwater baseline chemistry characterisation) will commence once a well has been installed. Wells will be sampled using low flow pumps wherever possible to minimise waste water and various frequencies will be trialled in order to establish trends in groundwater variability over time for the purposes described above.

Pump Testing

Pump testing (i.e., pumping in one well to observe the water level response in another) may be undertaken for the purposes of collecting more detailed aquifer parameters such as yield and formation permeability. Testwork will be undertaken utilising the tank infrastructure described in this ePEPR and/or future Program Notifications. No sumps, turkey's nests or native vegetation clearance will be required.

Depending on local hydrogeological parameters, pump testing may be undertaken for 8-24 hours, and may produce in the vicinity 100,000L of raw water. Raw water will be re-used for drilling water supplies.

A total of 50 well construction permits were obtained for the investigation and monitoring well program. Separate well construction permits have since been obtained for the proposed water-supply wells. Any further well construction permits required will be obtained prior to drilling. A Water Extraction Licence is not required because the project area is not located within a prescribed wells area.

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.

No

Attach a copy of the permit(s) or include a statement confirming that permits will be obtained prior to the commencement of the water investigation activities.

A water Extraction Licence is not required as the site is not within a prescribed well area. AGE has obtained Water Supply Well permits to drill water supply wells to support exploration drilling activities (attached above).

Management of Hazardous Materials

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

Yes

Attach Files

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File Name	File Size (Mb)	Created On	Download	
Radiation Managment Plan 2021 - EPA approved_20260727_14_27_39.pdf	0.51 Mb	05-08-2026 17:03:34	Download (MERS/EPR-04223/Management of hazardous/Radiation Managment Plan 2021 - EPA approved 20260727_14_27_39_2026-08-05T07-33-34.757Z.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:

The land where the proposed work will be carried out has an existing pattern of station tracks that will be used as the primary access to potential drill sites. The tracks will be rehabilitated to at least their prior condition on completion of the proposed work. Historic exploration tracks also remain which have been rehabilitated with vegetation cover still establishing slowly due to continued property grazing. These partly rehabilitated tracks will be used secondary to gain access to drill sites before rolling and forming new access tracks. On completion of use these tracks carefully planned ripping of compacted soil, followed by native species seeding and placement of any available vegetation material (provided by landowners from other station activities, i.e., road construction) to assist with seed and soil runoff capture, will be undertaken.

New Tracks:

New tracks will be kept to a minimum. Tracks will be sited to minimise vegetation impacts, and disturbance by machinery to both vegetation and soils will be only sufficient to obtain access/egress. Tracks will, where practicable, be rolled in over established grasses and shrubs to retain the topsoil and its constituent seed stock in-situ. Whoa boys will be placed across all tracks as deemed necessary following the completion of works and furrows or rills backfilled to return a level surface. Approximately 3 months after completion of drilling and initial rehabilitation the site is re-visited, rephotographed 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 in line (e.g. Trees, drainage lines etc.)

1. Prior to the commencement of work a photo point is established ~25m away looking to the north and a series of photographs taken to record surface and vegetation conditions.
2. On completion of drilling and initial rehabilitation a steel dropper marked with the drill hole number is placed 25cm 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.
3. Approximately 3 months after completion of drilling and initial rehabilitation the site is re-visited, re-photographed and further remediation scheduled as required.

At each rotary mud drill site:

1. On completion of drilling and subsequent downhole logging all machinery and equipment will be removed and excess rotary mud samples disposed.
2. Hole cementing will follow (procedure described previously in Section “Drillhole construction and decommissioning” of this document)
3. Following cementing, a final site clearance is undertaken with a focus on reducing all visible aspect of ground disturbing activities as far as possible by clearing any outstanding equipment and bunding etc.
4. A wooden stake or star picket will be placed 25cm on the north side of the drill collar and labelled accordingly so that drill sites can be easily identified to monitor rehabilitation growth over future months and years. These are to be removed as rehabilitation is deemed complete.
5. Periodical reseeding of ground will be conducted to encourage vegetation regrowth where necessary with repeated seeding where required. Seed is sourced locally through hand collection or vacuum on an ad-hoc basis as the seed is available (additional seed can also be purchased as required for site appropriate plant species).
6. Temporary protective fencing will be installed where required to restrict livestock or unauthorised access to open pits. Temporary fencing will be removed once the pit has been backfilled and rehabilitated.

Temporary Fencing:

Temporary fencing will be installed around open pits where required to restrict livestock and unauthorised access until pits have been backfilled and rehabilitated. Temporary fencing will be removed following completion of rehabilitation. No rabbit or sheep proof enclosure around densely drilled areas is proposed under this EPEPR.

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

Estimates of the cost of rehabilitation is detailed in the ePEPR program notification for each year under this ongoing ePEPR. Estimate of surface rehabilitation is based on actual costs incurred for rehabilitation at the Samphire site previously conducted by AGE.

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.

See Figure 11 and 12 - Supporting Information for major vegetation types. The predominant vegetation in the work areas is Chenopod shrubland and acacia woodland.

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.

The Retention Lease has been granted, and the Significant Environmental Benefit (SEB) associated with native vegetation clearance for the RL has been calculated and approved under the RL PEPR. As the previously proposed rabbit- and sheep-proof fence is no longer proposed under this EPEPR, the SEB will not be linked to the installation or retention of that fence. Any additional SEB arising from future native vegetation clearance, including clearance associated with a future Mining Lease, will be assessed and addressed through the relevant approval processes.

Management of Environmental Impacts

Applicable environmental aspects and potential impacts

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. Where this is not practicable, vegetation clearance may be undertaken to ensure a safe working area. Avoidance of tight corners will also be employed to minimise disturbance. *All vehicles will be required to remain on existing tracks and pads. The utilisation of existing clearings will be employed for any laydown areas and new pads where possible. *Rehabilitation of new tracks and pads will be conducted to best-practices, including: replacing topsoil and cleared vegetation, removing windrows, seeding and scarifying where appropriate. *Rabbits will be controlled by surveying and warren destruction, removal of rabbits will increase plant regrowth and reduce exposed soils and the probability of soil erosion rates.	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
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 and Fauna within Project area. *Regular audits to be undertaken by the Environmental Manager or SME delegate of significant flora & fauna including weeds and pest species. Induct field staff on best practices and identification to identify weed species. *All vehicles and machinery to be thoroughly cleaned and inspected before being allowed on site. Vehicles returning to site having driven on other unsealed roads are to be washed down in Whyalla. *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 consultation with landholders. *Rehabilitated sites to be revisited periodically to monitor for any introduced weed species or sustained increase in weed species, weeds to be	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
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			controlled where appropriate.			
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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 lies entirely within private land and any public interaction during exploration works will be negligible. Additionally, there are no public access tracks or roads through the proposed work area with the closest public road point located approximately 5km from the proposed work area. *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 always accompanied by AGE staff or contractors. *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. *Proposed works are located away from primary perimeter access tracks with landholder traffic anticipated to be minimal. Appropriate barriers	Moderate	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
			such as bunting and cones will be established as necessary to restrict site access during active drilling operations. *Warning signs highlighting drilling hazards and operations will be erected around the active drill site.			
Other	All Fauna	Entrapment of fauna through open drillholes and excavations	*Complete and open drill holes are to be covered/capped to prevent fauna entrapment. *All sumps are to have egresses to ensure safe exit for fauna. Temporary fencing will be erected around open sumps. Sumps are to be backfilled once not required. *Continual rehabilitation of drill sites is to be conducted ensuring holes and sumps are cemented and backfilled within 12 weeks of completion where practicable. Typically, holes will be cemented once all surveys are complete and sump backfilled once dry	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 annualexploration compliance report.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Fire	Community/landowners	Damage to infrastructure and loss of income through fire.	*Consultation with affected landholders has been ongoing with continual communication ongoing in relation to continued and planned works. *The proposed work area is located far from residences and neighbours within expansive grazing lands. The closest residence lies approximately 2km from proposed works with additional residences located 5km or more from the proposed work area. *Rotary mud drilling methods produce minimal dust with strict vehicle limits also imposed to minimise dust from vehicle movements. *All worksites will have appropriate levels of vegetation clearance from active and hot machinery to mitigate the risk of fire.	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
Groundwater	Soil/vegetation/fauna	Discharge of groundwater into the surrounding environment.	*During rotary mud drilling all waters and fluids are recirculated during the drilling method and are to be contained within an in-ground sump at each drill site. There will be no discharge of groundwater. *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 in this area are not artesian. (For Water bore construction and pump testing) *Ground water brought to surface to be contained at all times - sumps, tanks. *Post evaporation of water and remaining salts to be scraped with a loader or similar and placed into the base of drilling sumps. *In relation to pumping tests further contingencies to ensure groundwater is contained at all times. These may include: Visual inspections of pipework and fittings prior to and during testing; Personnel present (active visual monitoring) for the entire duration of the activity; Pressure testing of pipework where it is deemed appropriate e.g. poly welded pipework; Valves installed to stop the		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.

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
			spill of pipe contents while disconnecting; Use of ground protection/bunding in zones/times of high risk of a spill.			
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 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, and reseeding where necessary. *Whoa-boys and cleared vegetation will be added and pulled back in to ensure tracks are closed and prevent future erosion. Where appropriate ripping and direct seeding with native vegetation will be undertaken.	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
Contamination	Soil/vegetation/fauna	Soil/vegetation contamination (e.g. hydrocarbons, rubbish, drill samples/cuttings, ablutions, other sources)	*No bulk fuel storage is anticipated on site. All hydrocarbon storage and laydown is to be bundled in accordance with EPA guidelines. *Large spill kits are to be kept and maintained at select locations including the drill rig and laydown area. *AGE Waste management guidelines to be in place. *All rubbish to be securely placed in bins and removed from site frequently to appropriate waste disposal sites predominantly anticipated to be the Veolia Waste and Resource transfer station at 41 Industry Drive, Whyalla. *All personnel on site are to be inducted on maintaining a clean site and litter awareness with no rubbish to be left on site on completion of program. Personnel are also to be inducted on the importance of preventing hydrocarbon spills and contamination. *All excess drill cuttings will be used to backfill drill holes following cementation and leftover buried >1 below surface in drill site 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	Mod erate	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
			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 practices and removal of all waste. *Any hydrocarbon spills >5L are to be reported.			
Groundwater users	Groundwater users	Interference to existing water users when extracting water from existing dams, water bores or mineral drillholes.	*Relevant landholders will be consulted prior to sourcing any water from dams and bores located within the property with subsequent sources only to be used with the landholder's authority. *There will be no interference to any groundwater uses or users within the property or neighbouring properties, as the exploration activities proposed will not result in a discernible drawdown outside the primary exploration work area the intercepted or target aquifers are too saline for stock watering or agricultural purposes, and no known users were found within an approximate 10km distance from the exploration area (determined through consultation with landowners and a WaterConnect search).	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. *AGE's Manager to maintain staff training in identification of significant flora and fauna and best practices of identification for field staff during inductions. Maintain up to date field induction. *Use existing tracks where possible. *Planned drill sites will be inspected prior to clearing during reconnaissance with hole locations to be moved accordingly to minimise disturbance where practicable and located within natural clearings where possible. *New tracks to be driven/rolled in as practical to retain vegetation and root stock to promote vegetation rebound, reduce potential erosion and encourage faster rehabilitation once works are completed. Where this is not practicable, vegetation clearance may be undertaken to ensure a safe working area. *No fires are to be lit on any day within the Project area. Adequate fire control will be always onsite. (Extinguishers with	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
			all machinery and vehicles, etc.) *Hot-works such as grinding, welding, oxy cutting are to be carried out within workshop conditions and on hard ground where possible in AGE's Whyalla Office/Workshop. Should works be required on site, it will occur within a cleared area at an active drill site or within laydown areas with appropriate fire controls at hand. *Rabbits will be controlled by surveying and warren destruction, removal of rabbits will increase plant regrowth. Hand broadcast direct seeding will be undertaken in disturbed areas where required, using locally appropriate native seed.			

Environmental Aspect	Receptor	Potential Impact	Control Strategies	Risk	Outcomes	Outcome Measurement Criteria
Aboriginal heritage	Aboriginal heritage sites	Disturbance to Aboriginal heritage	*Existing heritage surveys have previously cleared the proposed work area of any existing heritage sites. *All 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. *If previously unidentified heritage item, site or remains are identified, work will cease in that areas until BDAC is notified and advise is provided. *No drilling in the identified site of significance along creek lines in the northern part of the WAC area. No drilling in the archaeological survey area until a survey has been completed if deemed necessary by the BDAC. Other areas within the WAC outline are cleared for drilling.	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
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).	*Establish anticipated aquifers and groundwater conditions prior to the commencement of drilling. *Only licenced rotary mud/water well drillers permitted to undertake drilling activities on site. *Drilling contractors will be required to use suitably approved products such as bio-degradable rod grease and induced that disposal of any unwanted chemicals/hydrocarbons downhole is not permitted. *All completed holes that are not cased will be cemented from bottom of hole to top (surface). *Existing registered water bores that are not required will be rehabilitated according to Minimum Construction Requirements for Water Bores in Australia (Fourth Edition 2020) guidelines, these are currently; MRH7B, MRH1B, MRH8B, MRH9B and MRH2B. Alligator will progressively rehabilitate wells that have no future use in regards to groundwater quality and baseline assessment and will be reported in the Annual Compliance Report.	Low	Drillholes restored to controlling geological conditions that existed before the hole was drilled or, where it is intended to re-enter the hole, the hole must be completed with casing of adequate strength and the casing cemented so that all aquifers are isolated to prevent the movement of any fluids behind the casing.	Maintain evidence demonstrating that drillholes are decommissioned in accordance with Earth Resources Information Sheet M21, Mineral exploration drillholes – general specifications for construction and backfilling, and/or specific conditions from DEW (Groundwater) within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised. Provide the information requested within the 'Groundwater' section of the annual exploration compliance report.

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. *Have a primary liaison officer with contact details provided to landowners for a senior onsite officer. All landholders have the contact of AGE's CEO and Site Supervisor to call for any other ad-hoc issues. *Community Engagement Plan for exploration in place outlining complaints and grievance resolution procedures and timeframes. *In consultation with the landholder arrange timeframes of no on ground activities during lambing season (if required). *Use existing tracks where possible, imposing appropriate speed limits. *Rehabilitate all new tracks and drill sites at completion of program and appropriate maintenance to existing utilised	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
			tracks, as per 2020 rehabilitation report recommendations. *Coordinate vehicle use to minimise track disturbance as much as possible.			

Supporting Information

Photos

Upload Photos ⓘ

				Expand/Collapse
File Name	File Size (Mb)	Created On	Download	
Photo 1 - MRH6 A and B.PDF	0.13 Mb	06-08-2026 15:30:55	Download (MERS/EPR-04223/Supporting information/Photos/Photo 1 - MRH6 A and B_2026-08-06T06-00-55.051Z.PDF)	

File Name	File Size (Mb)	Created On	Download
Photo 2 - Blackbush north work area_20260726_23_19_40.PDF	0.12 Mb	06-08-2026 10:46:17	Download (MERS/EPR-04223/Supporting information/Photos/Photo 2 - Blackbush north work area_20260726_23_19_40_2026-08-06T01-16-17.995Z.PDF)
Photo 3 - Blackbush historic drilling tracks_20260726_23_19_46.PDF	0.09 Mb	06-08-2026 10:46:22	Download (MERS/EPR-04223/Supporting information/Photos/Photo 3 - Blackbush historic drilling tracks_20260726_23_19_46_2026-08-06T01-16-22.854Z.PDF)

Site identification	Date taken	Photo number & PEPR section reference	Easting (GDA94)	Northing (DGA94)	Zone	Details and comments	Document ID
MRH6 A and B	19/12/2022	1-I	725095	6323952	53	Photo of rehabilitated water bore site and typical environment within the proposed work area.	Photo 1 - MRH6 A and B
Blackbush north work area	01/09/2020	2-I	723434	6324325	53	Overview looking NW from I2 and existing bore site. Shows northern part of proposed work area and established station tracks with less defined rehabilitated historic drilling tracks	Photo 2 - Blackbush north work area
Blackbush historic drilling tracks	31/08/2020	3-I	721901	6324301	53	Approximate easting and northing given. Photo taken looking Northeast across historic workings at the Blackbush resource. This area represents the main focus of proposed works with historic tracks to be used for access where possible. Established station tracks can be seen cross cutting historic rehabilitating tracks. Demonstrated gradual rehabilitation under continued grazing conditions.	Photo 3 - Blackbush historic drilling tracks

Supporting Maps

Upload Maps ①

			Expand/Collapse
File Name	File Size (Mb)	Created On	Download
Appendix 1 - Protected Matters Report.pdf	0.35 Mb	06-08-2026 15:28:50	Download (MERS/EPR-04223/Supporting information/Maps/Appendix 1 - Protected Matters Report_2026-08-06T05-58-50.351Z.pdf)
Figure 1 - Location of AGE ELs.PDF	0.14 Mb	06-08-2026 15:26:25	Download (MERS/EPR-04223/Supporting information/Maps/Figure 1 - Location of AGE ELs_2026-08-06T05-56-24.924Z.PDF)
Figure 10A - SA Water Connect wells and bores.PDF	0.11 Mb	06-08-2026 15:27:27	Download (MERS/EPR-04223/Supporting information/Maps/Figure 10A - SA Water Connect wells and bores_2026-08-06T05-57-27.127Z.PDF)
Figure 10B - GW Investigation Wells previously installed.PDF	0.13 Mb	06-08-2026 15:27:35	Download (MERS/EPR-04223/Supporting information/Maps/Figure 10B - GW Investigation Wells previously installed_2026-08-06T05-57-35.509Z.PDF)
Figure 11 - Major vegetation types.PDF	0.17 Mb	06-08-2026 15:27:43	Download (MERS/EPR-04223/Supporting information/Maps/Figure 11 - Major vegetation types_2026-08-06T05-57-43.219Z.PDF)

File Name	File Size (Mb)	Created On	Download
Figure 12 - State-Rated Flora and Fauna.PDF	0.16 Mb	06-08-2026 15:27:49	Download (MERS/EPR-04223/Supporting information/Maps /Figure 12 - State-Rated Flora and Fauna_2026-08-06T05-57-49.190Z.PDF)
Figure 13 - Work Areas.PDF	0.13 Mb	06-08-2026 15:27:54	Download (MERS/EPR-04223/Supporting information/Maps /Figure 13 - Work Areas_2026-08-06T05-57-54.369Z.PDF)
Figure 14 - Excluded Land.PDF	0.12 Mb	06-08-2026 15:27:58	Download (MERS/EPR-04223/Supporting information/Maps /Figure 14 - Excluded Land_2026-08-06T05-57-58.049Z.PDF)
Figure 15 - Location of ground gravity survey.pdf	3.76 Mb	06-08-2026 15:28:27	Download (MERS/EPR-04223/Supporting information/Maps /Figure 15 - Location of ground gravity survey_2026-08-06T05-58-27.027Z.pdf)
Figure 2 - Location of ILUAs.PDF	0.16 Mb	06-08-2026 15:26:33	Download (MERS/EPR-04223/Supporting information/Maps /Figure 2 - Location of ILUAs_2026-08-06T05-56-33.316Z.PDF)

File Name	File Size (Mb)	Created On	Download
Figure 3 - Indigenous Heritage Surveys.PDF	0.1 Mb	06-08-2026 15:26:40	Download (MERS/EPR-04223/Supporting information/Maps /Figure 3 - Indigenous Heritage Surveys_2026-08-06T05-56-39.862Z.PDF)
Figure 4 - Topography, cultural features, pastoral leases.PDF	0.15 Mb	06-08-2026 15:26:45	Download (MERS/EPR-04223/Supporting information/Maps /Figure 4 - Topography, cultural features, pastoral leases_2026-08-06T05-56-44.910Z.PDF)
Figure 5 - Broad soil zones.PDF	0.12 Mb	06-08-2026 15:26:52	Download (MERS/EPR-04223/Supporting information/Maps /Figure 5 - Broad soil zones_2026-08-06T05-56-52.024Z.PDF)
Figure 6 - Coastal acid-sulphate soils risk areas.PDF	0.13 Mb	06-08-2026 15:26:58	Download (MERS/EPR-04223/Supporting information/Maps /Figure 6 - Coastal acid-sulphate soils risk areas_2026-08-06T05-56-57.857Z.PDF)
Figure 7a - Groundwater Dependent Ecosystems.PDF	0.12 Mb	06-08-2026 15:27:04	Download (MERS/EPR-04223/Supporting information/Maps /Figure 7a - Groundwater Dependent Ecosystems_2026-08-06T05-57-03.947Z.PDF)

File Name	File Size (Mb)	Created On	Download
Figure 7b - Subtropical and Temperate Coastal Saltmarsh.PDF	0.13 Mb	06-08-2026 15:27:09	Download (MERS/EPR-04223/Supporting information/Maps/Figure 7b - Subtropical and Temperate Coastal Saltmarsh_2026-08-06T05-57-09.497Z.PDF)
Figure 8 - Surface water features.PDF	0.15 Mb	06-08-2026 15:27:14	Download (MERS/EPR-04223/Supporting information/Maps/Figure 8 - Surface water features_2026-08-06T05-57-14.217Z.PDF)
Figure 9 - Stylised hydrogeological setting.PDF	0.1 Mb	06-08-2026 15:27:20	Download (MERS/EPR-04223/Supporting information/Maps/Figure 9 - Stylised hydrogeological setting_2026-08-06T05-57-20.246Z.PDF)

Figure Description	Document ID
Location of AGE ELs	Figure 1
Location of ILUAs	Figure 2
Indigenous Heritage Surveys	Figure 3
Topography, cultural features, pastoral leases	Figure 4
Broad soil zones	Figure 5
Coastal acid-sulphate soil risk areas	Figure 6
Groundwater Dependent Ecosystems	Figure 7a
Subtropical and Temperate Coastal Saltmarsh	Figure 7b
Surface water features	Figure 8
Stylised hydrogeological setting	Figure 9
SA Water Connect wells and bores	Figure 10A
Groundwater Investigation Wells previously drilled	Figure 10B
Major vegetation types	Figure 11
State-Rated Flora and Fauna	Figure 12
Work Areas	Figure 13
Excluded Land	Figure 14
Location of ground gravity survey	Figure 15
Protected Matters Report	Appendix 1

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.

Previously approved Ongoing EPEPR (EPEPR 2023-008).

Water Supply Well permits and Radiation Management Plan attached in previous, relevant section.

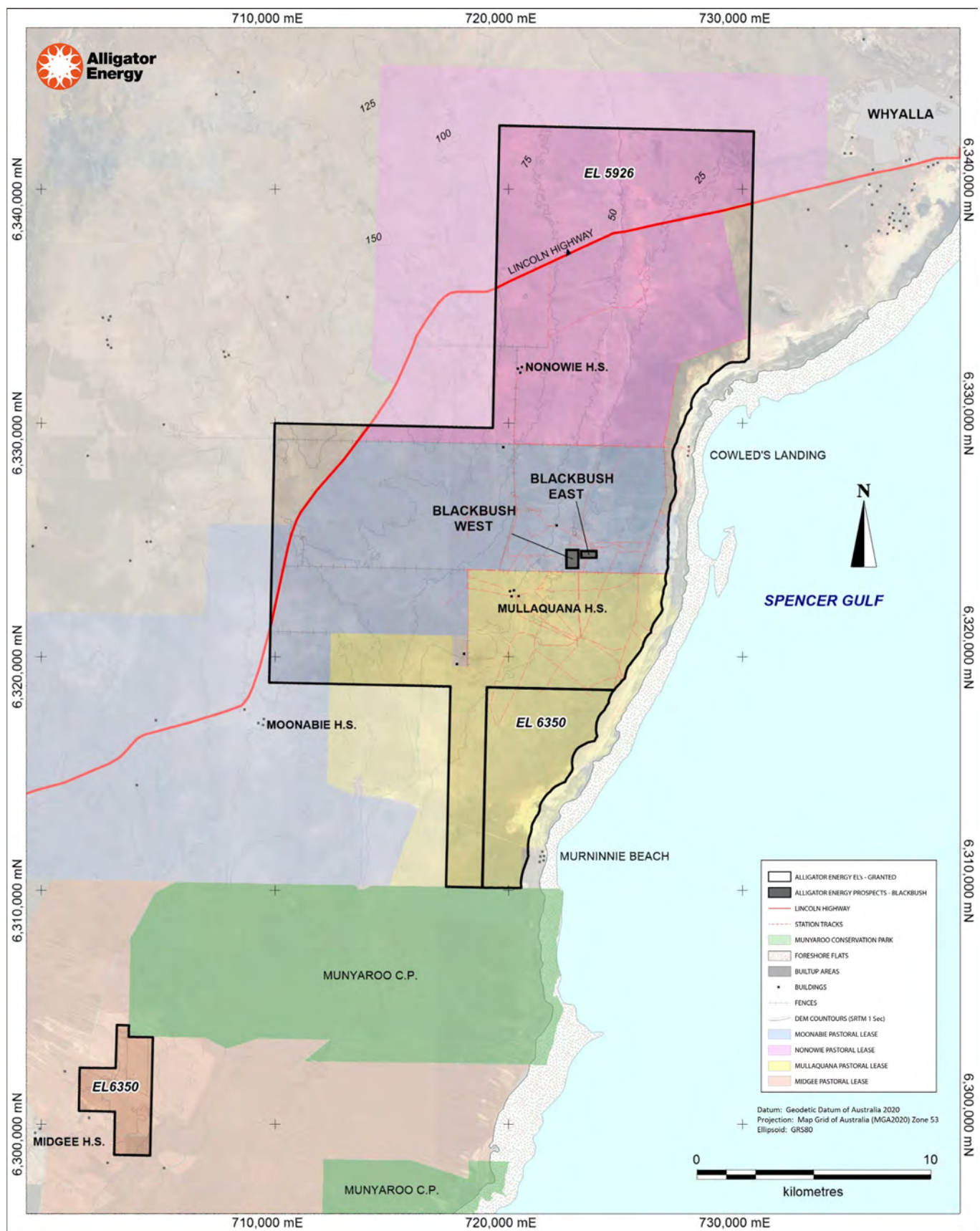


Figure 1. Location of AGE Exploration Licences (ELs), major cultural features and relevant pastoral properties

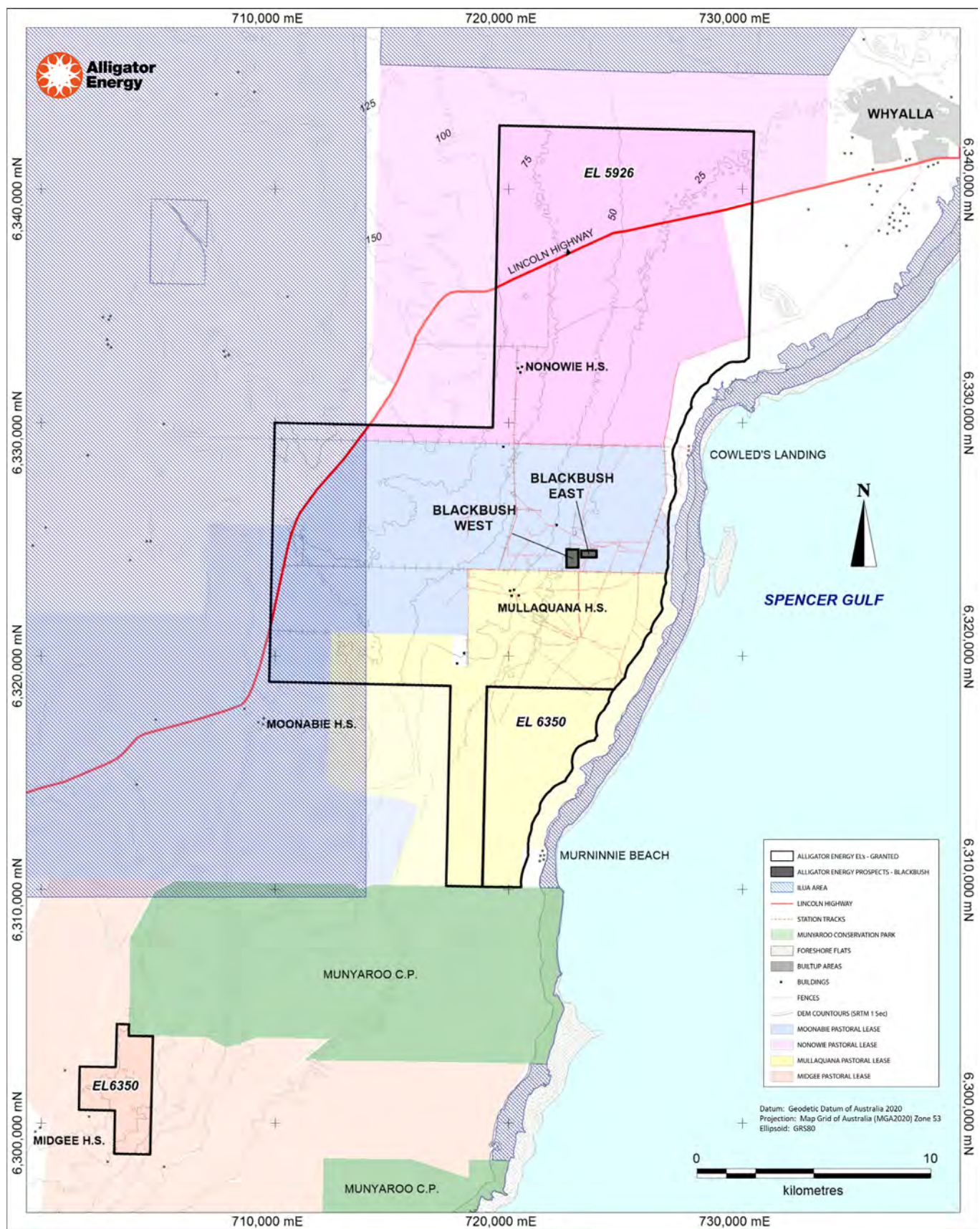


Figure 2. Location of areas covered by Indigenous Land Use Arrangements (ILUAs)

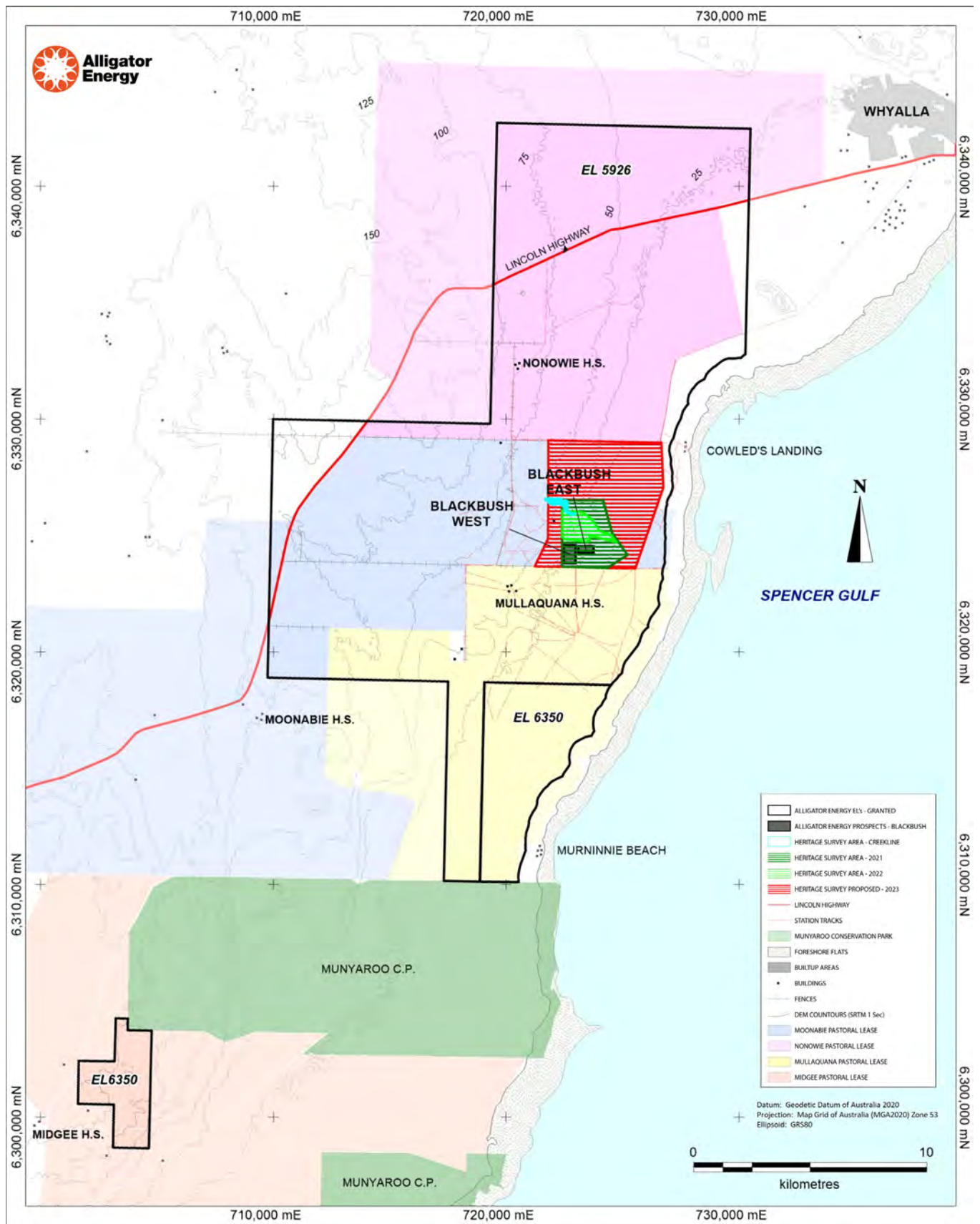


Figure 3. Indigenous Heritage Surveys

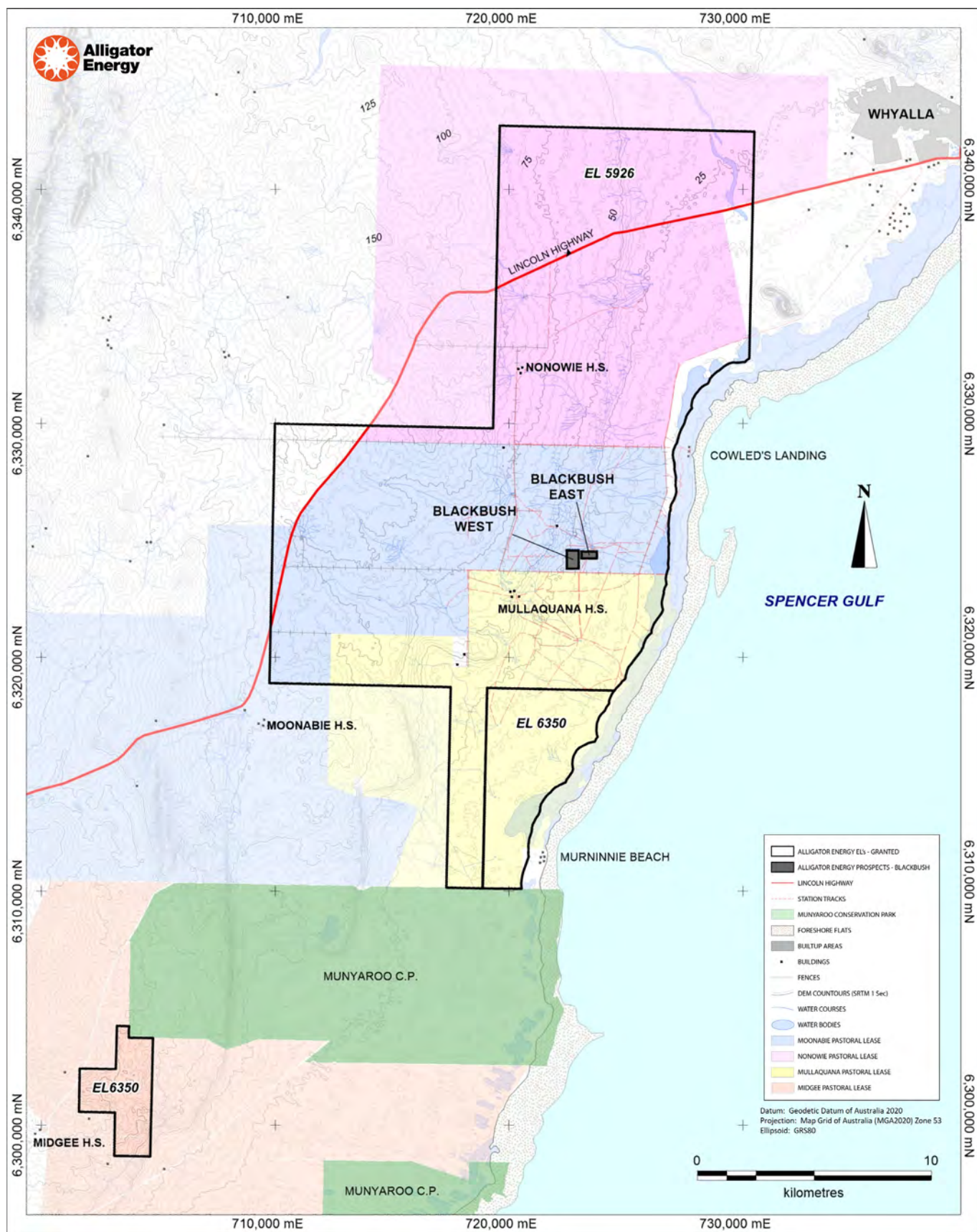


Figure 4. Topography, cultural features, pastoral leases

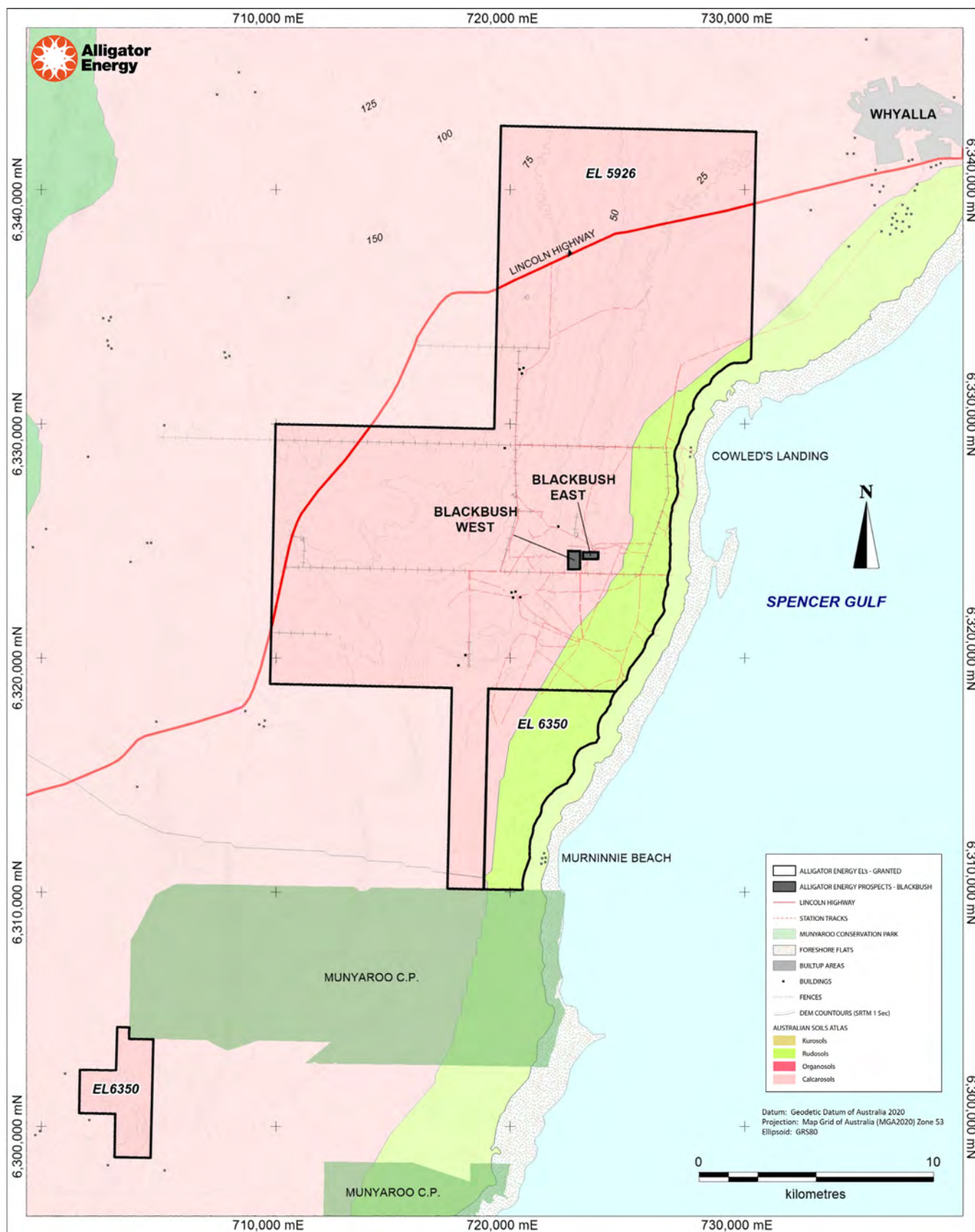


Figure 5. Broad soil zones (from Australia Soils Atlas 2M)

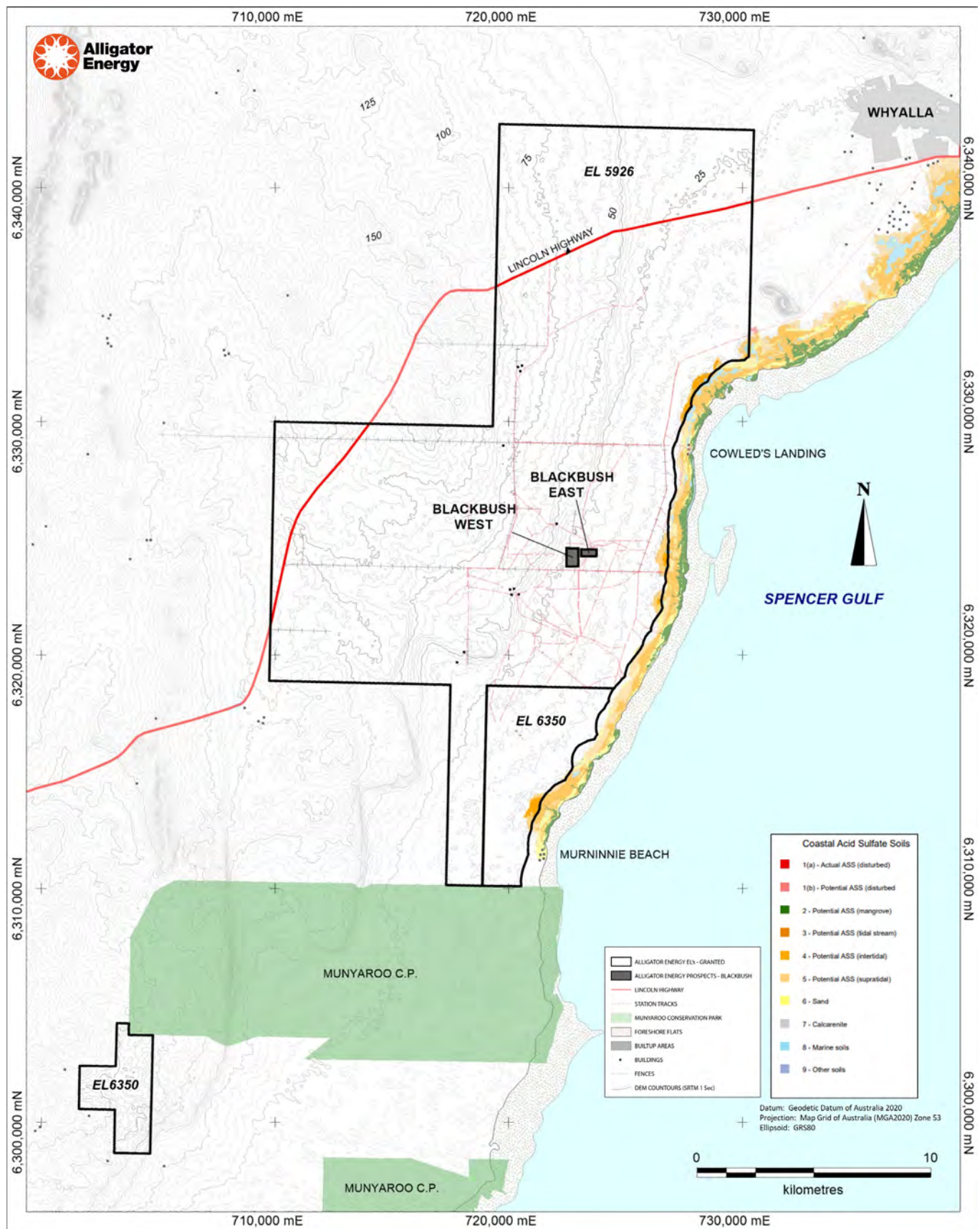


Figure 6. Coastal acid-sulphate soils risk areas.

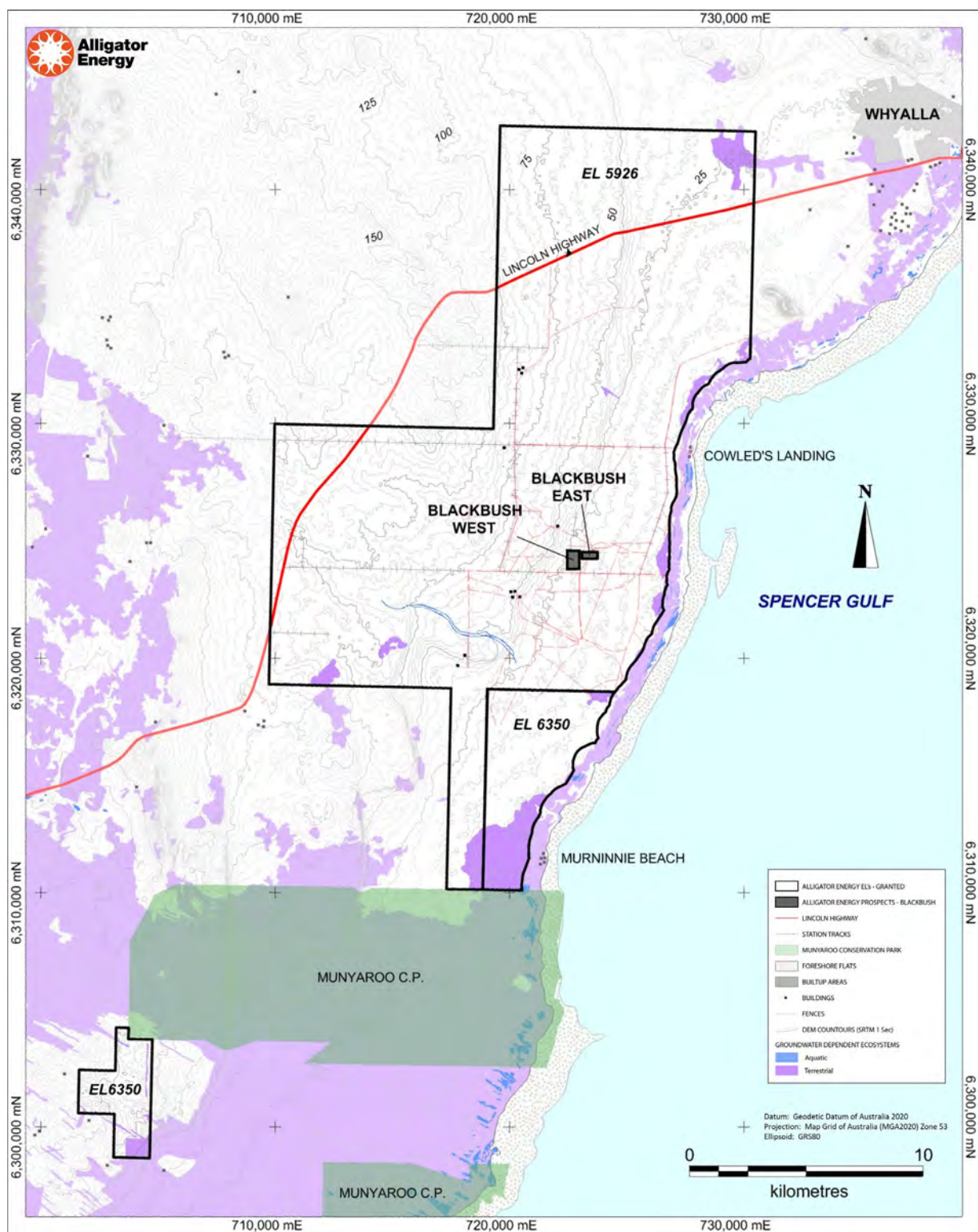


Figure 7a. Groundwater Dependent Ecosystems (as per the BOM GDE Atlas) in the region including EL5926 and EL6350 (black outlines)

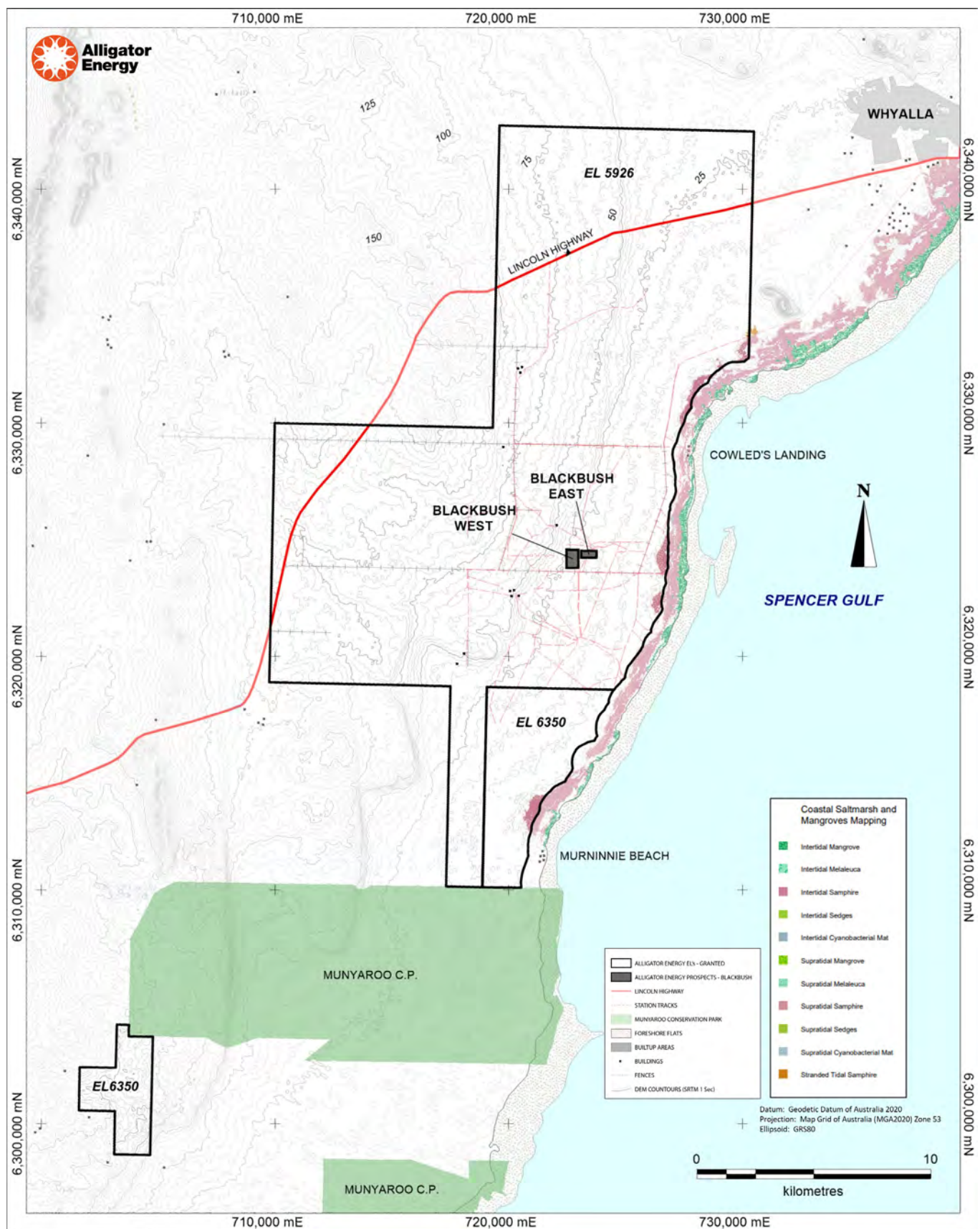


Figure 7b. Subtropical and Temperate Coastal saltmarsh (samphire varietals) and mangroves map proximal to EL5926 and EL6350 (black outlines)

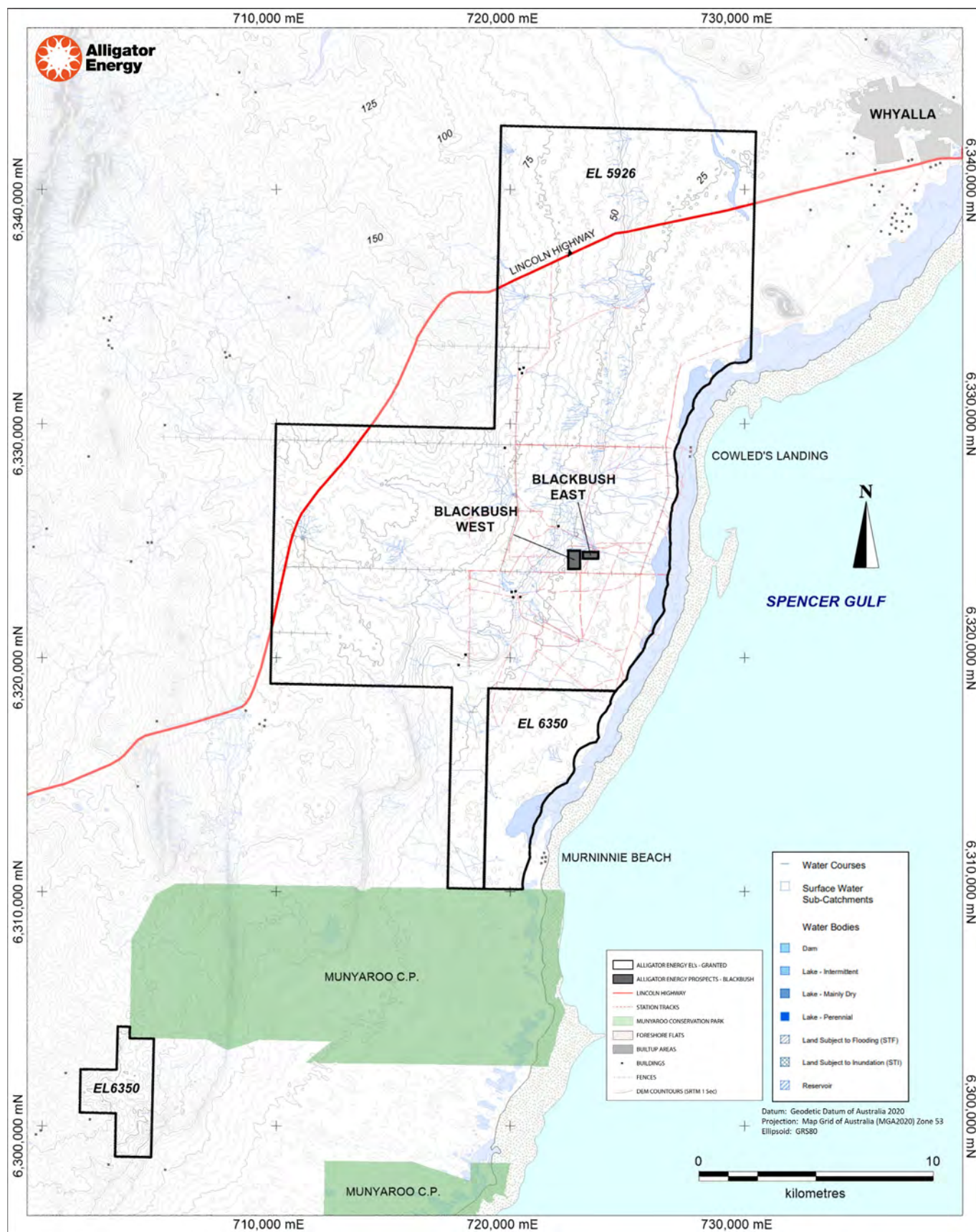


Figure 8. Surface water features within and adjacent the ELs

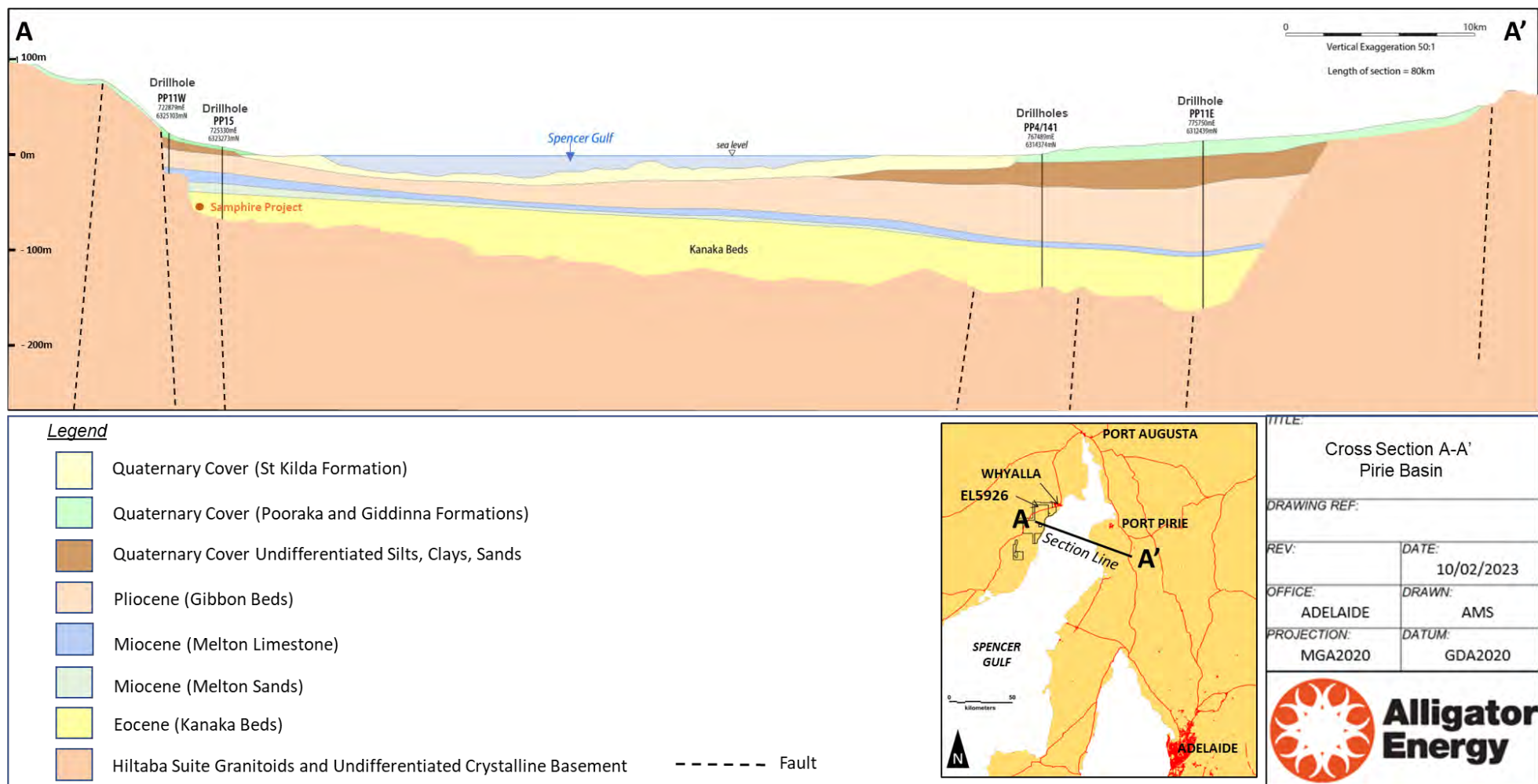


Figure 9. Stylised hydrogeological setting.

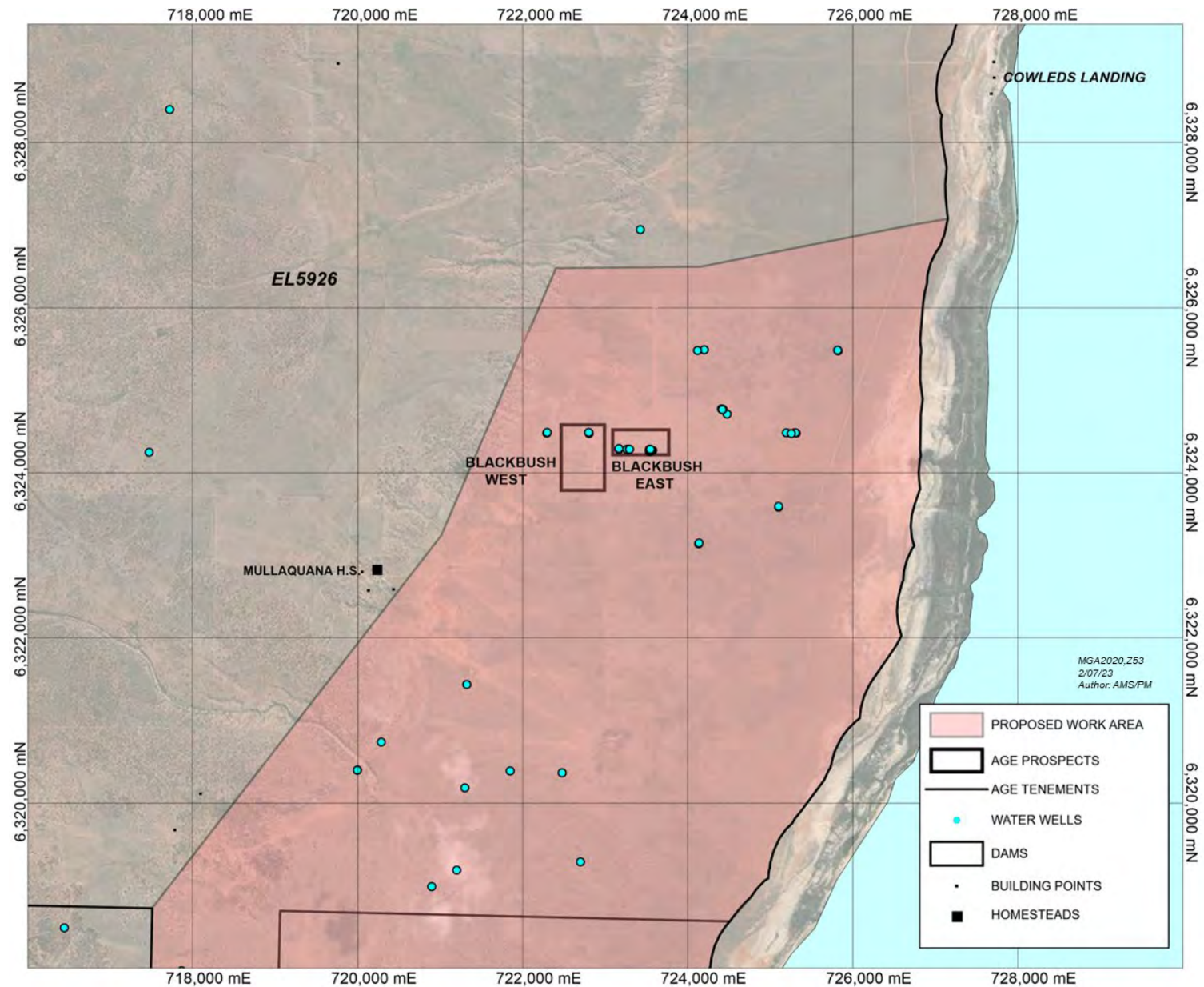


Figure 10A. SA WaterConnect well distribution and groundwater source bores

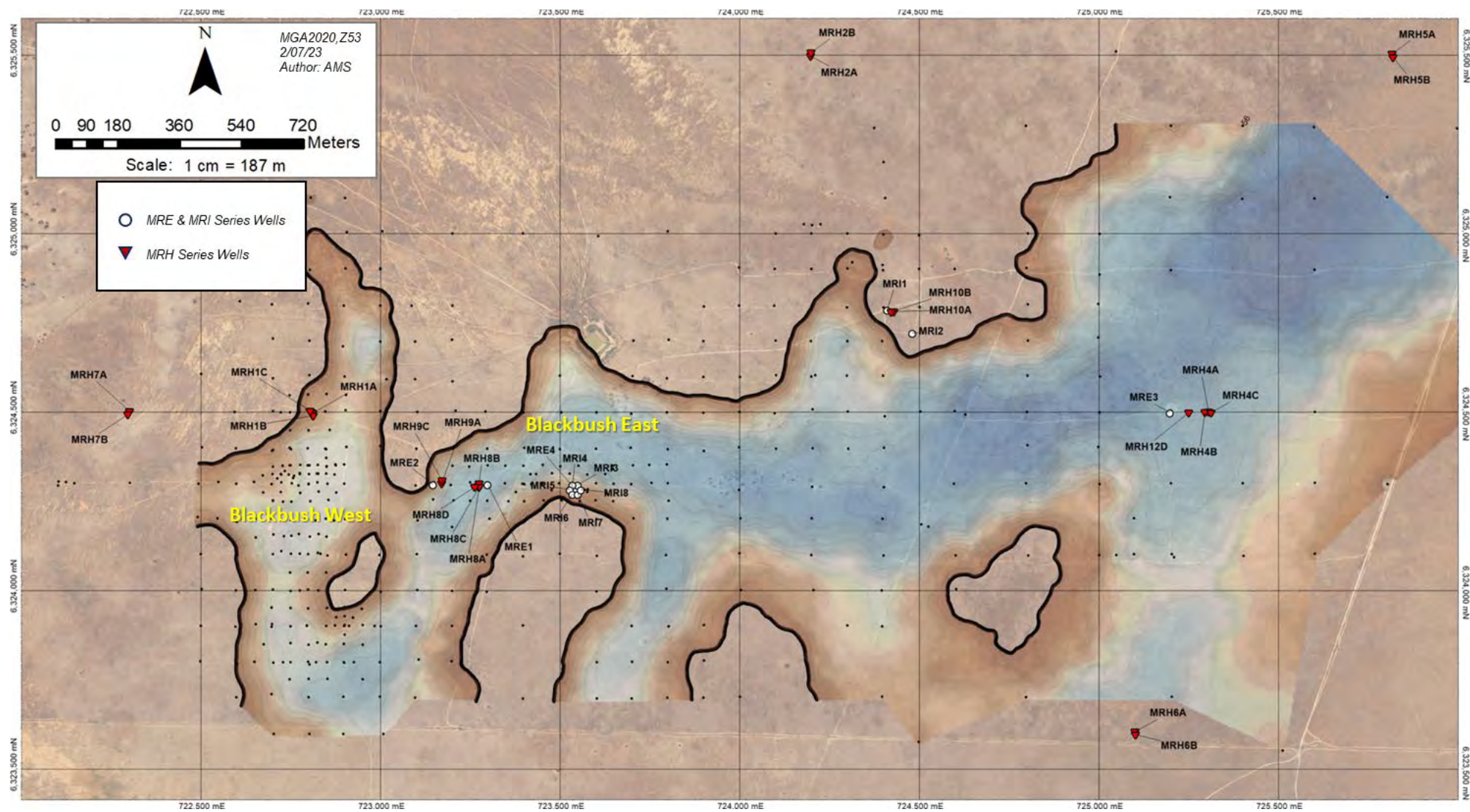


Figure 10B. Groundwater Investigation Wells installed by previous project owner (Uranium SA Ltd)

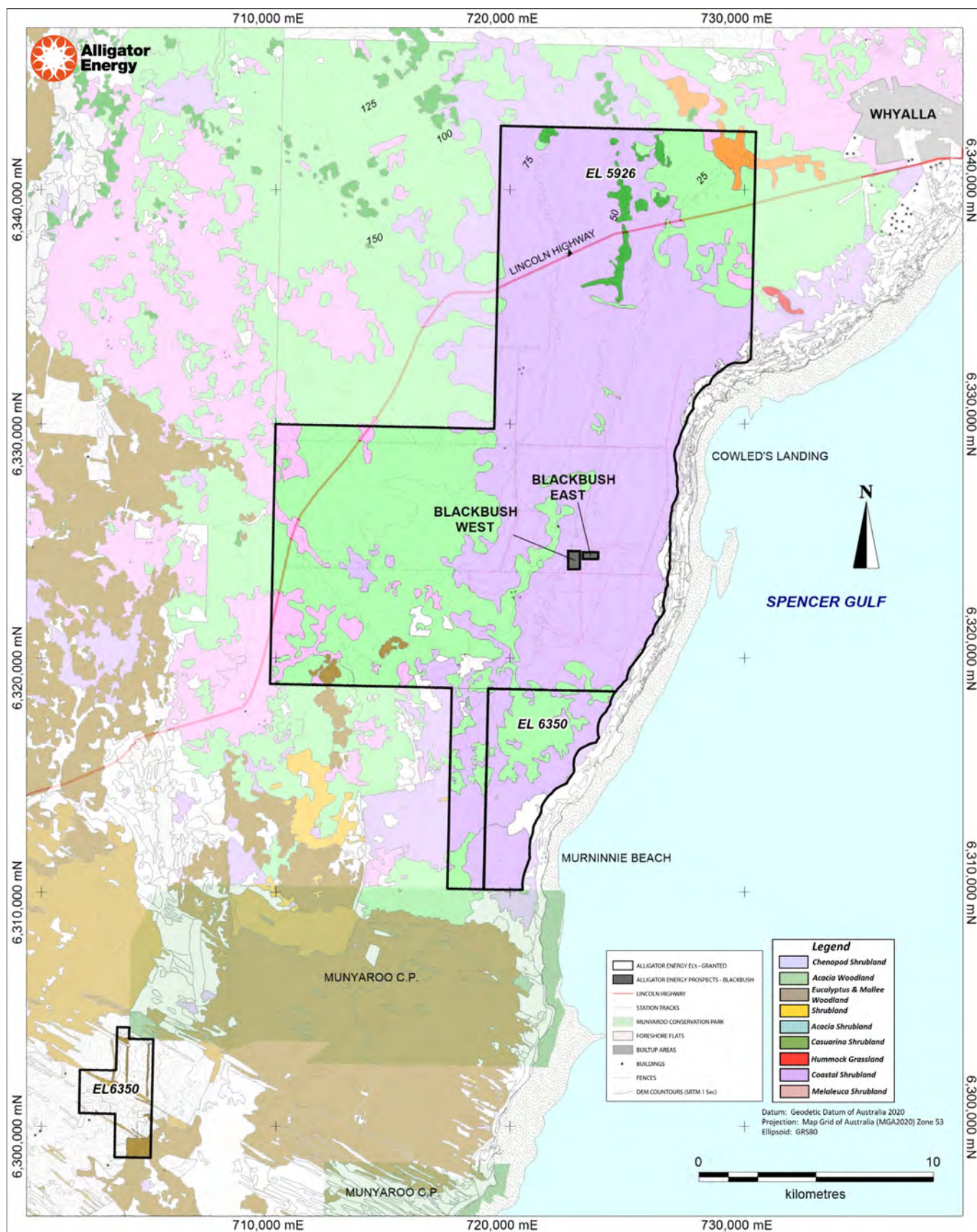


Figure 11. Major vegetation types within and adjacent the ELs.

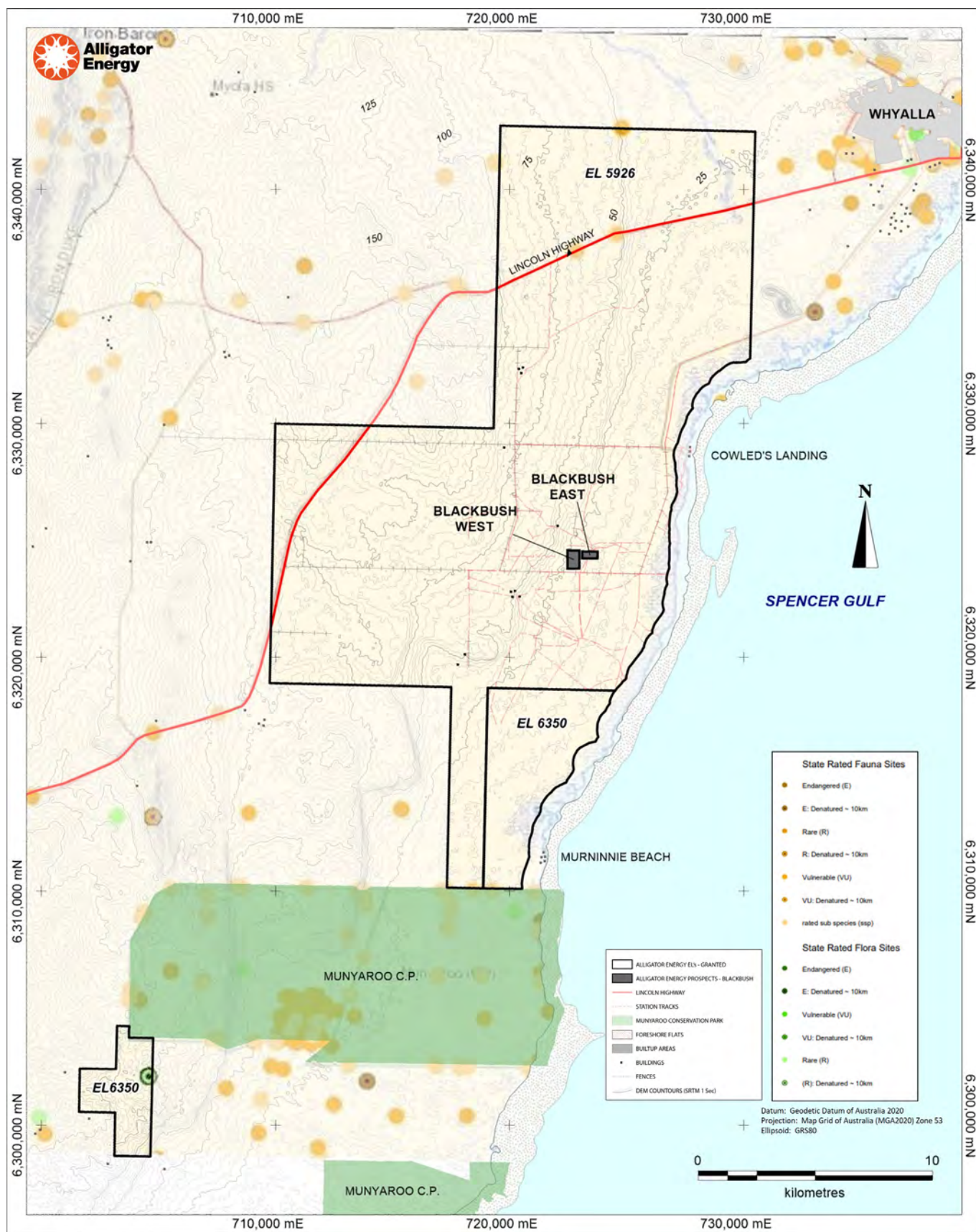


Figure 12. State-Rated Flora and Fauna Sites within and adjacent to ELs.

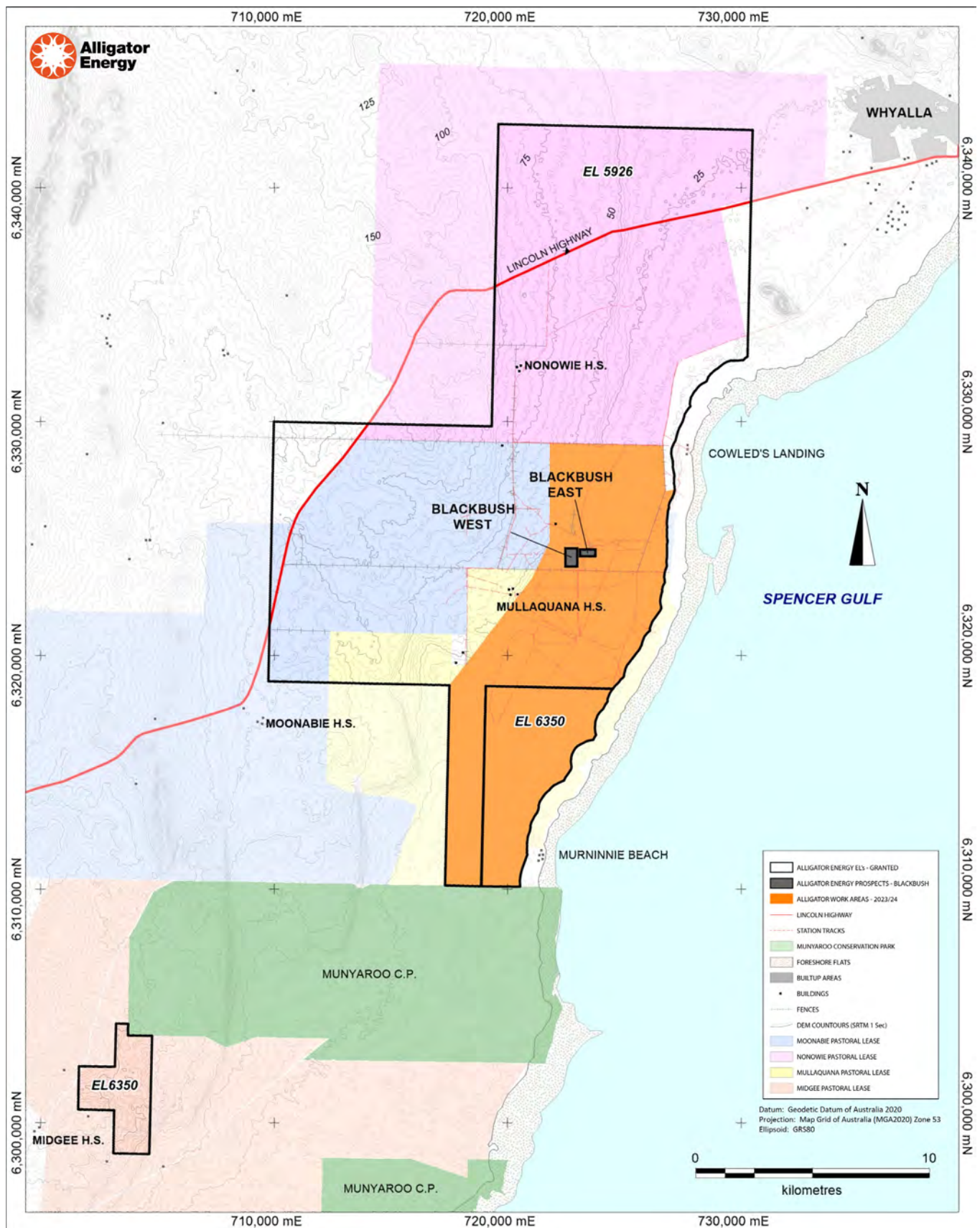


Figure 13. Work areas covered under this ongoing ePEPR.

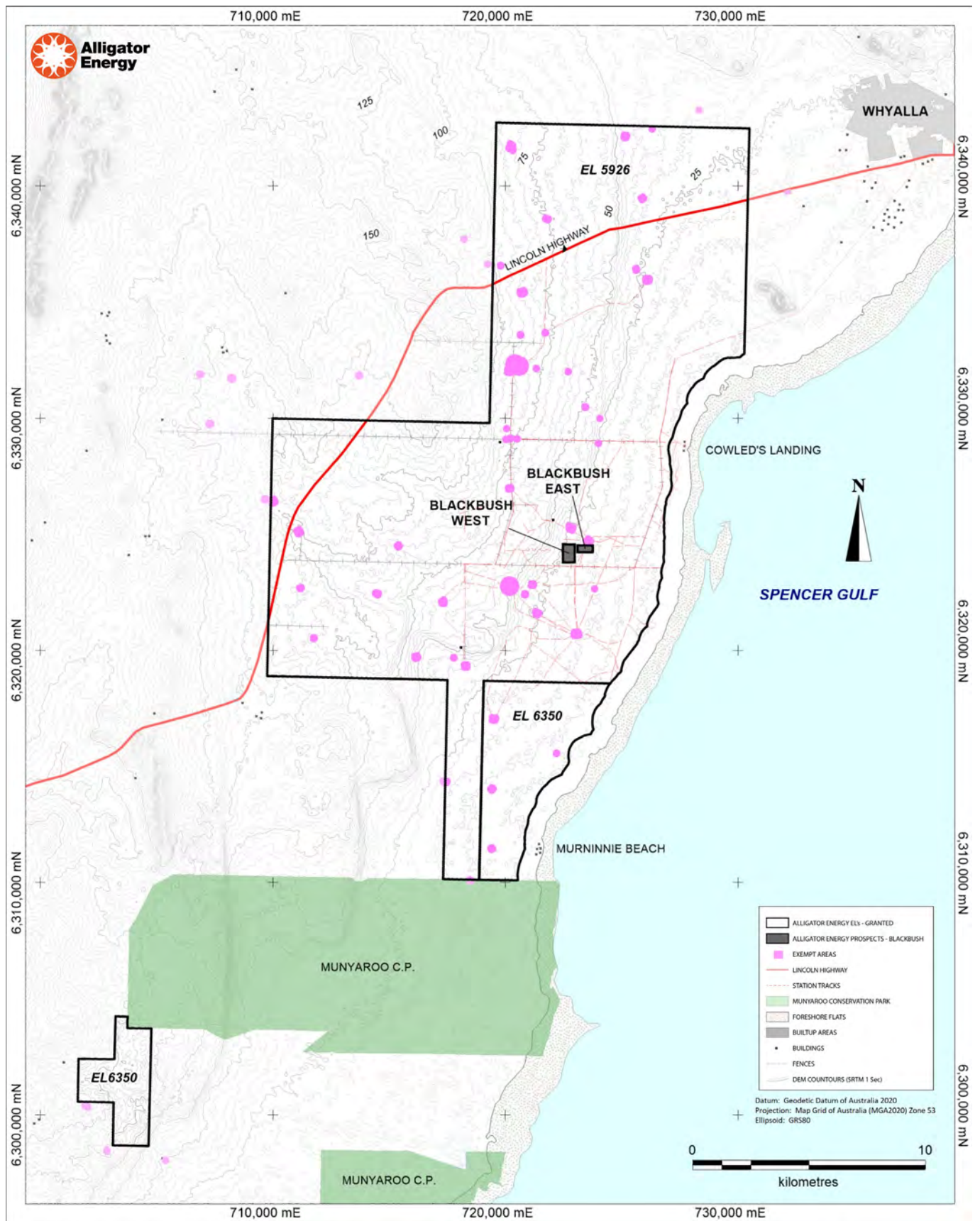


Figure 14. Excluded land

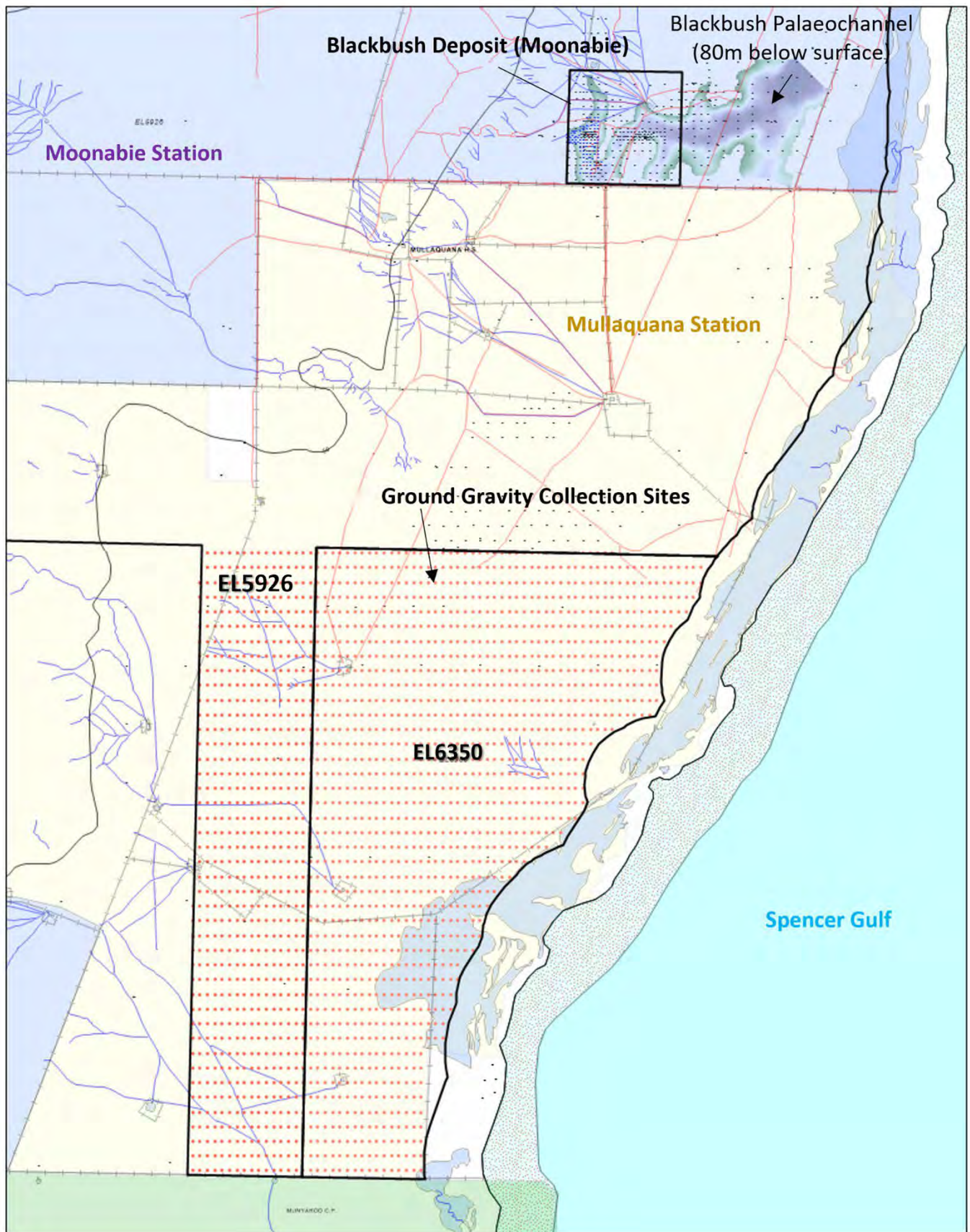


Figure 15. Location of completed ground gravity survey 2023/2024 (Mullaquana Station).

SECTION I – PHOTOS

Include photographs in this section:

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

To insert photos, copy and paste the photo into the template below. Resize photos to fit page width. Ensure that all information about each photo is completed and refer to the photo number in the relevant section of the PEPR.

Site identification	Date taken	Photo number & PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Details and Comments
MRH6 A & B	19/12/2022	1-I	725095	6323952	53	Photo of rehabilitated water bore site and typical environment within the proposed work area.



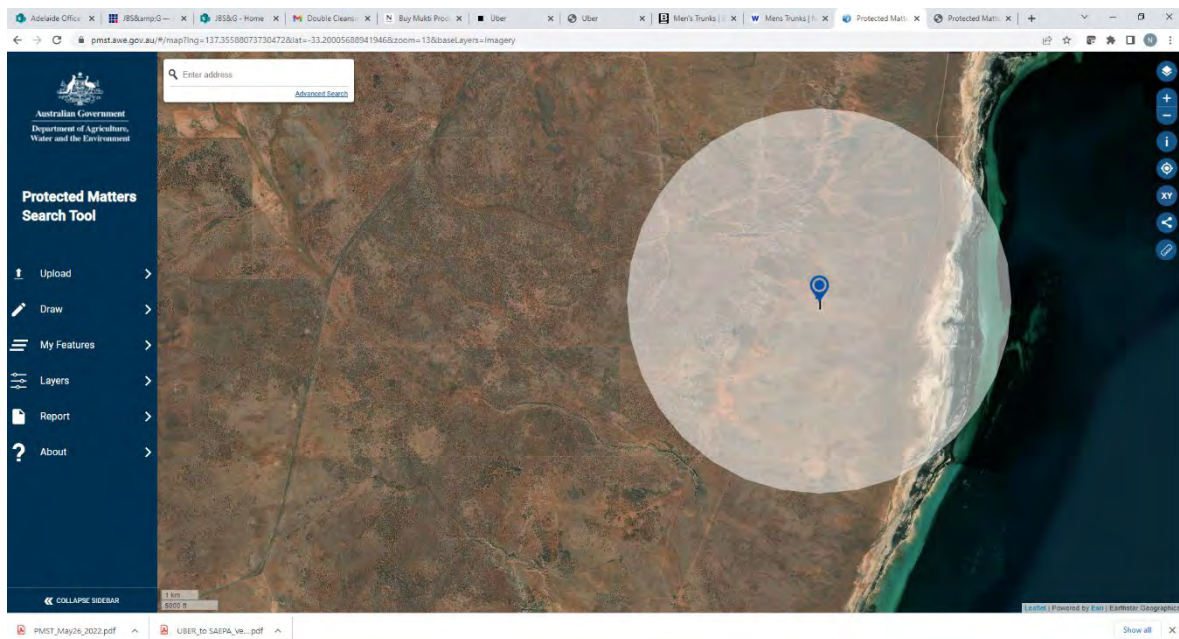
Site identification	Date taken	Photo number & PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Details and Comments
Blackbush north work area.	01/09/2020	2-1	723434	6324325	53	Overview looking NW from I2 and existing bore site. Shows northern part of proposed work area and established station tracks with less defined rehabilitated historic drilling tracks



Site identification	Date taken	Photo number & PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Details and Comments
Blackbush historic drilling tracks	31/08/2020	3-I	721901	6324301	53	Approximate easting and northing given. Photo taken looking Northeast across historic workings at the Blackbush resource. This area represents the main focus of proposed works with historic tracks to be used for access where possible. Established station tracks can be seen cross cutting historic rehabilitating tracks. Demonstrated gradual rehabilitation under continued grazing conditions.



Appendix A EPBC Act Protected Matters Report May 26 2022



Note: the Protected Matters report no longer provides location/buffer and or a map of the area. Hence, the PMST search area run on 26/5/2022, with 5 km radius around 137.3974,-33.19305 is shown above.

Appendix B EPBC threatened ecological communities and threatened listed species as predicted with PMST in 2010 and 2022

Appendix C: EPBC threatened ecological communities and threatened listed species as predicted with PMST in 2010 and 2022

V = Vulnerable, E = Endangered, CE = Critically Endangered, CD = Conservation Dependent¹, Mi = Migratory.

Scientific name	Common Name	Predicted with PMST 2010	Predicted with PMST 2022	EPBC Act Listing Status Nov 2010	EPBC Act Listing Status May 2022	Other detail
Threatened ecological community						
	Subtropical and Temperate Coastal Saltmarsh		X	Not listed.	V	Listed Aug 2013
Plants						
<i>Pterostylis xerophila</i>	Desert Greenwood	X	X	V	V	
<i>Swainsona pyrophila</i>	Yellow Swainson-pea	X	X	V	V	
<i>Tecticornia falbelloformis</i>	Bead Glasswort	X	X	V	V	
Mammals						
<i>Eubalaena australis</i>	Southern Right Whale	X	X	E	E	
<i>Megaptera novaeangliae</i>	Humpback Whale	X		V		
<i>Neophoca cinerea</i>	Australian Sea-lion	X	X	V	E	
<i>Sminthopsis psammophila</i>	Sandhill Dunnart		X	E	E	
Reptiles						
<i>Caretta caretta</i>	Loggerhead Turtle	X	X	E	E	
<i>Chelonia mydas</i>	Green Turtle	X	X	V	V	
<i>Dermochelys coriacea</i>	Leatherback Turtle, Leathery Turtle, Luth	X	X	E	E	
Shark						
<i>Carcharodon carcharias</i>	Great White Shark	X	X	V	V	
Fish						
<i>Seriola lalandi</i>	Blue Warehou		X	Not listed	CD	Listed Feb 2015
<i>Thunnus maccoyii</i>	Southern Bluefin Tuna		X	Not Listed.	CD	Listed Feb 2015
Birds						
<i>Acanthiza lineata lineata</i>	Slender-billed Thornbill (western)	X		V	Not listed	
<i>Amytornis textilis myall</i> ²	Western Grasswren (Gawler Ranges)		X	Not listed.	V	Listed 6 Nov 2014. Previous common name Thick-billed Grasswren

¹ Species that are listed as conservation dependent under the EPBC Act are not considered as MNES for the purposes of Part 3 of the EPBC Act and consequently have not been included further in the assessment.

² Subspecies *Amytornis textilis myall* (Western Grasswren (Gawler Ranges)) was listed as Vulnerable in 2014 with conservation advice provided also in 2014. The naming of this species in EBS 2010a and 2010b is not consistent with the timing of this listing; i.e. EBS Ecology 2010a: *Amytornis textilis myall* but with common name cited as Eastern Thickbilled Grasswren (which at that time should have been *Amytornis textilis modestus*).

Scientific name	Common Name	Predicted with PMST 2010	Predicted with PMST 2022	EPBC Act Listing Status Nov 2010	EPBC Act Listing Status May 2022	Other detail
<i>Calidris canutus</i>	Red Knot, Knot		X	Not listed.	E, Mi	Listed May 2016
<i>Calidris ferruginea</i>	Curlew Sandpiper		X	Not listed.	CE, Mi	Listed May 2015
<i>Charadrius leschenaultii</i>	Greater Sand Plover, Large Sand Plover		X	Not listed.	V, Mi	Listed May 2016
<i>Diomedea antipodensis</i>	Antipodean Albatross		X	V	V, Mi	
<i>Diomedea epomophora</i>	Southern Royal Albatross		X	V	V, Mi	
<i>Diomedea exulans</i>	Wandering Albatross		X	V	V, Mi	
<i>Diomedea exulans gibsoni</i>	Gibson's Albatross	X		V	V	
<i>Falco hypoleucos</i>	Grey Falcon		X	Not listed.	V	Listed in Jul 2020
<i>Grantiella picta</i>	Painted Honeyeater		X	Not listed.	V	Listed in Jul 2015
<i>Leipoa ocellata</i>	Malleefowl	X	X	V	V	
<i>Limosa lapponica baueri</i>	Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit		X	Not listed.	V	Listed May 2016
<i>Macronectes giganteus</i>	Southern Giant-Petrel, Southern Giant Petrel	X	X	E	E, Mi	
<i>Macronectes halli</i>	Northern Giant Petrel	X	X	V	V, Mi	
<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew		X	Not listed.	CE, Mi	Listed May 2015
<i>Pachyptila turtur subantarctica</i>	Fairy Prion (southern)		X	V	V	
<i>Pezoporus occidentalis</i>	Night Parrot		X	E	E	
<i>Phoebastria fusca</i>	Sooty Albatross		X	V	V, Mi	
<i>Rostratula australis</i>	Australian Painted Snipe		X	Not listed.	E	Listed May 2013
<i>Thalassarche bulleri</i>	Buller's Albatross	X		V, Mi	V, Mi	
<i>Sternula nereis nereis</i>	Australian Fairy Tern		X	Not listed.	V	Listed Mar 2011
<i>Thalassarche carteri</i>	Indian Yellow-nosed Albatross		X	V, Mi	V, Mi	
<i>Thalassarche cauta</i>	Shy Albatross	X	X	V, Mi	E, Mi	
<i>Thalassarche impavida</i>	Campbell Albatross, Campbell Black-browed Albatross	X	X	V, Mi	V, Mi	Previously <i>Thalassarche melanophris impavida</i> (2010)
<i>Thalassarche melanophris</i>	Black-browed Albatross		X	V, Mi	V, Mi	
<i>Thalassarche steadi</i>	White-capped Albatross		X	V, Mi	V, Mi	
<i>Thinornis cucullatus cucullatus</i>	Eastern Hooded Plover, Eastern Hooded Plover		X	Not listed.	V	Listed Nov 2014

Appendix C EPBC listed migratory species as predicted with PMST in 2010 and 2022

Appendix D: EPBC listed migratory species EPBC as predicted with PMST in 2010 and 2022

Scientific name	Common Name	Predicted with PMST 2010	Predicted with PMST 2022	Migratory Listing Status Nov 2010	Migratory Listing Status May 2022
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	X	-	Mi Terrestrial	-
<i>Hirundapus caudacutus</i>	White-throated Needle-tail	X	-	Mi Terrestrial	-
<i>Leipoa ocellata</i>	Malleefowl	X	-	Mi Terrestrial	-
<i>Merops ornatus</i>	Rainbow Bee-eater	X	-	Mi Terrestrial	-
<i>Motacilla cinerea</i>	Grey Wagtail	-	X	-	Mi Terrestrial
<i>Motacilla flava</i>	Yellow Wagtail	-	X	-	Mi Terrestrial
<i>Actitis hypoleucos</i>	Common Sandpiper	-	X	-	Mi Wetland
<i>Ardea alba</i>	Great Egret, White Egret	X	-	Mi Wetland, Mi Marine	-
<i>Ardea ibis</i>	Cattle Egret	X	-	Mi Wetland, Mi Marine	-
<i>Ardenna carneipes</i>	Flesh-footed Shearwater, Fleshy-footed Shearwater	-	X	-	Mi Marine Listed (as <i>Puffinus carneipes</i>)
<i>Ardenna grisea</i>	Sooty Shearwater	-	X	-	Mi Marine Listed (as <i>Puffinus carneipes</i>)
<i>Arenaria interpres</i>	Ruddy Turnstone	X	X	Mi Wetland	Mi Wetland
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	X	X	Mi Wetland	Mi Wetland
<i>Calidris alba</i>	Sanderling	X	X	Mi Wetland	Mi Wetland
<i>Calidris canutus</i>	Red Knot, Knot	X	X	Mi Wetland	Mi Wetland
<i>Calidris ferruginea</i>	Curlew Sandpiper	X	X	Mi Wetland	Mi Wetland
<i>Calidris melanotos</i>	Pectoral Sandpiper	-	X	-	Mi Wetland
<i>Calidris ruficollis</i>	Red-necked Stint	X	X	Mi Wetland	Mi Wetland
<i>Charadrius leschenaultii</i>	Greater Sand Plover, Large Sand Plover	-	X	-	Mi Wetland
<i>Charadrius veredus</i>	Oriental Plover, Oriental Dotterel	X	X	Mi Wetland	Mi Wetland
<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese Snipe	X	X	Mi Wetland	Mi Wetland
<i>Limosa lapponica</i>	Bar-tailed Godwit	-	X	-	Mi Wetland
<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	-	X	-	Mi Wetland
<i>Tringa nebularia</i>	Common Greenshank, Greenshank	-	X	-	Mi Wetland
<i>Apus pacificus</i>	Fork-tailed Swift	X	X	Mi Marine	Mi Marine
<i>Diomedea antipodensis</i>	Antipodean Albatross	-	X	-	Mi Marine
<i>Diomedea epomophora</i>	Southern Royal Albatross	-	X	-	Mi Marine
<i>Diomedea exulans</i>	Wandering Albatross	-	X	-	Mi Marine
<i>Diomedea gibsoni</i>	Gibson's Albatross	X	-	Mi Marine	-
<i>Macronectes giganteus</i>	Southern Giant-Petrel, Southern Giant Petrel	X	X	Mi Marine	Mi Marine
<i>Macronectes halli</i>	Northern Giant Petrel	X	X	Mi Marine	Mi Marine
<i>Phoebastria fusca</i>	Sooty Albatross	-	X	-	Mi Marine
<i>Thalassarche bulleri</i>	Buller's Albatross	X	-	Mi Marine	-

Scientific name	Common Name	Predicted with PMST 2010	Predicted with PMST 2022	Migratory Listing Status Nov 2010	Migratory Listing Status May 2022
<i>Thalassarche carteri</i>	Indian Yellow-nosed Albatross	-	X	-	Mi Marine
<i>Thalassarche cauta</i>	Shy Albatross	X	X	Mi Marine	Mi Marine
<i>Thalassarche impavida</i>	Campbell Albatross, Campbell Black-browed Albatross	X	X	Mi Marine	Mi Marine
<i>Thalassarche melanophris</i>	Black-browed Albatross	-	X	-	Mi Marine
<i>Thalassarche steadi</i>	White-capped Albatross	-	X	-	Mi Marine
<i>Balaenoptera edeni</i>	Bryde's Whale	X	X	Mi Marine	Mi Marine
<i>Caperea marginata</i>	Pygmy Right Whale	X	X	Mi Marine	Mi Marine
<i>Eubalaena australis</i>	Southern Right Whale	X	X	Mi Marine	Mi Marine
<i>Lagenorhynchus obscurus</i>	Dusky Dolphin	X	X	Mi Marine	Mi Marine
<i>Megaptera novaeangliae</i>	Humpback Whale	X	X	Mi Marine	Mi Marine
<i>Caretta caretta</i>	Loggerhead Turtle	X	X	Mi Marine	Mi Marine
<i>Chelonia mydas</i>	Green Turtle	X	X	Mi Marine	Mi Marine
<i>Dermochelys coriacea</i>	Leatherback Turtle, Leathery Turtle, Luth	X	X	Mi Marine	Mi Marine
<i>Carcharodon carcharias</i>	White Shark, Great White Shark	X	X	Mi Marine	Mi Marine
<i>Lamna nasus</i>	Porbeagle, Mackerel Shark	-	X	-	Mi Marine

1. Limitations

Scope of services

This report ("the report") has been prepared by JBS&G in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and JBS&G. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

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In preparing the report, JBS&G has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise expressly stated in the report, JBS&G has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. JBS&G has also not attempted to determine whether any material matter has been omitted from the data. JBS&G will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to JBS&G. The making of any assumption does not imply that JBS&G has made any enquiry to verify the correctness of that assumption.

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Environmental conclusions

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The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

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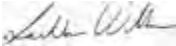
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Alligator Energy Ltd

ACN 140575604

Samphire Project

RADIATION MANAGEMENT PLAN

Rev 1 Jan 2021

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1 INTRODUCTION

1.1 Project Description

Alligator Energy Limited (Alligator Energy), an ASX listed company focussed on exploration for world class uranium and energy metal deposits, is exploring for uranium in the Eyre peninsula region of South Australia (SA) approximately 30km south of Whyalla. Uranium mineralization is known to occur within the “Samphire” Project area previously identified by Uranium SA. Prospects with known mineralization include the Blackbush and Plumbush deposits. Uranium exploration has occurred in the area since 2007.

The current Samphire project licences held and/or operated by Alligator Energy or its wholly owned subsidiaries as at January 2021 are shown below:

Tenement Number	Name	Km ²
EL5926	Samphire	333.

The Radiation Management Plan is intended to cover the above ELs

1.2 Project Personnel

The workforce for the exploration programs on the tenements will typically comprise between about 6 and 20 personnel, mainly comprising project site geologists, field assistants and drilling contractors. Site radiation safety implementation and supervision will be provided by the Exploration Manager and Senior Project Geologists with the appropriate licencing requirements under the SA Radiation Protection and Control Act 1982 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 about 30 ppm in some granites. Uranium ores range from 0.03% (300 ppm) up to a few percent (> 10,000 ppm).

During uranium exploration activities e.g.; drilling and sampling mineralization containing uranium, workers are potentially exposed to radiation. Corporate ‘duty of care’ and risk management requirements indicate the need to *monitor* and *manage* radiation to control and minimise worker's radiation doses to acceptable levels. It is also necessary to minimise spills and releases 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 Samphire 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
- 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
- Manage the storage of radioactive materials, including off site

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;*
- *NT Radiation Protection 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 2008, ARPANSA.*
- *Code of Practice for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing 2005, ARPANSA.*
- *Safety Guide for the Safe Transport of Radioactive Material, 2008, ARPANSA*
- *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 1982 (RPC Act)*
- *Radiation Protection and Control (Ionising Radiation) Regulations 2015*
- *Radiation Protection and Control (Transport of Radioactive Substances) Regulations 2003*

2 PERSONNEL RADIATION MONITORING

2.1 Radiation Dose Delivery Pathways

There are four possible pathways for delivery of radiation doses to the human body that should be considered in mining industry situations, and that may require active control, depending on the circumstances. These are:

- **Inhalation** (radon and radon daughters, and of 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).

2.2 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

2.3 Radiation Dose Control Measures

- For exploration activities the main requirements are to minimise dust inhalation and to avoid dust ingestion. ("Don't eat the dust; don't breathe the dust")
- Radiation dose control requires dust minimization and if necessary, use of respiratory protection; good housekeeping and personal hygiene, including washing before meal and smoko breaks and after work
- Airborne long lived alpha emitters in dust (airborne dust dose) is a major potential dose delivery pathway for personnel involved in some drilling methods and will be controlled by dust minimization in equipment and work practices (e.g. cyclone dust collectors and water injection where appropriate), and by use of respiratory protection (disposable dust masks) as necessary, this being determined by monitoring results. Rotary mud drilling methods are anticipated to constitute the majority of any future drilling of the targeted, 30% moisture mineralised sand bed mitigating the potential for dusting and therefore inhalation of radioactive material is extremely low. However, safety procedures dictate that in the event of dust generation, appropriate PPE must be worn.
- Gamma radiation during exploration work, including drilling, is not expected to require any active control measures. However, monitoring by scintillometer or Geiger survey meter and personal dose measurement using TLD badges will be conducted (refer section 2.4).

- Permanently occupied workplaces should not be located next to storage locations for major quantities of mineralised material (this will generally not occur at the exploratory scale of operations).
- Drilling crews, field assistants and geologists working consistently in close proximity to uranium mineralised materials would generally get TLD badge results in the order of some tens up to 100 or more microsieverts in the three month monitoring period. These results are well within the 20,000 microsieverts annual limit for workers.
- Radon progeny (radon daughters) in air will not require any active control but should at some stage be monitored in a short campaign and reported so as to provide baseline data
- Ingestion of radioactive material will be prevented by maintaining proper levels of workplace and personal cleanliness, and by requiring washing of hands before meal breaks. Monitoring will be carried out to check on work surface, desk, table, and skin contamination levels.
- Only suitably qualified personnel are permitted to operate bore hole logging equipment or the hand held XRF analyser and it is expected that no radiation worker will receive a radiation dose from this equipment.
- The operator of the hand held XRF is expected to receive ~ 1milli Sv/ yr to the hand if the analyser is used extensively, as detailed in the safety manual for the hand held XRF.

2.4 Radiation Monitoring Program

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 data for any future feasibility or environmental impact assessments.

The radiation monitoring program will address:

- Gamma radiation
- Long-lived alpha emitting radionuclides in airborne dust
- Radon daughter exposure, and
- Surface contamination.

Gamma radiation monitoring:

- Gamma radiation dose monitoring is only meaningful where core is being recovered, or where bulk quantities of cuttings originating from mineralised zones are collected.
- In these areas, spot gamma surveys with a survey instrument (scintillometer or Geiger meter) will be conducted to assist in the identification and management of potential areas of high exposure
- Dose rates are expected to be very low, and essentially background, except immediately next to sample bags and drill core containing uranium mineralization.

- Results from spot gamma surveys will be recorded and communicated verbally to the workers and to management and the relevant regulatory agencies as necessary.
- Personal gamma dose will be monitored as necessary through the use of personal dosimeter badges (TLD badges) in conjunction with significant works such as drilling and sampling operations are undertaken. The badges will be worn for a 3 month period and then submitted to ARPANSA for analysis. Results will be communicated to workers.
- The TLD badges will be issued to all field personnel, in particular drillers and their offsiders and others handling samples with uranium mineralisation (geologists, field assistants)
- Personal gamma doses are expected to be very low. TLD badge results will be reported to workers if requested following receipt from ARPANSA.
- Personal gamma dose rates will also be monitored from time to time by use of instant read dosimeters carried by workers for spot readouts in locations of potential mineralisation.

Radionuclides in airborne dust monitoring

- The inhalation of long lived radioactive dust generated during drilling campaigns (particularly percussion and RC drilling) of uranium mineralised materials is the primary radiation exposure pathway for workers in uranium exploration.
- Radionuclides in airborne dust will be monitored in short campaigns focused on dusty jobs where there is likelihood for uranium mineralisation, 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.
- 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 = $3.5 \mu\text{Sv}/\alpha\text{dps}$ for $5\mu\text{m}$ AMAD dust particle size (from IAEA data) and $1.2\text{m}^3/\text{hr}$ = assumed standard breathing rate

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

Radon daughter (radon progeny) 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.

Surface contamination monitoring

- Surface contamination monitoring will be performed using a large area alpha contamination probe. This will be used to check work surfaces, tables and desks, ablutions area, and opportunistically, workers’ hands, clothes, etc.. Results will be recorded on worksheets and then transferred to digital records.

2.5 Radiation Dose Assessment

- At completion of the program, an assessment of workers’ doses will be carried out.
- This will add TLD badge results from ARPANSA, and airborne dust sampling results, averaged by work category and adjusted for the individual worker’s total number of shifts on site, according to the formula:

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

where αdps = α disintegrations per second; DCF = Dose Conversion Factor = $3.5 \mu\text{Sv}/\alpha\text{dps}$ for $5\mu\text{m}$ AMAD dust particle size (from IAEA data) and $1.2\text{m}^3/\text{hr}$ = assumed standard breathing rate

- It is expected that doses will be very small, and well below annual limits both for workers (20,000 microsieverts) and for ‘members of the public’ (1,000 microsieverts), because of the relatively short campaign duration, the intermittent contact with mineralization, and the expected dust controls on the drill rigs and other necessary controls.

3 MATERIALS TRANSPORTATION, HANDLING, STORAGE AND DISPOSAL

3.1 Transport of Radioactive Material

- Radioactive materials must be transported in accordance with the Code of Practice for the Safe Transport of Radioactive Material (2008). This may include radioactive samples collected during the course of uranium exploration programs.
- The majority of exploration samples collected will be either non-radioactive or low level radioactive.
- Alligator will use its Radiation Safety Officer, assistants and procedure RSP-11 Transport of Radioactive Material, to comply with the relevant regulation and codes of practice. Where there is any doubt, the Company will seek to obtain relevant advice from qualified consultants and the EPA. Procedure RSWP-113 Transport Arrangements for Cs137 Sealed Source is applied when the sealed source is transported.

3.1.1 Package Classification

- Classification for radioactive samples for transport will be determined by measurement of the dose rate at the surface of the package as provided for in the Code of Practice and RSP-11. Measurements and packaging decisions will be made by a Radiation Safety Officer or Assistant Radiation Safety Officer.

3.1.2 Excepted Packages

- In general, typical exploration radioactive samples are to be transported as 'Excepted Packages' under the Code. The Radiation Safety Officer will ensure that the gamma dose-rate measured on the surface is less than 5 $\mu\text{Sv/h}$ (using the "Gamma-Scout" Geiger-Muller radiation detection instrument).
- The transport arrangements for excepted materials are described in RSWP-111: Transport of Radioactive Material as Excepted Packages, as shown in Appendix A of this plan.

3.1.3 Higher Activity Samples (LSA-1 Package)

- Higher activity samples where the dose-rate $> 5 \mu\text{Sv/h}$, must be transported as Low Specific Activity Material (LSA).
- The transport arrangements for LSA materials are described in RSWP-112: Transport of Radioactive Material as LSA Material, as given in Appendix B of this plan.

3.1.4 Sample Packaging

- The packaging will conform to the Code of Practice as detailed in RSP-11. Materials will be packaged for transport by or under the supervision of a Radiation Safety Officer or Assistant Radiation Safety Officer.

3.1.5 Transport Incidents

All radioactive materials transported by Alligator Energy itself (excluding contracted third parties) will be accompanied by a Radiation Safety Officer or Assistant Radiation Safety Officer. The shipment will also contain documentation required in the event of an emergency. Should there be an incident involving the loss or dispersal of radioactive samples (e.g. through a vehicle accident or failure of the packaging), the driver should as soon as practicable, contact;

1. The site manager (or sender) and,
2. The Director - Radiation Protection Division of the Environment Protection Authority. (08) 84637826 or Fax (08) 8124 4671.

Vehicles transporting radioactive materials are to be equipped with appropriate road hazard signs, and have UHF radio and mobile telephone communication, and are required to complete hourly check-ins while travelling.

3.2 Radioactive Sealed Source

Following the acquisition of UraniumSA, Alligator possesses an Eckert & Ziegler radioactive sealed source for density determination during bore hole logging. The sealed source contains a special form of caesium 137 with an activity of 370MBq. The source is stored in the Radiation Storage Area/Room by Challenger Geological Services in Edwardstown SA and may be transported and utilised accordingly in conjunction any future drilling across the Samphire project. The hazards associated with the sealed source are explained to all personal during their radiation induction. The primary method of control to minimise exposure to ionising radiation from the sealed source is to allow only appropriately licensed and trained personnel to handle the sealed source.

A register of the sealed source is to be maintained by the Company RSO.

The sealed source is stored in its special, locked container which is then stored in a locked metal box. Further more the source is stored in a fenced large lockable vented warehouse, operated by Challenger Geological Services (CGS). CGS operate their own RMP on site and have fully licenced staff responsible for monitoring stored radioactive material and equipment.

Testing of the sealed source has previously completed by GAAWireline Mt Barker, SA. Continued testing will be conducted by an appropriately licenced operator authorised by the EPA. Transport of the sealed source is managed by the RSO in accordance with procedure RSWP-113 Transport Arrangements for Cs137 Sealed Source.

3.3 Handling of Radioactive Material

- Personnel handling samples off site will be advised of the requirements for dust control and personal hygiene, and provided with a copy of the Radiation Safety Manual.
- Control measures are identified in section 2.3
- Collection of radioactive samples will be minimised through predominantly rotary mud drilling and the use of down hole geophysics (natural gamma probe) recordings.
- Sonic and Core drilling may be undertaken. In the field, all drill core is assessed as it is recovered but all material is initially considered to be radioactive and handled as such to mitigate risk of exposure. Any retained material is to be stored in a secured and appropriately signed storage area which conforms to applicable Codes and Regulations in accordance with RSAP-06 Unsealed Radioactive Source.
- The overriding requirements are to minimise the potential for dust inhalation and ingestion
"Don't eat the dust; don't breathe the dust"

3.4 Storage of Radioactive Material

- Designated holding areas for chip, core or bulk samples and sample residues will be stored in the vicinity of the project and drilling area with a lockable shipping container also to be utilised located proximal to Moonabie station.
 - Appropriate ventilation and prominent signage advising entry to authorised personnel only and "CAUTION – RADIOACTIVE MATERIAL" is to be applied to any storage container utilised for site specific storage of all potentially radioactive materials and samples.
- Long term storage of sources, samples, core and chips will be through Challenger Geological services based in Adelaide and the DEM Tonsley drill core library.
- Drill core chips and samples are to be stored in trays either in racks or on ground pallets.

- Bulk drill samples and sample residues are to be securely stored generally in 200 litre drums on steel pallets.
- Gamma monitoring is to be conducted in storage areas to identify the presence of any “hot spots” requiring particular storage treatment or signage.

3.5 Disposal of Radioactive Material

- The primary requirement to minimise impact to the environment is to limit dispersion of radioactive materials and to ensure that the surface activity level does not significantly exceed background measurements taken prior to commencement of work.
- Mineralized drill cuttings and sludges will be contained to the extent reasonably practicable.
 - For diamond core drilling, the cuttings are initially trapped in above ground tanks then removed to central in ground sump for burial to a minimum depth of 1 (one) metre to avoid future dispersion.
 - For Rotary Mud drilling local sumps will be utilised for drilling fluids and circulation and back filled to a minimum of 1m depth. To mitigate surface contamination all captured drill cuttings are to be laid out on black plastic sheeting, with the samples later disposed of back down the drill hole, or into the sump.
 - For Sonic drilling all cores will be wrapped/bagged and are to be transported and stored appropriately. Any drill cuttings and fluids are to be captured and to be deposited within local/central sumps.
- The location of all disposal pits will be position fixed by GPS and recorded. The disposal pit areas will be gamma monitored prior to, and following, sample disposal. All readings will be recorded.

3.6 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

4 PLANT AND EQUIPMENT DECONTAMINATION AND CLEARANCE

4.1 Plant and Equipment Decontamination

- All vehicles, plant and equipment used at/for the following will be considered potentially contaminated:
 - Drill sites/pads
 - Core cutting equipment/sites
 - Personnel and sample transport vehicles including helicopters (to and from active work areas)
 - Sample storage areas
 - Vehicle wash down areas
 - Shower and other personnel washing facilities and clothes washing facilities
 - Any other activity involving the handling or treatment of radioactive material
- Radioactive contamination will not generally be fixed contamination – it will just be dirt and mud and, as such, can be washed off
- All potentially contaminated plant and equipment MUST be washed down at a designated wash down area and certified clean and uncontaminated PRIOR to leaving the project area.

4.2 Plant and Equipment Contamination Clearance (“Gatehouse Control”)

- Once visually clean, plant and equipment will be checked using alpha and gamma probes in accordance with instrumentation procedures.
- Decontamination washing and monitoring will continue until the plant and equipment meets the following contamination clearance criteria:
 - If using an alpha detector, clearance should be rejected if the reading exceeds 20 cps
 - If using a gamma detector, clearance should be rejected if the reading exceeds background by greater than 50%.
- Plant and equipment leaving the project area MUST be accompanied by a radiation clearance certificate (form) signed by an appropriately trained person. These clearances are essential both for minimization of spread of contamination and to provide defensive evidence in case of assertions of releases. All clearances are to be recorded.

5 TRAINING, RECORDING AND REPORTING

5.1 Worker Inductions and Training

- At least one person on site during active exploration activities should be a trained radiation safety officer
- 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.

5.2 Recordkeeping

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 UraniumSA employees personal dosimeter (special thermo luminescent dosimeter (TLD) badge). These dose results are recorded (ARPANSA -national registrar) and reported to the relevant workers on a regular –quarterly basis.
- Calibration of radiation monitoring equipment.

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;
- Incident, Accidents and Emergencies;
- Apparatus, Sealed Sources, Unsealed Sources and Equipment;

These registers are maintained by the RSO and assistants.

6 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 and consists 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 and consists 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.
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

Appendix A – RSWP 111: Transport of Radioactive Material as Excepted PACKAGES

Transport Arrangements for Excepted Packages

Package (Container)

The package must be such that it will retain its contents under routine transport conditions.

The design should provide for strength of lifting attachments, ease of handling and securing, and ease of decontamination.

The package should not have external surface alpha contamination above 0.4 Bq/cm². In practice this condition is met if there is no visible contamination or dust on the surface.

Documentation

The shipment must be accompanied by documentation, which includes (in the following order):

- “Radioactive Material, Excepted Package – Limited Quantity of Material”.
- “UN Class Number 7, UN – 2910”.
- “Uranium ore samples – solid”.
- the maximum activity of the shipment. For material of 1000ppmU, this is 12 KBq/kg. As the activity (grade) will generally not be known, make a generous estimate based on this figure.
- a declaration in the form - “I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by road according to the applicable international and national governmental regulations.” – signed and dated.
- sender and receiver details.

Labels

- each Excepted Package should be labeled ‘**Radioactive**’ on an internal surface such that upon opening, the warning is clearly visible.
- the package is marked ‘**UN2910**’ on the outside surface.
- **sender and receiver** details should be marked on the outside surface.
- packages exceeding 50kg the mass to be marked on the outside.

Appendix B - RSWP 112: Transport of Radioactive Material as LSA MATERIAL

Transport Arrangements for LSA Material

LSA –1 Package

Higher activity samples where the dose-rate $> 5\mu\text{Sv/h}$, must be transported as Low Specific Activity Material (LSA). The transport arrangements are described below assuming samples are packaged within a single vehicle.

Package (Container)

Package requirements for transporting solid LSA material are similar to those for Excepted Packages, with the additional requirement that the smallest external dimension of the package must not be less than 10 cm. Contact the EPA for advice if there is a need to transport liquid LSA-1 material.

Transport Index - Package

- a Transport Index (TI) must be determined for the package. The TI reflects the external radiation hazard associated with the handling of the package.
- the TI is determined by first measuring the dose rate (in mSv/hr) at 1 meter from the package surface. For core samples, the dose rate is typically less than 1 mSv/hr.
- the TI is the measured dose rate multiplied by 100 (if dose rate has been measured in $\mu\text{Sv/hr}$, divide by 10 to determine the TI).
- the determined TI is to be rounded up to the first decimal place. However, a TI of 0.05 or less can be rounded to zero (0).

Transport Index - Vehicle

- a TI needs to be determined if shipping multiple packages together in a container or on a single vehicle. In this case the TI is either the sum of the TIs of all the contained packages or it can be determined by direct measurement of radiation level for the vehicle of container (as above).
- for tanks, freight containers and unpackaged LSA-1 material the TI is modified by a multiplication factor based on the size of the load. See Table 1 below.

TABLE 2.

Multiplication Factors for Tanks, Freight Containers, and Unpackaged LSA-1 and SCO-1

Size of Load^a	Multiplication factor
size of load $\leq 1 \text{ m}^2$	1
$1 \text{ m}^2 < \text{size of load} \leq 5 \text{ m}^2$	2
$5 \text{ m}^2 < \text{size of load} \leq 20 \text{ m}^2$	3
$20 \text{ m}^2 < \text{size of load}$	10

^a Largest cross-sectional area of the load being measured.

Documentation & Labels

- if the TI is less than 1 and the surface dose rate is less than 0.5 mSv/h the package is a II-Yellow category. The label shown in figure 1 must be attached to the package on two opposite sides.
- the contents of '**LSA-1**' and the maximum activity of the package contents must be marked on the label. The TI of the package is to be included on the label.
- **sender and receiver** details should be marked on the outside surface.
- the package is marked 'UN2912' and 'Radioactive material, low specific activity (LSA-1)' on the outside surface.
- packages exceeding 50kg the mass to be marked on the outside.
- if the surface dose rate of any package exceeds 0.5 mSv/hr contact the EPA for further advice.

Placards

The vehicle transporting the LSA packages must have placards attached as shown in the figures below



Figure 1: Category II - Yellow Package Label



Figure 2: Placard for Radioactive Material

Appendix C – Sealed Source Storage Container

Photo 1. Sealed Source Special Storage Container



Photo 1. Sealed Source Secondary Storage Container



EPA Endorsement – 24/09/2021

From: Bond, Peter (EPA) <Peter.Bond@sa.gov.au>

Sent: Friday, 24 September 2021 1:11 PM

To: geoff@gjex.com.au

Subject: Alligator Energy - endorsement of RMP

Dear Geoff

I am writing to you with regard to Alligator Energy's Radiation Management Plan (RMP) revision 1.

I have reviewed the RMP and consider it as being appropriate to manage the radiation risks, including sources of radiation, exposure routes, monitoring, and controls and management associated with the early stages of the Samphire project.

I would be happy to discuss any updates to this RMP as the project develops.

Regards

Peter

0428 115 052

Peter Bond

Scientist | Authorised Officer

Mining and Radiation

Environment Protection Authority

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