



whitebark
ENERGY

The Hydrogen Potential of the Officer Basin – Waking a sleeping Giant?

Tuesday 22nd October 2025

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The estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery, as well as a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a commercial quantity of potentially moveable hydrocarbons.

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References and Competency Statements

The Company confirms that that it is not aware of any new information or data that materially affects the information included in the relevant market announcements included in this presentation and, in the case of oil and gas Reserves and Resource Estimates, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.

Information on the Resources of the Company in this release are based on independent evaluations conducted by Mr Adam Law Principal Strategic Advisor at Sproule ERCE. Mr. Law has over 30 years of experience in the evaluation of oil and gas fields, preparation of development plans and assessment of reserves and resources. He holds a B.Sc Exploration Geophysics from London University and a PhD from University of Cambridge. He is a member of the Geological Society of London and is a member of the Society of Petroleum Evaluation Engineers. Adam Law therefore possesses the required competencies, being professionally qualified and a member in good standing of an appropriately recognized professional association.

VALUE OPPORTUNITY HIGHLIGHTS

Fuelling Australia's Energy Future

The 3H Strategy - Delivering White Hydrogen, Natural Helium and Hydrocarbons to support the Energy Transition

All **hydrogen, helium and hydrocarbon**, play elements are proven present in the company's **Officer Basin assets**.

Direct hydrogen, helium and hydrocarbon **measurements recorded** in the basin and on-block.

Hydrogen and helium proven to the north in analogous Amadeus Basin and to the south on the Yorke Peninsula.

One of the largest seismically defined onshore structures in Australia, with substantial resources potential and follow up

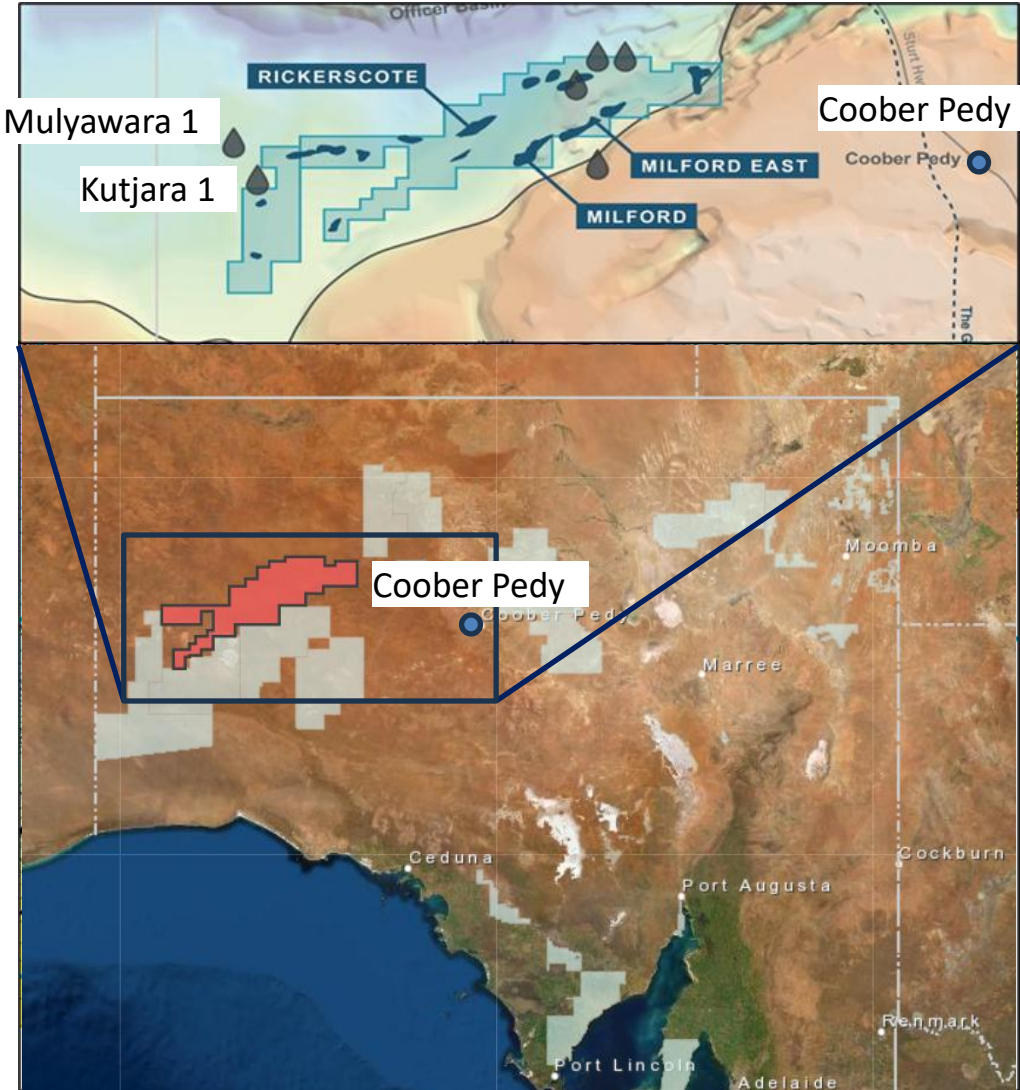
Low cost, low risk, exploration program being implemented, delivering potentially huge returns for investors from the 3H strategy.

Alinya Project

- PEL 81 & 253 cover ~20,000km² of the Neoproterozoic Officer Basin in central Australia.
- The licenses are located 250km west of Coober Pedy and 350km northwest of Ceduna.
- Access is via the Stuart Hwy and the Anne Beadell Hwy from Coober Pedy – the Anne Beadell Hwy runs through to 10km north of the top ranked Rickerscote lead.
- Land access agreement is in place with the Maralinga-Tjarutja people.
- All hydrogen-helium-hydrocarbon play elements are present and proved in the basin.

Rickerscote Hydrogen and Helium Prospective Resources

Rickerscote Prospective Resources (100%-Total Resource) H ₂ &He Only			
Sproule ERCE Estimate	2U	3U	COS (Pindyin & Mulywarra Fm.)
Hydrogen (Million kg)	227	1,270	14% & 7%
+			
Helium (Bcf)	45	209	17% & 9%



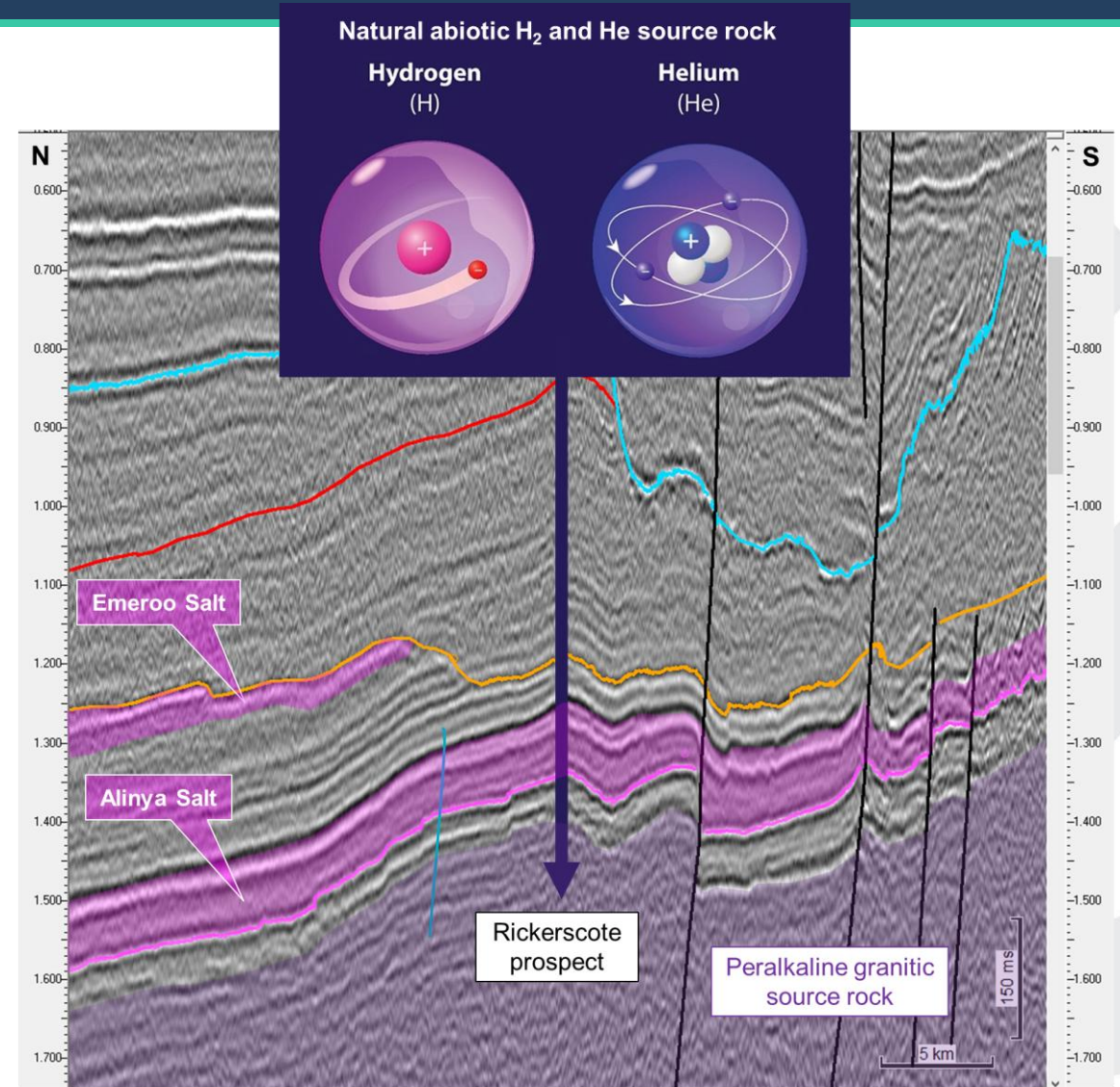
Resources Estimate Independently certified by ERCE – July 2025 see ASX release 12/8/2025

WHITE HYDROGEN & HELIUM

Delivering White Hydrogen & Helium

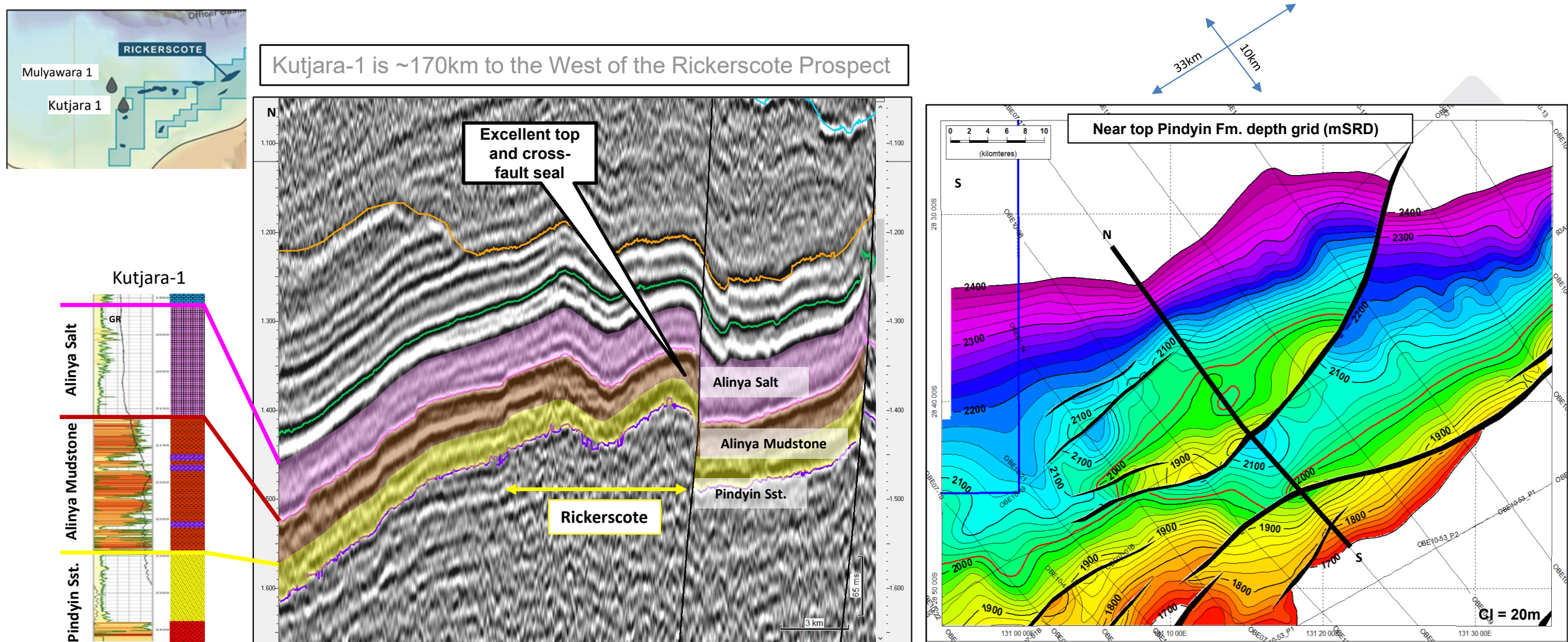
Geologic fundamentals for white hydrogen and natural helium are proven and present.

1. **Abiotic source rocks for both white hydrogen and natural helium are present** – significantly the uranium / thorium / iron rich, Hiltaba granite (likely source for the Ramsay-1 and -2 discoveries ASX:GHY) outcrops immediately adjacent to the licenses.
2. **Thick (>100m), regionally extensive, salt seals critical for effective long-term storage are present at multiple levels** – white hydrogen and helium gases are very small and highly diffusive, salt and other evaporite minerals have outstanding sealing efficiency.
3. **Conventional sandstone reservoirs are present at multiple levels** – thick (>100m), high net-to-gross, high porosity and permeability.
4. **Late-stage tectonic uplift, critical to exsolution (advection) processes for H₂ & He release in the free-gas phase.** H₂ and He are confirmed present in the Officer Basin and in PEL-81 from FIS and DST.
5. **Rickerscote prospect covered by high quality 2D seismic**



2D Seismic Line over Rickerscote Prospect

Alinya Project – Rickerscote Prospect, Pindyin Sst. Objective



- The Rickerscote prospect is a 3-way dip closure on the high-side of a reverse fault
- Off-set well stratigraphy supports effective top and cross-fault seal, as the target reservoir is both overlain by and juxtaposed against thick marine mud-rocks and massive evaporites (halite)

The Centralian Super Basin has many Hydrogen and Helium Shows

Mt Kitty Gas Analysis
salt seal with poor reservoir



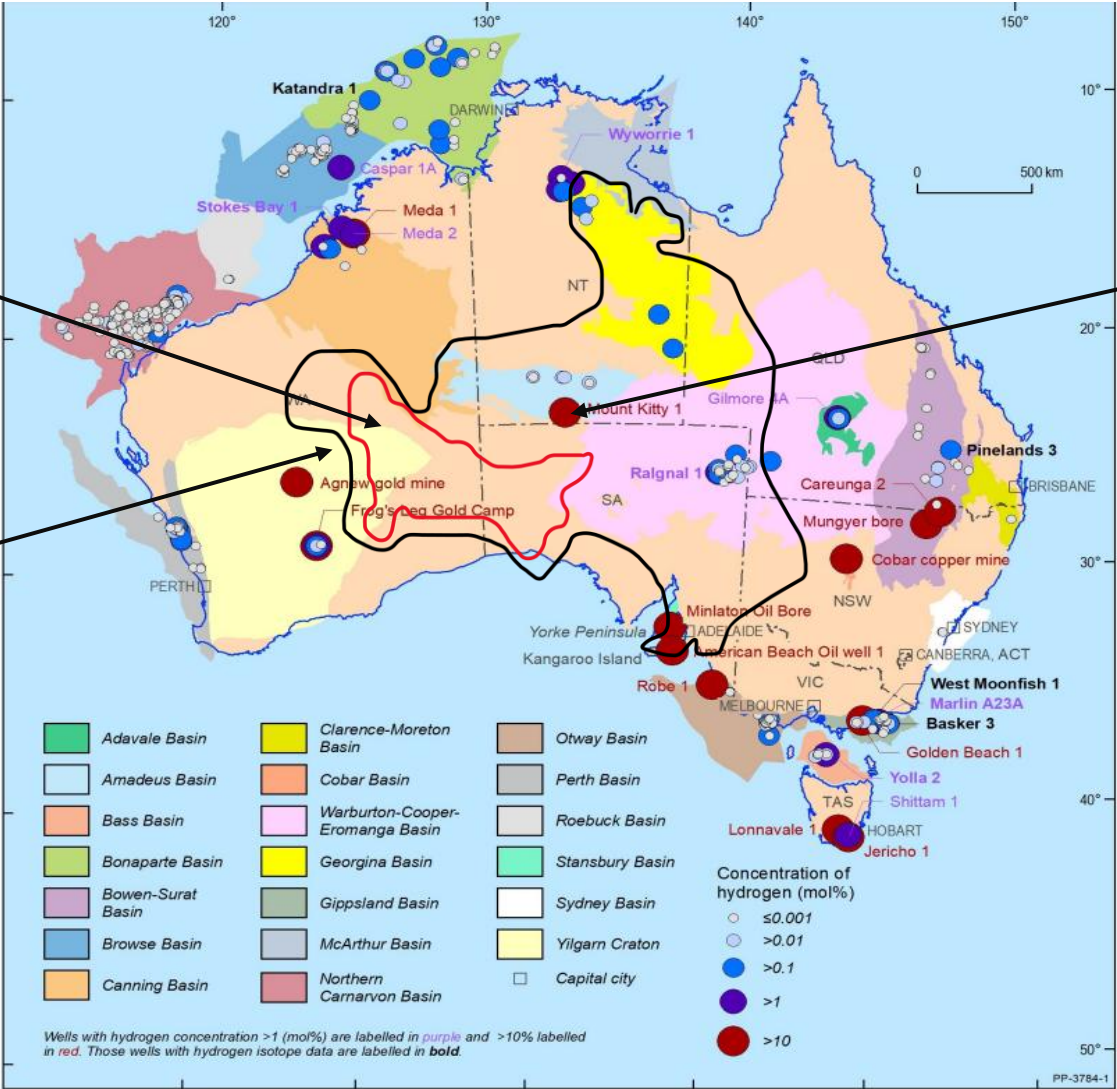
RESULTS COMPOSITIONAL ANALYSES OF GAS					
Cylinder # :		EX-263			
		Flow Test # 2 (Depth: 2156m)			
Component		Mol %	GPM Content	MW	Wt %
Hydrogen Sulphide	H ₂ S	0.00		34.1	0.00
Helium	He	8.96		4.0	1.65
Hydrogen	H ₂	11.46		2.0	1.07
Oxygen	O ₂	0.54		32.0	0.80
Carbon Dioxide	CO ₂	0.09		44.0	0.19
Nitrogen	N ₂	61.04		28.0	78.80
Methane	C ₁	13.14		16.0	9.71
Ethane	C ₂	3.53	0.945	30.1	4.90
Propane	C ₃	0.82	0.227	44.1	1.67
Iso-Butane	iC ₄	0.07	0.023	58.1	0.19
N-Butane	nC ₄	0.19	0.060	58.1	0.51
Iso-Pentane	iC ₅	0.13	0.046	72.2	0.42
N-Pentane	nC ₅	0.02	0.006	72.2	0.05
Hexanes	C ₆	0.01	0.003	84.0	0.03
Heptanes	C ₇	0.00	0.000	96.0	0.00
Octanes	C ₈	0.00	0.000	107.0	0.00
Nonanes	C ₉	0.00	0.000	121.0	0.00
Decanes	C ₁₀	0.00	0.000	134.0	0.00
Undecanes	C ₁₁	0.00	0.000	147.0	0.00
Dodecanes Plus	C ₁₂₊	0.00	0.000	175.0	0.00
		Σ	100.00	1198.710	99.99

LOG INTERPRETATION				
FORMATION	INTERVAL (m)	NET PAY (m)	Ø _E %	SW %
Lower Gillen	2023 – 2140	0.7	0.4	93
Basement (top)*	2140 – 2144	3.8	1.7	30
Basement*	2144 - 2295	60.2	0.9	41
TOTAL		64.7		

*Basement pay in fractured zones (fracture porosity, not matrix porosity).

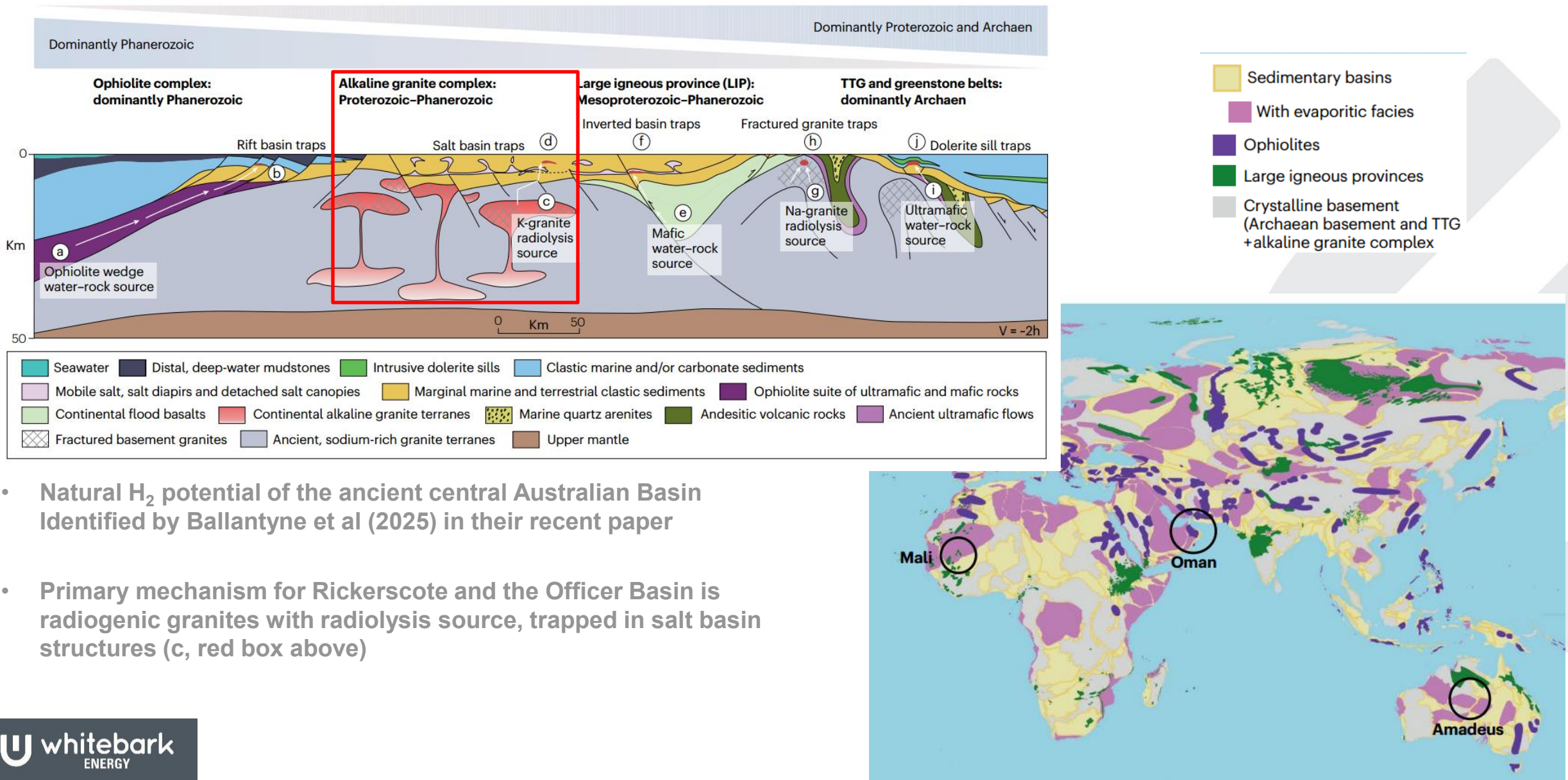
Officer Basin

Centralian Super Basin



Source: Boreham et al 2021. Notice Officer Basin is missing!

Potential for substantial natural hydrogen accumulations identified in the Literature



- Natural H₂ potential of the ancient central Australian Basin Identified by Ballantyne et al (2025) in their recent paper
- Primary mechanism for Rickerscote and the Officer Basin is radiogenic granites with radiolysis source, trapped in salt basin structures (c, red box above)

Gawler Craton H2 source rocks. Basement intercepts & outcrop, Eastern Officer Basin

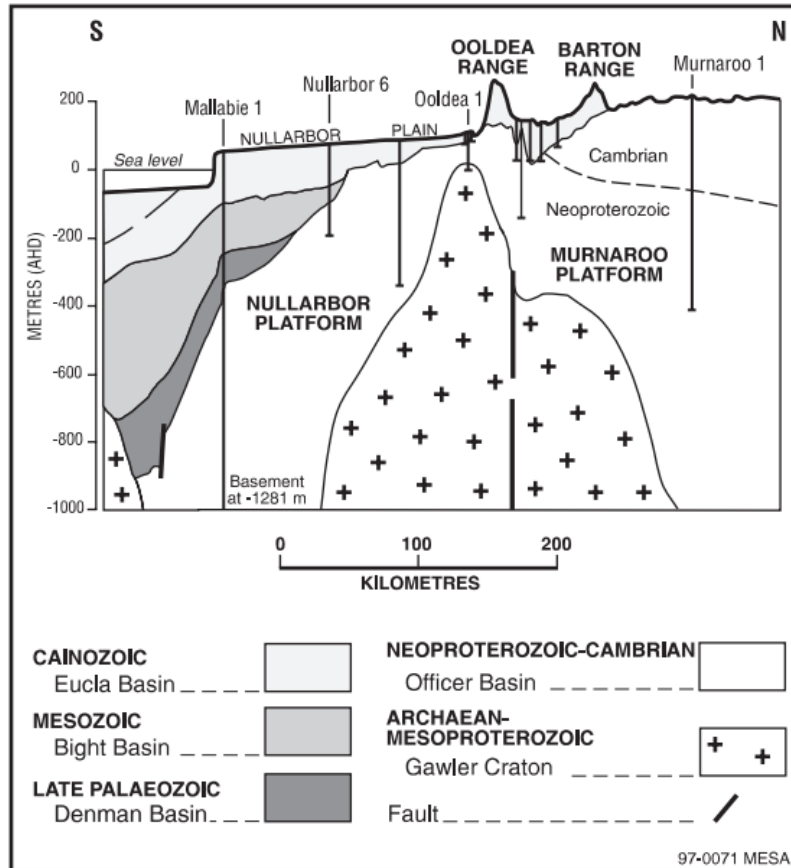
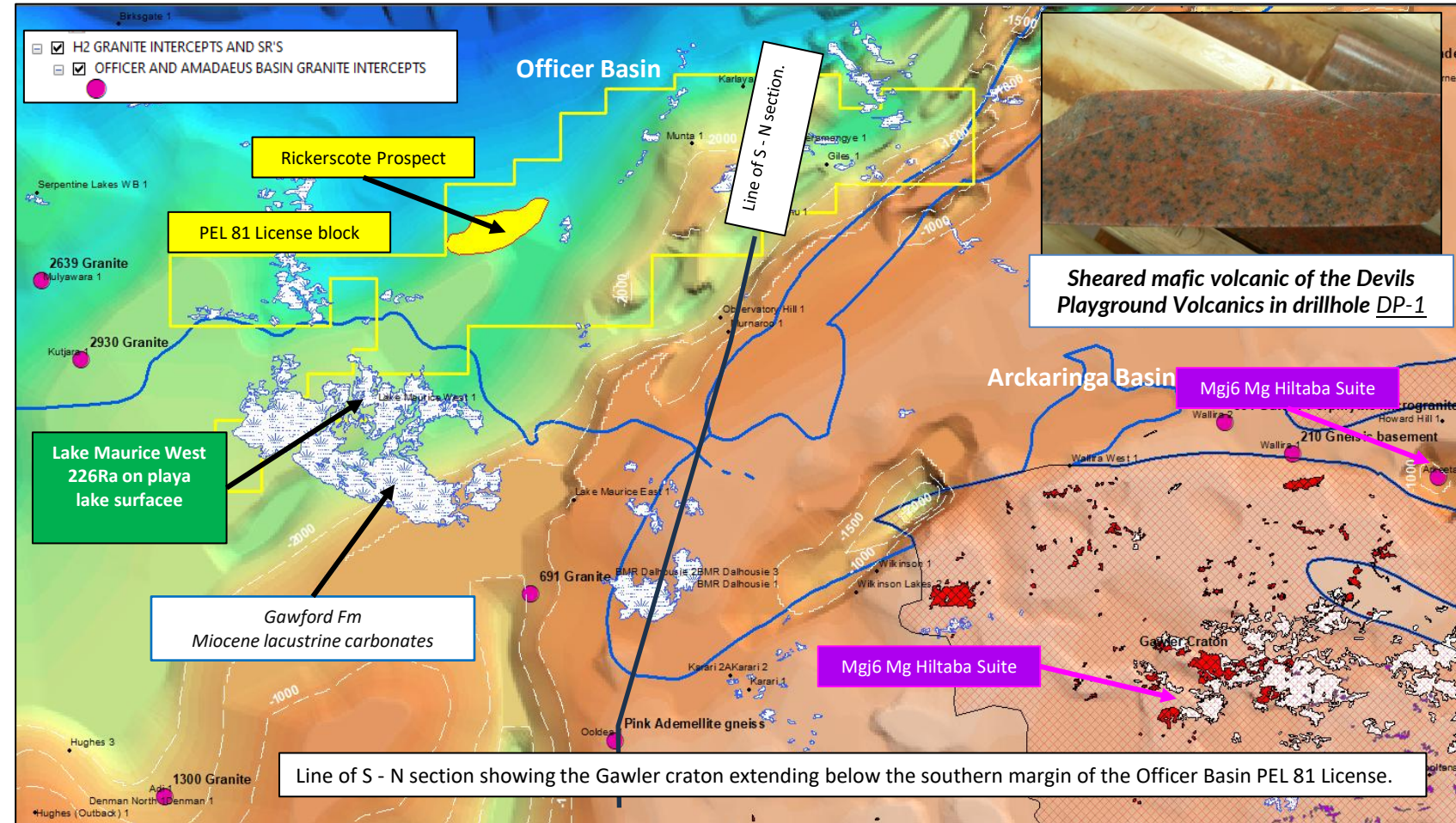
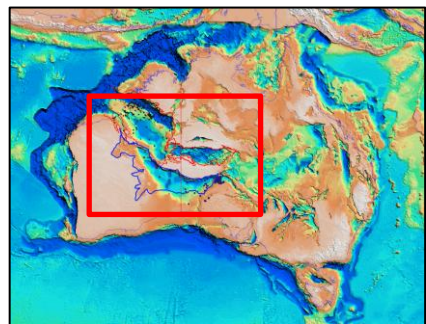


Fig. 5.7 Cross-section through the Nullarbor Platform, the most southerly structural element of the Officer Basin.

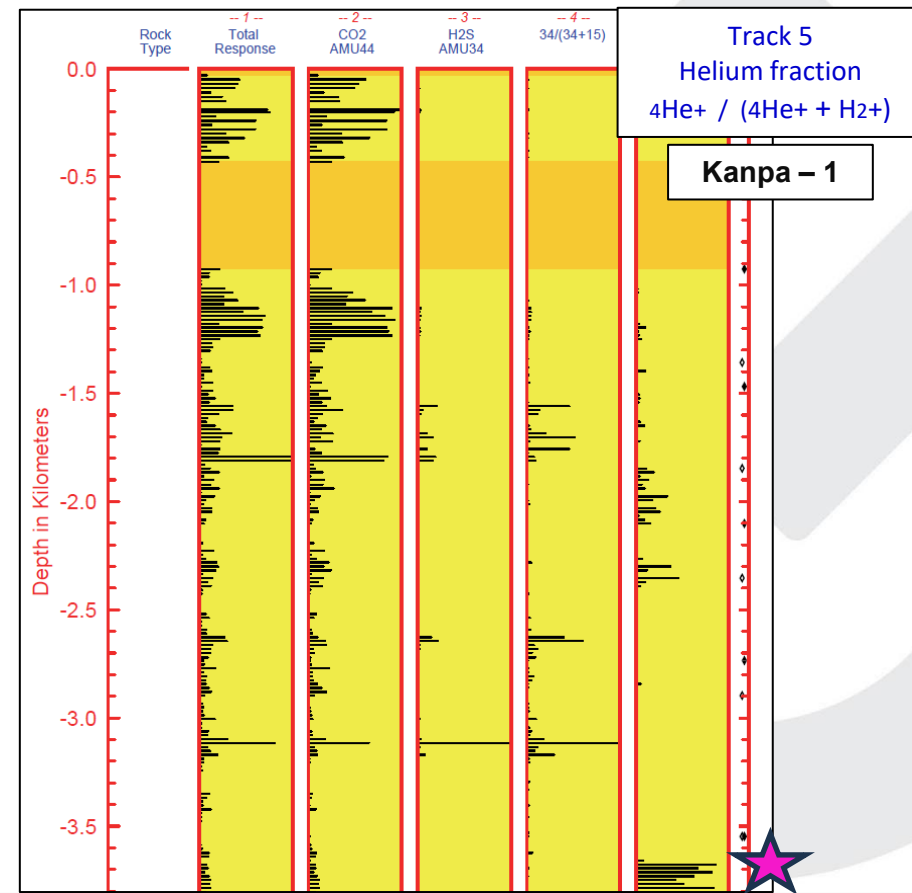
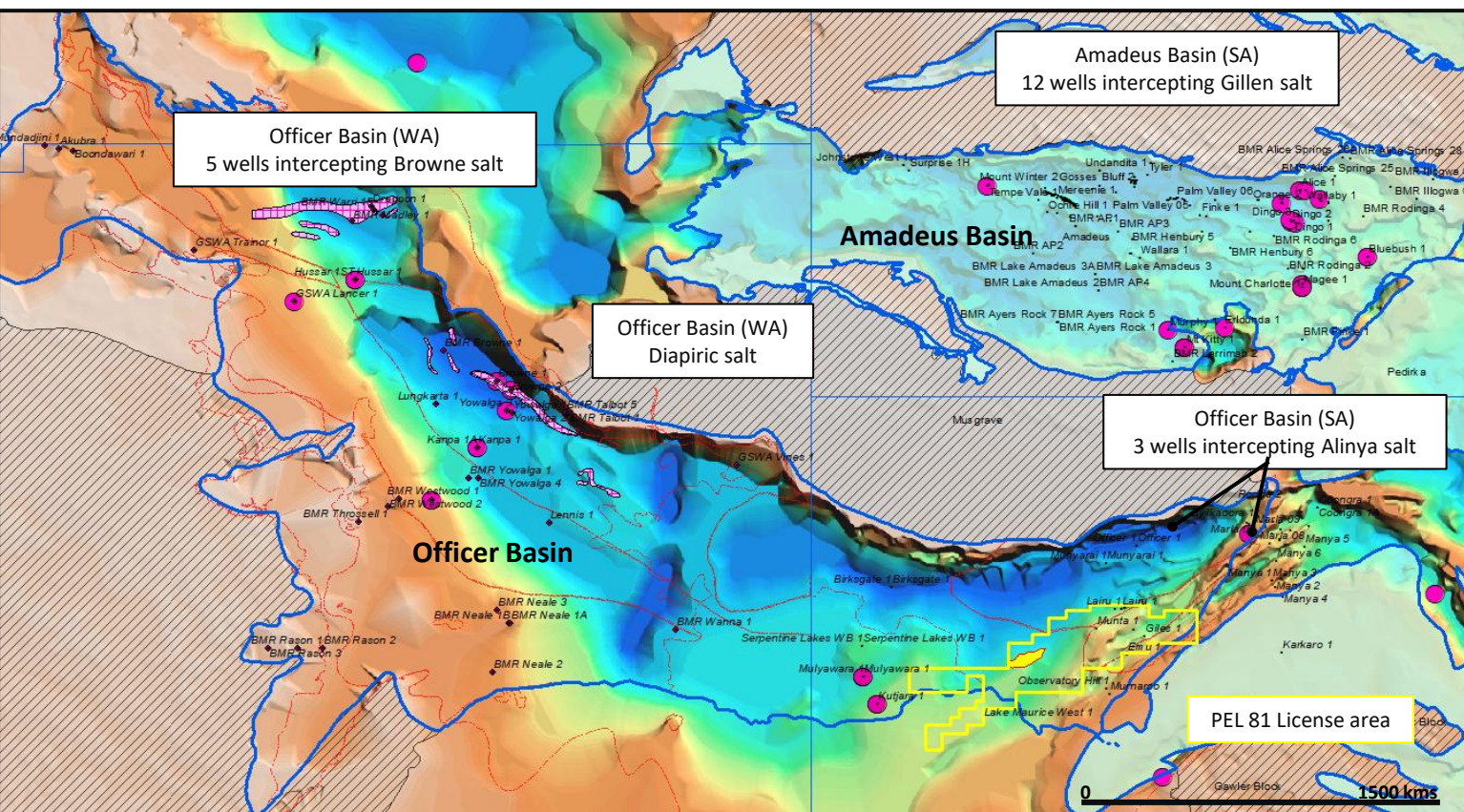


- ❑ Deep pre salt plays are untested in Officer Basin. Evaporite seals have outstanding efficiencies which allow hydrogen to be stored for long periods.
- ❑ Granite is the main source rock for Hydrogen. There are >20 well intercepts of Neoproterozoic granite in the area. Numerous, iron rich, granite outcrops (**Balta, Mulgathing, Symons & Hiltaba Granites**) are exposed along the margins of the Gawler Craton, adjacent to PEL 81 License block from 334m (in Wallira – 2) to 2930m (in Kutjara – 1).
- ❑ The Hiltaba Granite suite is important because of its strongly oxidized (hematite-magnetite) and fractionated Roxby Downs type related to Fe oxide-Cu-Au deposits (Olympic Dam deposit).
- ❑ The hydrogen discovery the Minlaton Oil Bore, is also interpreted to unconformably overlie strongly magnetic granitoids of the **Hiltaba Suite** metasediments.

Seal; Wells intercepting Salt in the Officer Basin



- The stable hydrogen isotopic composition of H₂ Australian gases are highly depleted in 2H, which suggests an abiogenic source.
- White Bark Energy is the only company targeting large pre salt traps, with potential large volumes of natural H₂ & He in continuous reservoirs with tight seals.
- H₂ concentration within petroleum reservoirs may be diffuse due to its high reactivity. However, FIS from Vines – 1, Lancer – 1, Kanpa – 1 and Empress – 1 (WA) suggests abiogenic gas is present at depth. .

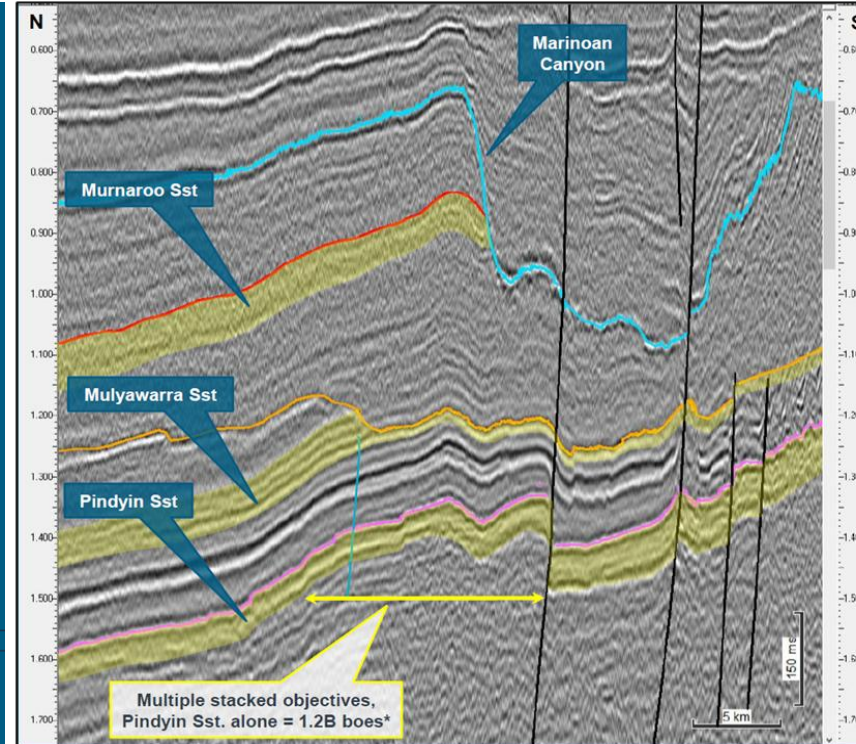
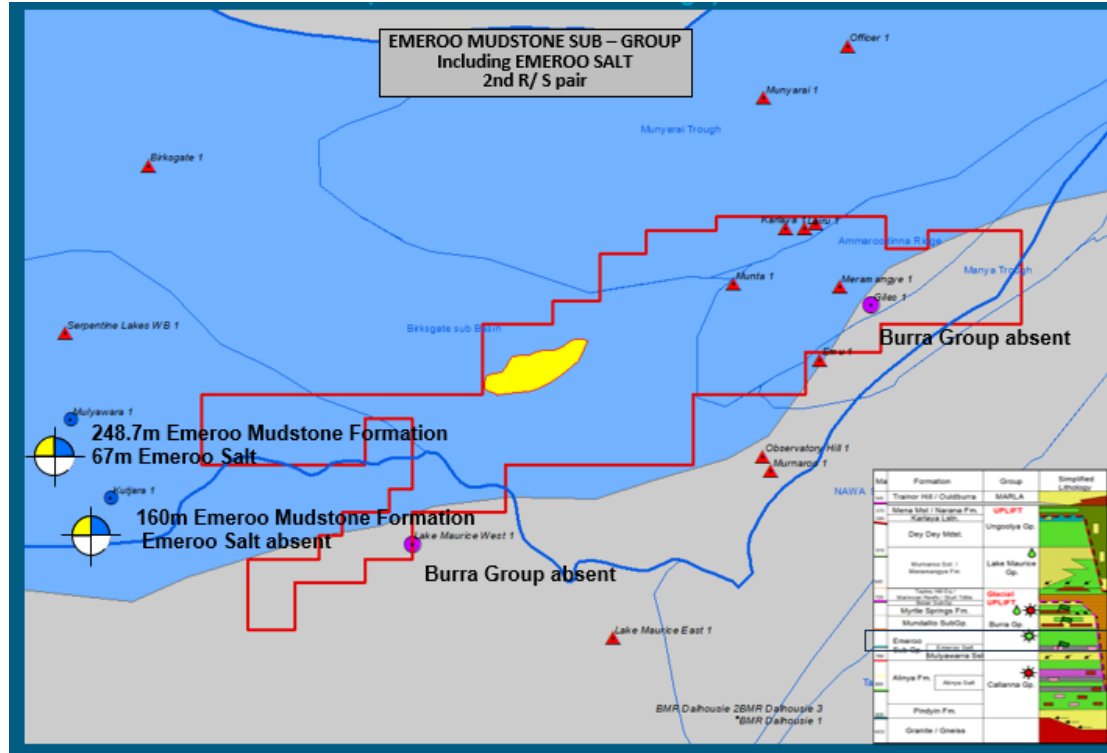


He systems

Helium elevated over the intervals 1847-2102m, 2264 – 2372 and below 3659m. The deepest anomaly below 3659m in the Townsend Quartzite is substantial.

Reservoir Seal Pair; Alinya Seal

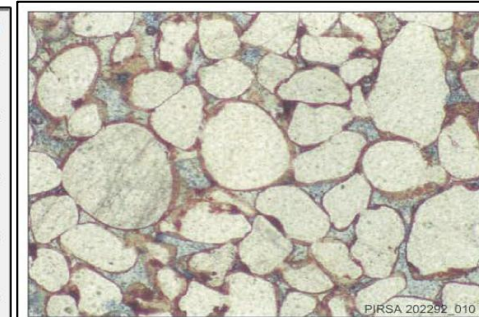
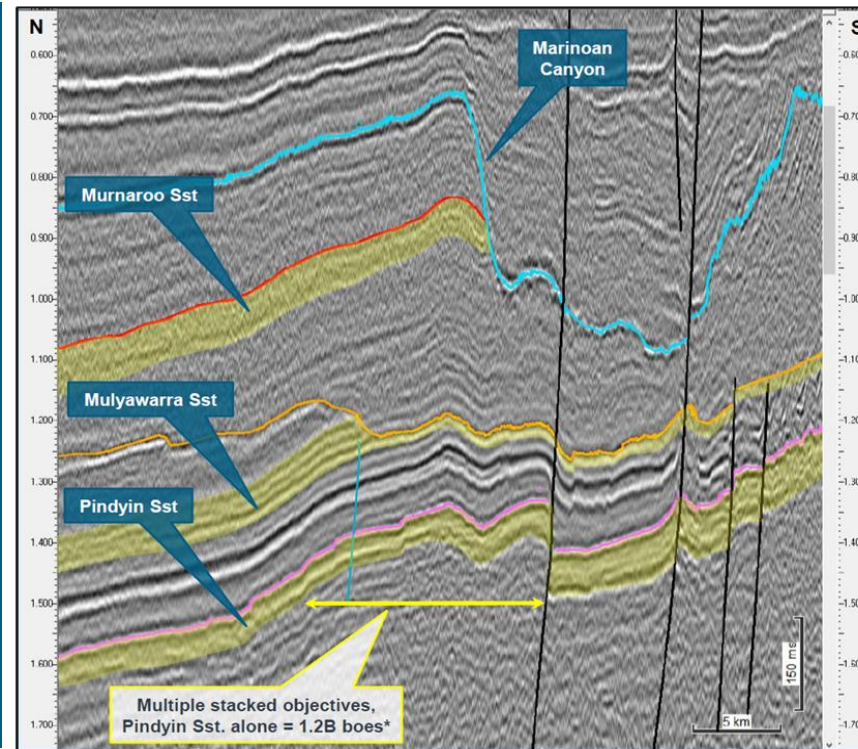
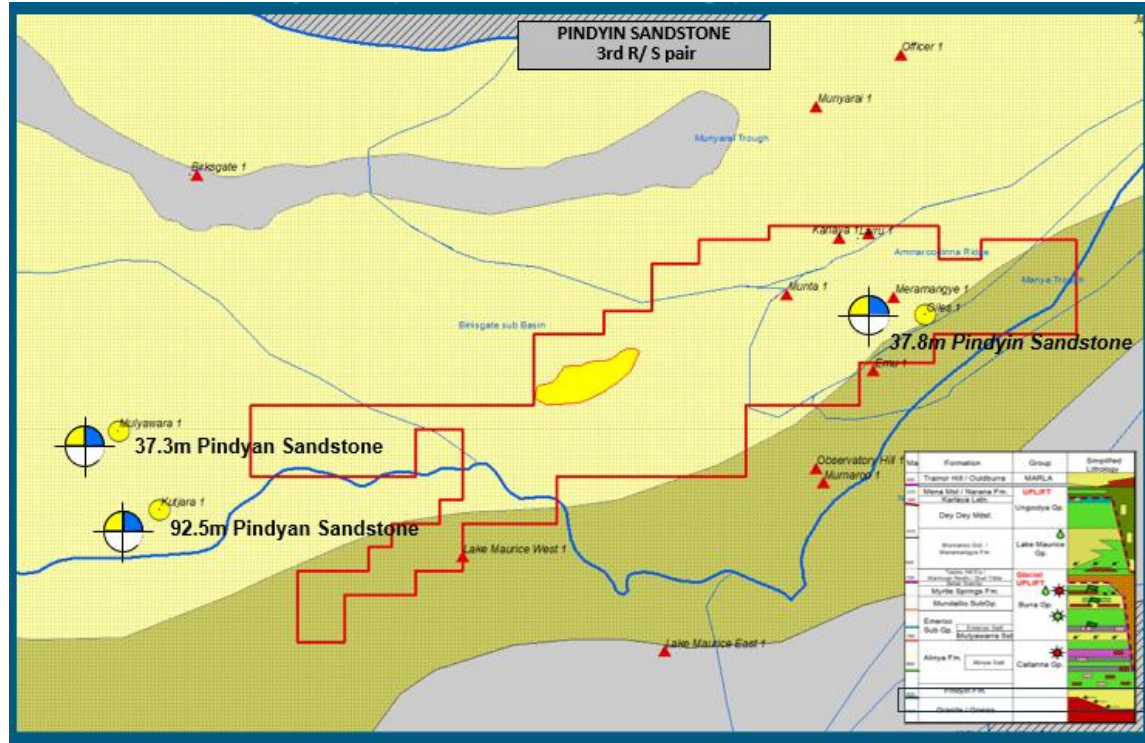
Alinya Project – Rickerscote Lead, Mulyawara Objective (750-770Ma radiometric age)



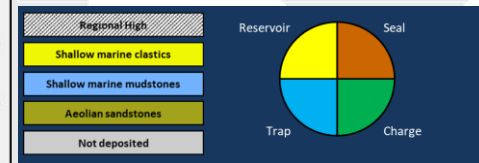
- The Pindyin / Alinya Mudstone Formations are the deepest Reservoir / Seal combination in the Neoproterozoic. There are sufficient (deep) well intercepts (3) and seismic lines to map the Alinya Mdst.

Reservoir Seal Pair; Pindyin Reservoir

Alinya Project – Rickerscote Lead, Pindyin Sandstone (810-820Ma radiometric age)



Aeolian sandstone of the **Pindyin Sandstone** at 1291.36 m in Giles-1. Quartz grains are evenly coated with hematite. Porosity 22.6% and permeability 1,538 mD

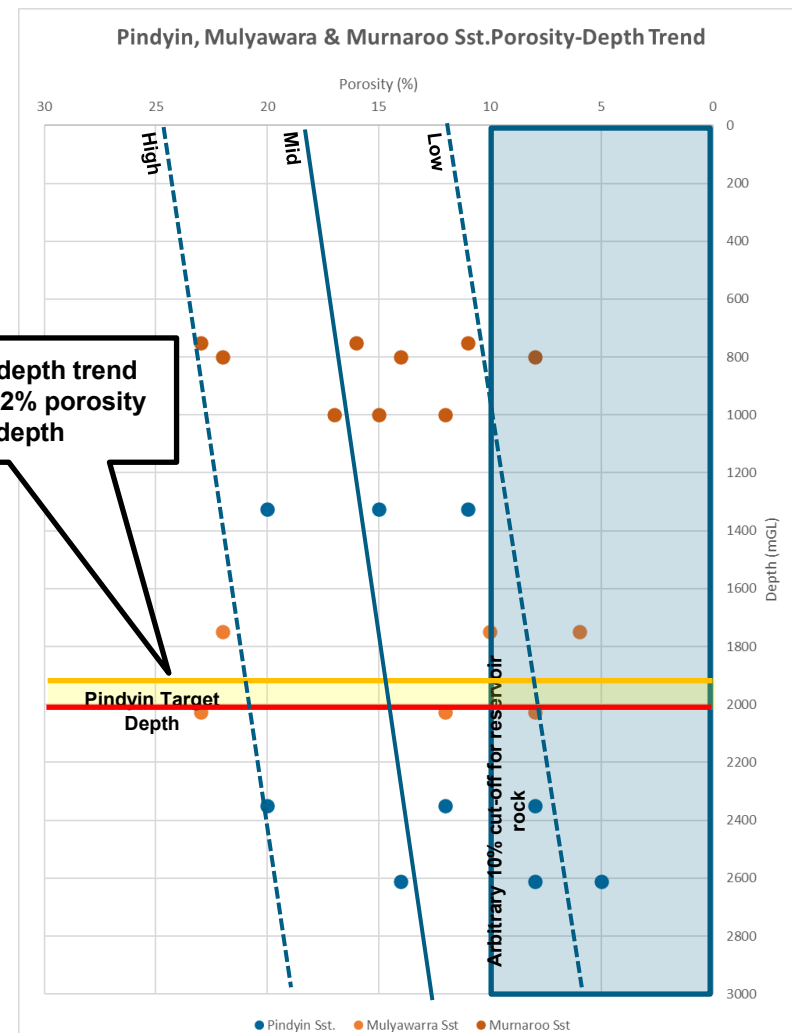
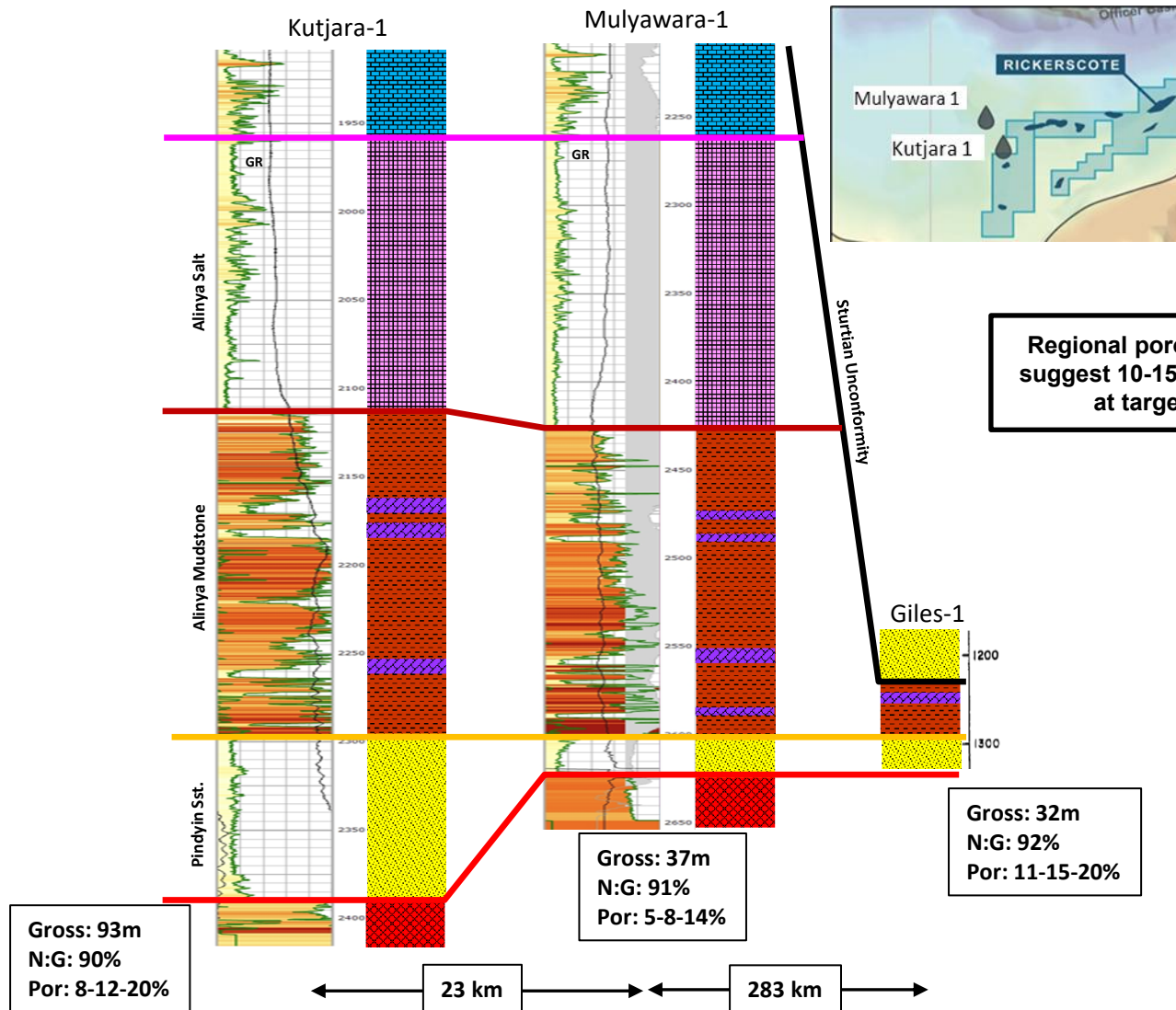


- There are sufficient (deep) well intercepts and seismic lines to map the Pindyin Sst. (SA) / Townsend Quartzite reservoir fairways with some confidence. Giles – 1 is the type section for the Alinya Fm. and a reference section for the Pindyin Sst. The section is fully cored from 197.5 m to TD at 1326.8m. The well Giles – 1 and Mulyawara – 1 have a similar thickness (37m). Kutjara – thickens to (92.5m).
- Palaeo-current interpretation of cross beds implies a northern provenance, with likely tidal or peritidal depositional settings in the north giving way to possibly aeolian settings further south (minor anhydrite, halite & well-rounded, hematite-rimmed quartz grains).

Alinya Project – Rickerscote Prospect, Pindyin Sst. Objective

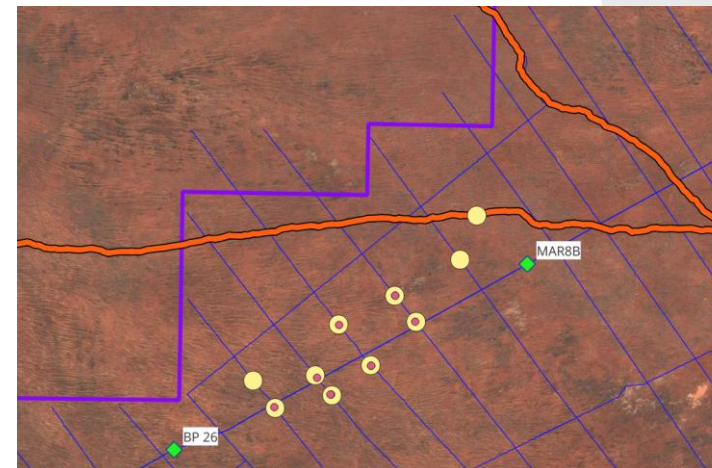
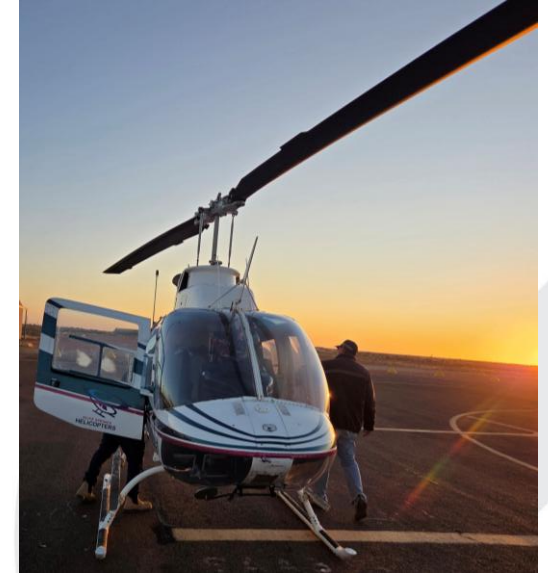
Reservoir – Pindyin Sst. (800-820Ma radiometric age)

Generally high N:G (ranging 85-95%) with gross thickness ranging from 25 to 150m (min-max) in offset wells



On Ground Soil Survey has commenced

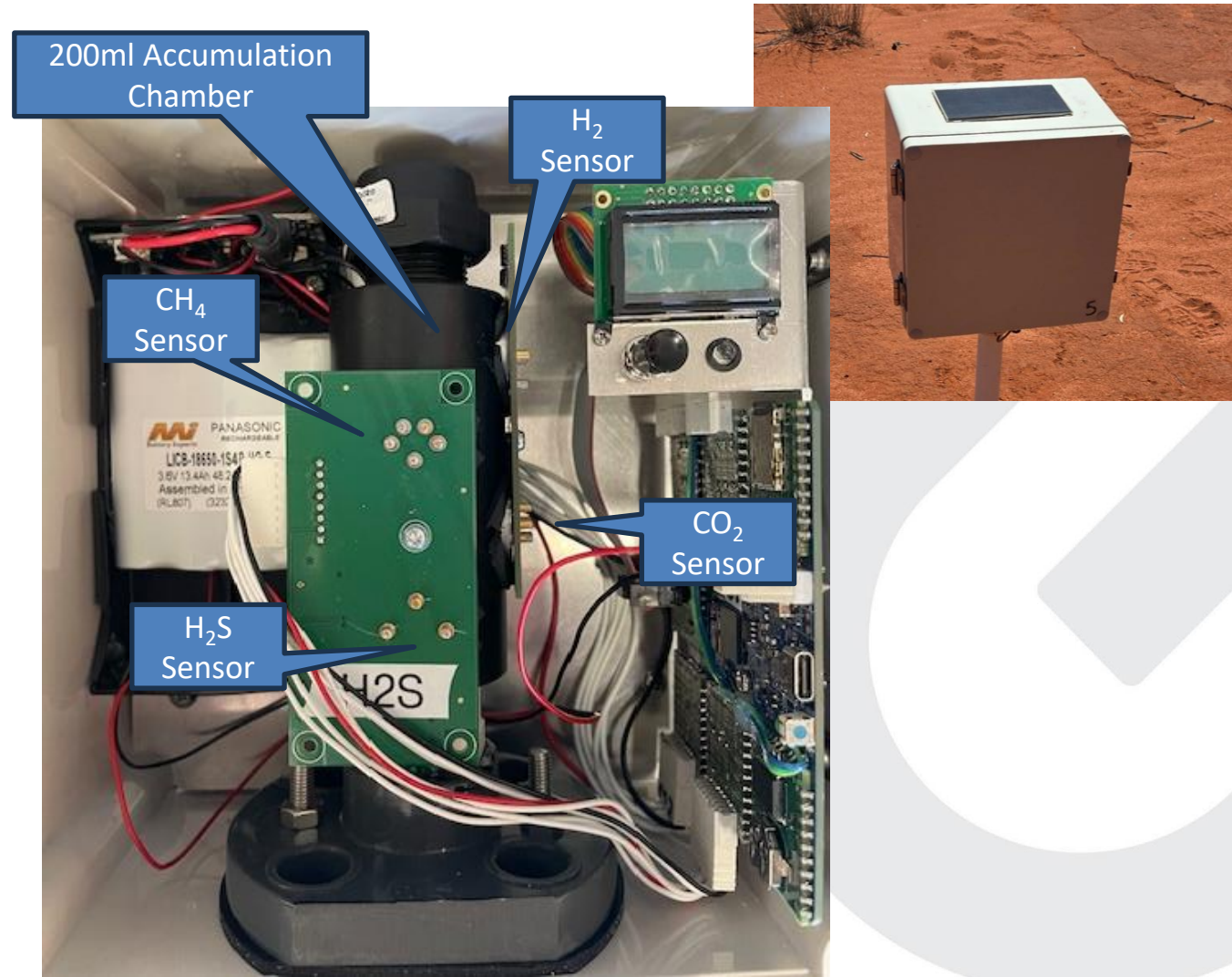
- Deployed 10 IVY detectors over Rickerscote on 23rd September 2025
- Team will retrieve them on 25th October 2025
- Team will sample 5 water bores for Hydrogen, Helium and Hydrocarbons on 26th October 2025
- Results will be used to fine tune drilling location for the Rickerscote 1 well and to hopefully prove proximal H₂/He generation
- Preliminary results expected early November 2025
- Final results expected mid December 2025



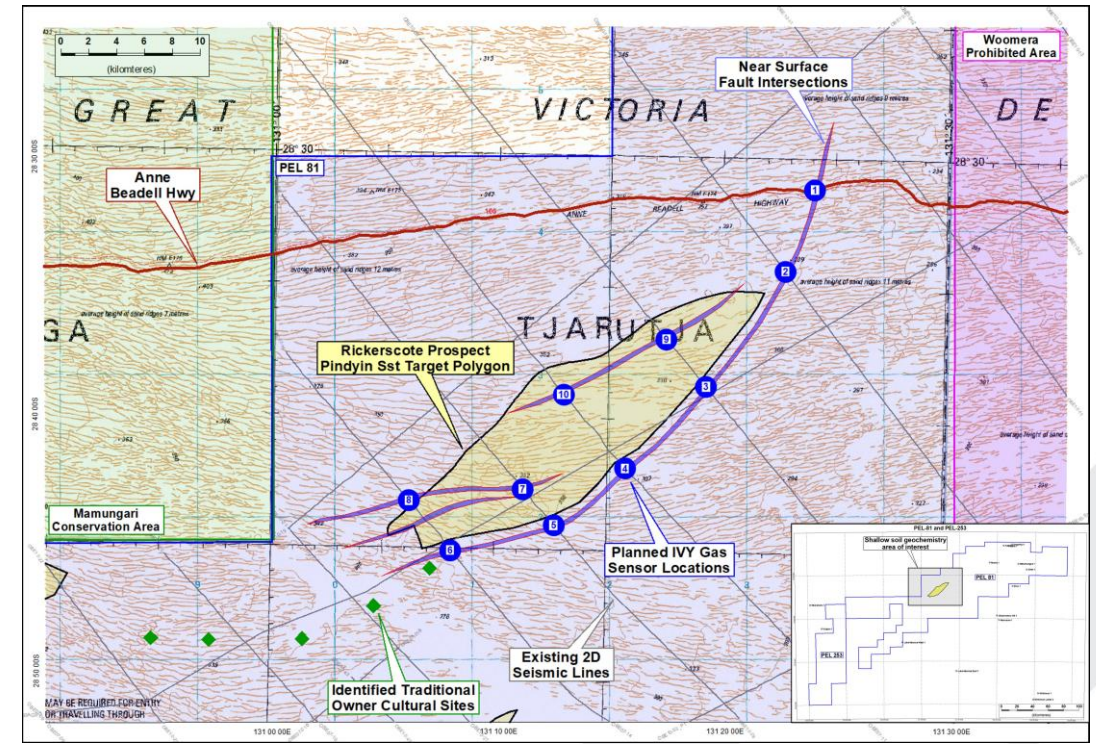
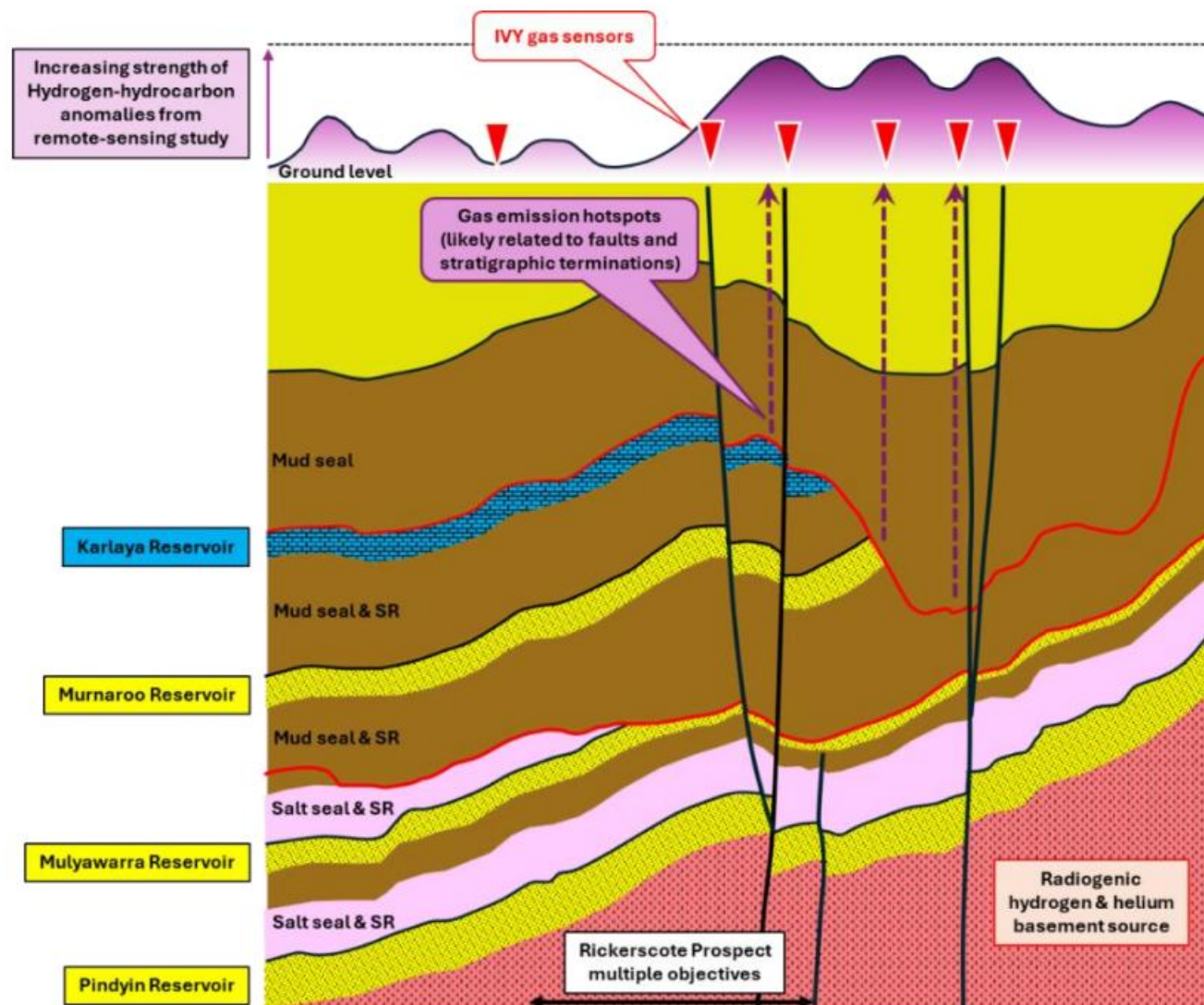
- ◆ Proposed water wells for sampling
- IVY detectors deployed
- ◆ Petroleum wells
- Ivy locations CH cleared
- Roads_GDA2020
- Existing seismic tracks

Autonomous Soil Gas Monitoring : Beyond Soil Gas Sampling

- Unlike traditional single point soil gas sampling, the autonomous monitoring will provide over 7200 hours passive soil gas monitoring
- Monitoring for 30 days, measurements every 15 minutes at 10 locations for:
 - H_2 , CH_4 , CO_2 , H_2S
 - Temperature, Pressure, Humidity
- Results will allow differentiation between drilling induced artifacts and natural hydrogen pulses
- Accumulation chamber allows capture of pulses between 15 minute monitoring cycles

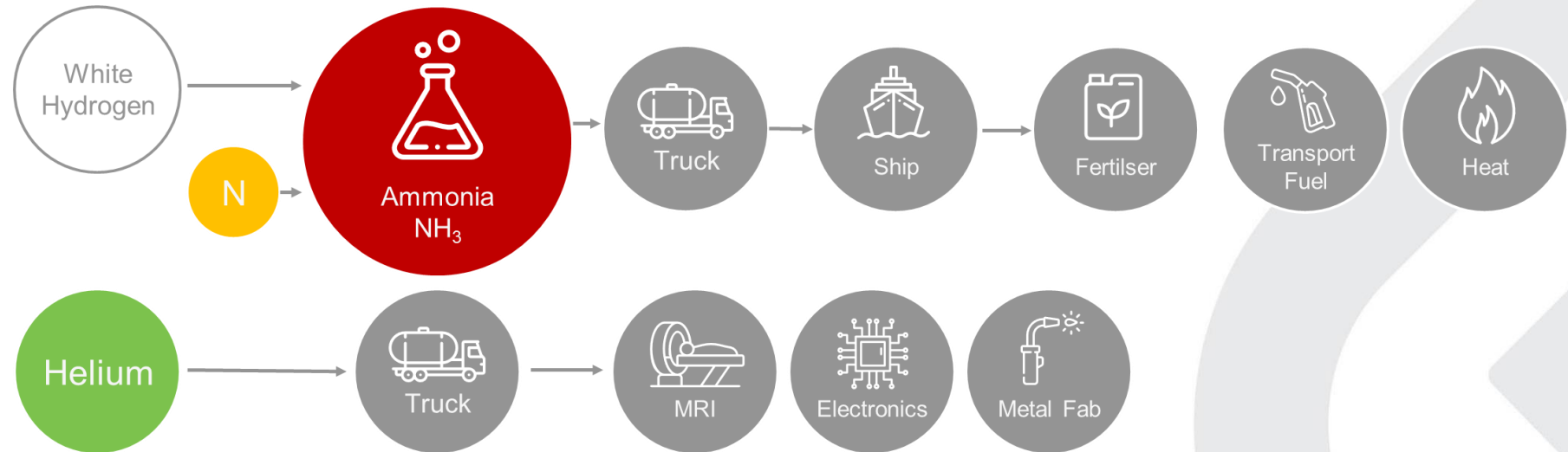
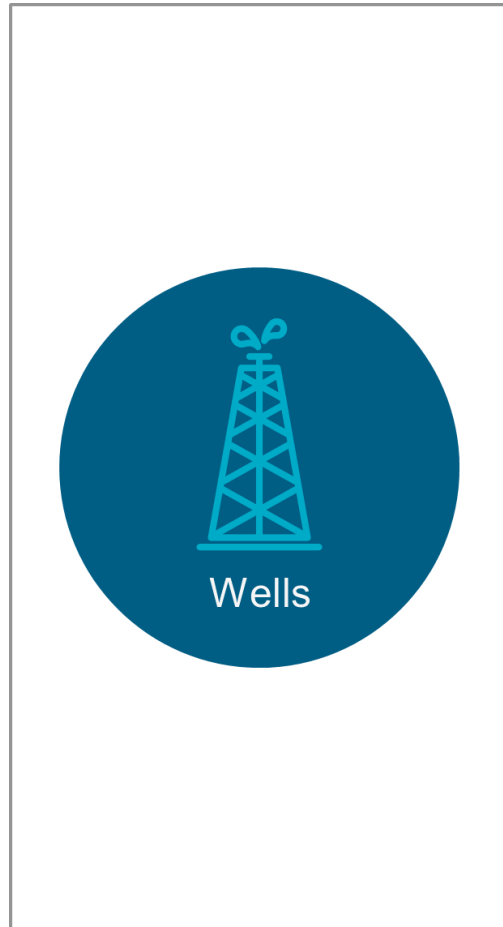


Sample site selection



- IVY detectors were targeting the southern bounding fault that is interpreted to extend to basement
- 2 detectors were placed on 3 key sites to increase the chance of encountering a fluid pathway and to replicate data in a small radius

Proven Commercialization Pathway for White Hydrogen and Helium



~US\$80B

2023 global ammonia market¹

~US\$120B

2032 forecast of global ammonia market¹

~US\$6.5B

2027 forecast of global helium market²

1. <https://www.statista.com/statistics/1391399/global-ammonia-market-size/>
2. <https://www.statista.com/statistics/1411790/market-value-the-helium-industry-worldwide/hydrogen>

Maturity of the work – subsurface work complete

- ✓ Land Access Agreement in place and permits in good order
- ✓ Well Failure Analysis completed
- ✓ Petroleum Systems mapped and understood
- ✓ Regional and prospect level seismic interpretation completed
- ✓ Soil gas sampling commenced and data gathering phase almost completed
- ✓ Initial Phase 1 drilling review completed – Cost of Rickerscote ~\$7.5 million (dry hole); rigs are available next year
- ✓ Farm-in process about to commence
- ✓ Looking to spud in late 2026, subject to regulatory approvals and farm-in success



Summary

- ✓ Whitebark's new management has the skills and experience to deliver high impact projects
- ✓ The Rickerscote prospect offers a low-cost way to test a giant onshore structure that has been independently assessed to be very prospective for Hydrocarbons, Helium and Natural Hydrogen
- ✓ The Alinya project has massive running room for follow up discoveries - Whitebark owns the acreage outright
- ✓ Independently certified 2U resource volumes of 227 million kg H₂ and 45 bcf He
- ✓ On ground activities have started
- ✓ We are committed to push forward with our projects at a rapid rate and have already made significant progress



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This presentation has been approved for release by the Board of
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