

Outstanding Results From First Well Test Pattern – Samphire Field Recovery Trial

Highlights

- Uranium was successfully extracted from first well test pattern hitting AGE's target of 70% recovery over 70 pore volume exchanges.
- The extractor well delivered flow rates of more than 5 L/s in pump testing surpassing typical global ISR well flow rates of 0.5-3 L/s (driven by favourable permeability), confirming effective fluid movement within the mineralised zone.
- Average grade of uranium in solution from the test pattern was 115 ppm U_3O_8 , exceeding Alligator's Updated Scoping Study¹ ("Scoping Study") assumptions, sitting at the upper end of the 70–120 ppm range observed across ISR operations globally.
- Trial reagent consumption aligns with highly favourable international benchmarks.
- Ion exchange and elution (loading and stripping uranium from resin) process highly efficient using a simple reagent mix, demonstrating Alligator's chloride mitigation strategy works and clear optimisation upside.

Alligator Energy Ltd (ASX: AGE, "Alligator" or "the Company") is pleased to provide an update on the completion of the first well pattern at the Samphire Uranium Project Field Recovery Trial ("FRT"), representing a key milestone in demonstrating in-situ recovery ("ISR") performance under field conditions.

The first well pattern has now progressed through the planned recovery cycle, delivering outstanding results that are consistent with, and in many areas exceeding the assumptions outlined in Alligator's Scoping Study as well as internal models. Importantly, the trial confirms the strong technical viability of recovering uranium from the Samphire palaeochannel system using ISR and underpins the projects economic assumptions in Alligator's Scoping Study.

Key takeaways include:

- Strong permeability performance, confirming effective fluid movement and connectivity within the mineralised zone.

¹ Refer AGE ASX announcement of 14 December 2023.

- Uranium recoveries achieving benchmark of 70% within approximately 70 pore volumes, demonstrating favourable leaching kinetics and efficient uranium mobilisation.
- Strong wellfield flow, with flow rates exceeding 5 L/s, confirming favourable permeability relative to typical ISR operations.
- Reagent consumption aligns with “highly favourable category” under international benchmarks indicating efficient leaching conditions and limited reagent losses.
- Robust solution grades, with an average of 115 mg/L U_3O_8 , supporting effective uranium dissolution and alignment with upper-end global ISR benchmarks.
- Salinity management and groundwater chemistry conditions did not adversely impact recovery performance, supporting stable ISR operating conditions.
- Wellfield control and stability were maintained throughout the trial, with no material deviations in hydraulic behaviour or flow distribution.
- Ion exchange and elution recovery process in the plant successfully demonstrated, confirming downstream processing viability with clear optimisation upside.

Importantly, the trial confirms the strong technical viability of uranium recovery from the Samphire palaeochannel system, reinforcing the robustness of the project and its pathway towards development.

Forthcoming Testwork

Following the successful completion of this first well pattern, the Company will commence the second well pattern in the coming week, **which is intentionally designed to test a lower grade/less permeable area at the margins of the mineralised system. Our forecast is that flow rates will be lower and recovery performance may take longer to assess than those achieved in the initial well pattern.** This phase of testing is an important step in understanding the full spectrum hydrogeological and recovery characteristics of the deposit and will inform future wellfield design and optimisation as well as the Bankable Feasibility Study inputs. The Company expects to report results from the second well pattern in the third quarter of calendar year 2026.

Alligator’s CEO and MD Andrea Marsland-Smith stated: “We are highly encouraged by the field performance of our first test pattern as our first major derisking milestone – particularly the alignment with our model assumptions and ISR benchmarks at this stage. Achieving our target of 70% recovery, in the time we had allocated to run the test is testament to the credible science behind our assumptions and the team’s operating experience. With our next well test commencing soon, it is important to build increasing confidence in our models that inform planning the next phase of development at Samphire and for the Company.”

DETAILED ANALYSIS OF RESULTS FROM FIRST WELL PATTERN (PATTERN B)

Uranium Recovery Performance

At the conclusion of the test, uranium recovery from the first well pattern achieved ~70% within approximately 70 pore volume (PV) exchanges, achieving the Company's target within the constraints of time allocated for the test. The accelerated recovery profile is evidence of detailed understanding of the orebody, proficient well design and bespoke reagent mixing ratios to enable efficient lixiviant contact with mineralised zones and effective mobilisation of uranium. Importantly, early attainment of high recovery levels suggests potential for improved efficiency in future wellfield design and operation.

The recovery curve generated from this test pattern will be used to refine predictive production profile models, optimise wellfield operating strategies, and inform process design for subsequent development phases.

ISR Solution Grades

Uranium-bearing solution (pregnant lixiviant solution grade, "PLS") extracted from the well pattern met our forecast modelled PLS grades. A peak PLS concentration of 250 mg/L U_3O_8 and a sustained average PLS grade of 115 mg/L U_3O_8 were achieved during the recovery phase being marginally higher than the assumption used in AGE's Scoping Study. South Australian ISR operations in similar settings deliver PLS grades of ~80–100 mg/L U_3O_8 ², while US ISR operations typically operate at lower tenors under alkaline conditions³. Acid-leach ISR operations, including those in Kazakhstan and the transitioning Lance project in the US, generally support higher solution grades nearing the 100 mg/L range⁴. Against this backdrop, Samphire PLS benchmarks at the upper end of the typical ~70–120 mg/L range for well-performing ISR operations globally (Table 1).

From an operational perspective, higher solution grades (in concert with flow rate) is the key driver of successful ISR, as they directly influence processing throughput and downstream recovery. The observed grades reinforce the potential of suitability of the deposit for ISR extraction.

Table 1: PLS grade benchmarking – other Global ISR operations

Operation	ISR Type	Typical PLS Grade (mg/L U_3O_8)
Samphire (Aus)		115
Lance (US)	Low pH Acidic	~70–120 (not published but deduced, likely in upper range)
Lost Creek (US)	Alkaline	~40–80
Nichols Ranch (US)	Alkaline	~60–100
Kazakhstan	Low pH Acidic	~60–120
ISR South Australia (Aus)	Low pH Acidic	~80–100

² Boss Energy ASX Release July 4, 2024

³ WWC Engineering Report (Lost Creek Report), 2024

⁴ World Nuclear Association, 2026; Kazatomprom, 2025

Wellfield – Flow Rates and Permeability

Hydraulic performance across the wellfield was stable throughout the trial. The wellfield operated in a stable and controlled manner throughout the trial, with no material deviations in hydraulic behaviour, flow distribution, or water balance observed. Maintaining wellfield control is critical in ISR operations to ensure containment of lixiviant within the mineralised zone and to achieve consistent recovery performance. This provides confidence in the Company's ability to manage ISR operations and supports progression to subsequent development phases.

The Pattern B extractor well was operated at approximately 2.8 L/s during the test due to the intentional design capacity of the pilot plant (3 L/s). However, prior to leaching, well pump testing confirmed the well's ability to sustain flow rates in excess of 5 L/s **meaning there is potential for substantial additional available flow rates above our Scoping Study assumptions** which will reduce the number of injector and extractor wells required for the full-scale mine to achieve the target annual production. **Relative to global ISR benchmarks⁵, where typical well flow rates range from 0.5–3 L/s, the performance of this test well also surpasses the global benchmark.**

During the latter stages of leaching, calcium in the PLS exceeded saturation and precipitated as gypsum, resulting in minor scaling within some of the filters. This was mitigated through periodic filter cleaning and standard process control measures. The calcium is not coming from the host formation rather it is dissolved in the groundwater meaning ongoing management of this will be consistent and predictable for application of standard mitigation strategies used elsewhere in other operations.

Table 2 below summarises the key physical parameters assumed in Alligator's Scoping Study and the actual performance metrics observed from the first test well Pattern (Pattern B)

Table 2: Key physical parameters – Scoping Study 2023 vs actuals from FRT Pattern B

Key Physical Parameters	Unit	Updated Scoping Study (Dec 2023)	FRT Results Pattern B Actuals	Comments
Flow Rate	L/sec	3	2.8	Flow rate of Pattern B extractor limited by inherent design of the small FRT pilot plant flow capacity. Actual flow rate of extractor in excess of 5L/s
Target leaching pH		1.5	1.4	On Target
Plant feed grade from wellfield (PLS)	ppm U ₃ O ₈	110	115	Above Target
Forecast overall uranium recovery	% / Pore Volumes	70 / 30	70 / 70	Higher permeability than expected and lower flow rate (due to plant flow capacity) increased the PV exchanges in this scenario. This is not a detriment, rather a feature of the trial.

⁵ *Uranium Production from In Situ Leaching* (IAEA Nuclear Energy Series, 2016); *World Nuclear Association* (2026).

Process

Ion exchange (IX) capture of the uranium from the PLS using a relatively new to market chloride(salt)-tolerant resin achieved excellent adsorption efficiency of 98%, demonstrating highly effective uranium capture. This result is particularly significant given the elevated chloride concentrations present in the groundwater at Samphire and its potential impact on IX resin loading. The successful performance of the selected resin combined with the effective wellfield chloride reduction (i.e. via reverse osmosis) prior to wellfield leaching demonstrates AGE's technical approach and operational management has eliminated impact on the IX process.

Likewise, the elution process (stripping uranium from the resin) was straight forward and successful using a simple industry standard reagent mix, confirming that uranium can be effectively recovered from the loaded resin under straightforward operating conditions.

The use of a simplified reagent makeup highlights the potential for further optimisation. Upcoming laboratory testwork will focus on refining the elution reagent mix to assess opportunities for reducing reagent consumption given reagent costs are a significant contributor to ISR operating costs.

Reagent Consumption

Reagent consumption during the trial aligns with “highly favourable category” under international benchmarks⁶, with wellfield sulfuric acid consumption of approximately 20kg/tonne of ore. This reflects minimal losses to dilution and favourable acid consumption characteristics within the orebody. The alignment between observed and expected reagent consumption is underpinned by detailed understanding of the geochemical behaviour of the host sediments. Further optimisation studies are expected to refine reagent dosing strategies and potentially improve overall efficiency.

Implications for Development and Future Work

The results from the first well pattern materially reduces key technical risks associated with ISR development at Samphire. The strong performance across recovery, flow, grade, and chloride management and reagent consumption provides a solid foundation for future project advancement.

The data generated from this trial will be incorporated into ongoing optimisation studies that will input into the BFS and will inform:

- Wellfield design and spacing
- Recovery modelling and mine scheduling
- Processing plant design parameters
- Reagent management strategies

⁶ IAEA-Tecdoc-1239, Manual of acid in-situ leach uranium mining technology, 2001.

In addition, the results support the robustness of the Samphire project and reinforce its potential to deliver efficient ISR operations under field conditions. While the first well pattern has delivered strong outcomes, the ongoing Field Recovery Trial program will continue to test variability across the deposit, including more marginal areas in the next test pattern due to come online week beginning 4th May 2026. This will further refine the Company's understanding of the orebody and support the progression towards ongoing project development.

This announcement was authorised for release by the Board of Alligator Energy Ltd. Engage with this announcement at the Alligator Energy [InvestorHub](#).

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Forward Looking Statement

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About Alligator Energy

Alligator Energy is a uranium and energy metals project development and exploration group with clear pathways for approval and development through its multi-jurisdictional portfolio. The Alligator Energy Directors and Leadership Team have significant uranium experience including achieving approval of WA's first uranium mine at the Wiluna Uranium Project (Toro Energy), discovery and pre-feasibility study of the Husab Uranium Mine in Namibia (Extract Resources) and management roles with WMC Olympic Dam, ERA Ranger Mine and Heathgate Resources uranium ISR operations at Beverley and Four Mile.