



ASX Release  
02 October 2025

**CSIRO TESTWORK CONFIRMS EXCELLENT BIO-LEACHING  
RECOVERIES FROM THE BYRO CRITICAL MINERALS PROJECT  
OCTAVA TO EXERCISE OPTION TO ACQUIRE 100% OWNERSHIP**

**Highlights**

- **Excellent rare earth (REE), lithium (Li) and vanadium (V) extraction yields from initial bioleaching research conducted by CSIRO, Australia’s national science agency, including:**
  - **Up to ~68% Nd, ~67% Pr and ~65% Dy, key elements used in magnet production.**
  - **Up to ~62% Li, ~43% V and ~80% Tb, key elements in battery technology.**
- **CSIRO testwork used microbial cultures to extract REEs, Li and other critical minerals and indicates that leaching yields can be further improved.**
- **Results confirm earlier successful bioleaching recovery rates achieved by European Bio-mining consulting firm BiotaTec on Byro material.**
- **Mineralisation at Byro appears continuous and has been intersected in 5 drillholes spaced over 25km of strike, indicating a potentially large volume of in-situ metals.**
- **Octava will, subject to all necessary shareholder and regulatory approvals, exercise its option to acquire 100% of the Byro Critical Minerals Project.**

Octava Minerals Ltd (ASX:OCT) (“Octava” or the “Company”), an Australian focused explorer of the new energy metals REEs, lithium, antimony and gold, is pleased to report excellent results from initial bioleaching test work by CSIRO, Australia’s National Science Agency. Rare Earths, lithium and other critical minerals were successfully extracted at relatively high recoveries from sample material taken from earlier diamond drilling at the Byro Critical Minerals Project in Western Australia.



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Feiyu Qi – Non – Executive Director  
Bevan Wakelam – Managing Director / CEO

**Projects**  
Federation – copper, zinc, silver  
Byro – REE’s & lithium  
Yallalong – antimony, gold & nickel  
East Kimberley – nickel & PGM’s

Initial metal recoveries for magnetic rare earths (Nd, Pr, Dy, Tb) and battery metals lithium (Li) and vanadium (V) from the CSIRO bioleaching testwork using microbes identified in the Stage 1 testwork (refer ASX:OCT 25 June 2025) under 5 different conditions.

**Table 1. CSIRO Bioleach result highlights for Byro Shale Samples**

Element	Condition 1	Condition 2	Condition 3	Condition 4	Condition 5
	Recovery	Recovery	Recovery	Recovery	Recovery
Nd	27%	32%	31%	68%	39%
Pr	23%	28%	27%	67%	36%
Dy	44%	50%	48%	65%	46%
Tb	48%	55%	53%	80%	54%
Li	24%	36%	27%	62%	40%
V	7%	14%	12%	43%	20%

These highly encouraging results confirm the earlier successful bioleaching recovery rates also achieved by European Bio-mining consulting firm BiotaTec on the Byro material (Refer ASX:OCT Release 21 August 2025).

Octava's Managing Director Bevan Wakelam stated:

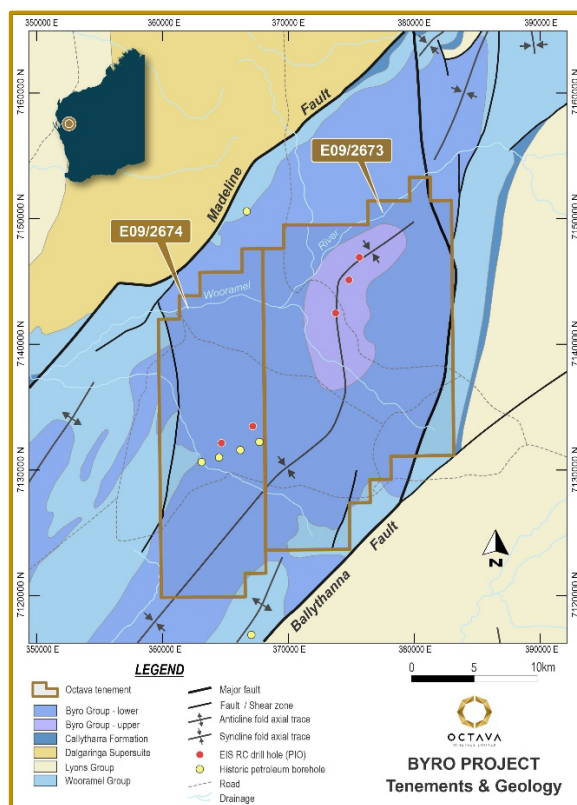
*This is a significant outcome for the Byro Project, with Australia's National Science Agency achieving excellent bioleaching recoveries across a suite of critical minerals. CSIRO used microbes from their in-house culture collection to extract various critical elements under different bioleaching conditions. This work confirms the earlier successful bioleaching results achieved by our European Bio-Mining consultants, BiotaTec on the Byro material.*

*Bio-mining has distinct sustainability and operational advantages over traditional extraction methods. It has reduced chemical use, potentially consumes up to 90%<sup>1</sup> less energy than conventional production methods resulting in lower operating costs, being a simpler, more cost-effective process.*

*We have deliberately focussed on early stage testwork to determine the recovery potential at Byro. The strong initial testwork results achieved on Byro material by BiotaTec and CSIRO independently, have given us confidence to take 100% ownership of the Byro project. We are now planning a maiden drill program, targeting higher grade zones. We are also in discussions on stepping up the scale of bioleaching testwork.*

## About the Byro Project

The Byro Project is a polymetallic project located on the Byro Plains of the Gascoyne Region, Western Australia, 220km south-east of Carnarvon and consists of two granted Exploration Licences – E 09/2673 and E 09/2674 – totalling 555 km<sup>2</sup>. See Figure 1. The Byro Project has a Native Title agreement in place and nearby infrastructure includes accessibility to a commercial port (Geraldton) and power from the NW gas pipeline and future potential access to Western Australian government proposed green energy sites.



**Figure 1. Byro Project Location Map and Tenements**

The target stratigraphy is the sedimentary Permian black shales and siltstones located within the Byro Sub-Basin of the Carnarvon Basin. The restricted basin is approximately 100km by 150km in size, and up to 3km in depth. The basin is bound to the east by the Precambrian Yilgarn Craton margin, and to the west by extensions of the Darling Fault. Black shales are a favourable host for biomining given their reduced nature and high sulphide content.

Using micro-organisms to extract metals significantly decreases the volume of chemicals required and operating at ambient temperature, negates the need for large-scale consumption of fossil fuels. Compared to some other processing methods that use hazardous chemicals and have a large CO<sub>2</sub> footprint, biomining represents not only a more environmentally friendly, but also a much more cost-efficient alternative. Examples of biomining applications include numerous copper mines in Chile, gold processing (e.g. BIOX process developed by Gold Fields<sup>1</sup>) and the polymetallic black shale Talvivaara heap leach mine in Finland.

## CSIRO Test Program

CSIRO conducted experimental testwork to evaluate the effectiveness of bioleaching Byro material. Octava Minerals provided five 1 kg ore samples for bioleaching experiments. The samples were from various depth of two drill holes. Full details in relation to the metallurgical bore holes were outlined in ASX announcement - 25 February 2025. Equal aliquots of material from each ore sample were mixed as a composite ore sample for the bioleaching experiments.

Elemental composition of the composite ore was provided by Octava Minerals from sodium peroxide fusion analysis using Ni crucible with HCL (FP6/OE, FP6/MS) carried out by Intertek.

Bioleaching was evaluated with the composite ore using a mixed biomining culture from CSIRO's culture collection. The bioleaching tests were conducted over three weeks in shake flasks under five different conditions with duplicate flasks in each condition. Solution samples were collected twice a week and analysed for soluble elements using inductively coupled plasma (ICP) optical emission spectrometry (OES)/mass spectrometry (MS). Leaching yields were calculated based on the results of the soluble concentrations of elements in the solution samples and elemental content of the composite.

The leaching yields after 21 days of leaching at five different conditions are summarised in Table 1.

**Table 2. Composite ore grades and bioleaching yields after 21 days at five different conditions with the highest leaching yields for each element highlighted with green bold font.**

Element	Composite ore grade (ppm)	Yield (%)				
		Condition 1	Condition 2	Condition 3	Condition 4	Condition 5
Sc <sub>2</sub> O <sub>3</sub>	26.5	10.0	21.8	<b>23.3</b>	22.3	19.3
Y <sub>2</sub> O <sub>3</sub>	41.9	50.8	56.6	54.6	<b>65.3</b>	46.5
La <sub>2</sub> O <sub>3</sub>	66.5	16.8	20.8	17.5	<b>55.5</b>	29.5
CeO <sub>2</sub>	145.0	19.8	23.6	22.3	<b>59.6</b>	32.9
Pr <sub>2</sub> O <sub>3</sub>	15.2	23.3	27.9	26.6	<b>67.2</b>	36.4
Nd <sub>2</sub> O <sub>3</sub>	53.9	27.3	32.2	30.8	<b>68.2</b>	39.2
Sm <sub>2</sub> O <sub>3</sub>	13.0	25.6	29.6	28.5	<b>51.7</b>	32.1
Eu <sub>2</sub> O <sub>3</sub>	1.8	39.8	45.7	44.6	<b>73.0</b>	47.6
Gd <sub>2</sub> O <sub>3</sub>	8.6	43.0	49.1	47.0	<b>81.3</b>	51.0
Tb <sub>4</sub> O <sub>7</sub>	1.2	48.4	55.1	52.9	<b>80.3</b>	53.7
Dy <sub>2</sub> O <sub>3</sub>	7.3	44.3	50.1	48.1	<b>65.0</b>	46.2
Ho <sub>2</sub> O <sub>3</sub>	1.4	44.6	50.4	48.6	<b>62.4</b>	45.5
Er <sub>2</sub> O <sub>3</sub>	4.0	45.8	52.2	50.1	<b>65.5</b>	47.5
Tm <sub>2</sub> O <sub>3</sub>	0.6	38.0	43.9	42.3	<b>51.9</b>	39.0
Yb <sub>2</sub> O <sub>3</sub>	3.8	33.2	38.9	37.3	<b>46.2</b>	34.4
Lu <sub>2</sub> O <sub>3</sub>	0.6	34.0	39.7	37.9	<b>47.6</b>	35.4
Li <sub>2</sub> O	303.5	24.3	35.5	26.5	<b>62.0</b>	39.6
V <sub>2</sub> O <sub>5</sub>	289.2	7.3	14.1	12.2	<b>42.7</b>	20.0
Rb <sub>2</sub> O	145.4	4.0	2.0	1.5	<b>27.3</b>	1.5

## Bioleaching Test Results – Byro Project

The bioleaching conditions had notable influence on leaching yields, with condition 4 enabling the highest yield for most elements. Yields for key elements are shown in Figures 1-6. The leaching was tested for up to 21 days and the increasing trends indicated that there is **potential to further increase leaching yields**. The leaching yields could also be further optimised by tailoring the leaching media composition.

The bioleaching yields over 21 days included:

- Up to ~68% Nd, ~67% Pr and ~65% Dy, key elements used in magnet production.
- Up to ~62% Li, ~43% V and ~80% Tb, key elements in battery technologies.
- Up to ~52% Sm ~81% Gd, ~62% Ho, ~73% Eu, ~65% Y, ~65% Er, ~60% Ce ~56% La, ~52% Tm, 46% Yb, ~48% Lu, ~27% Rb and ~23% Sc used in various applications.

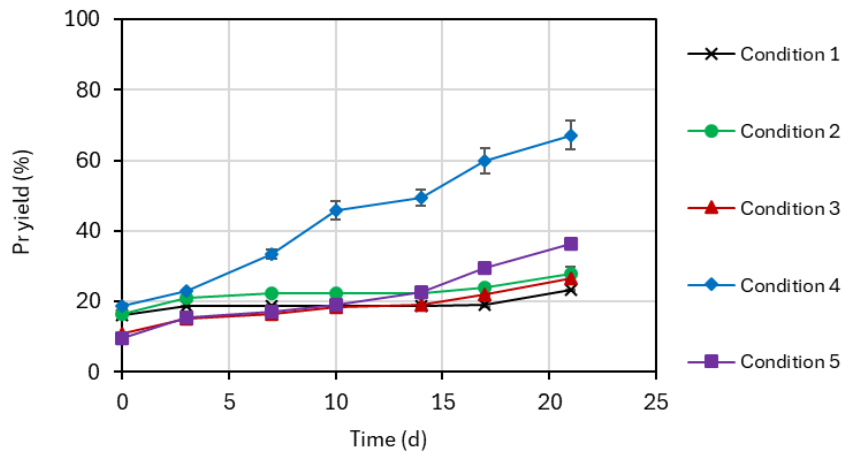


Figure 1. Changes in praseodymium (Pr) bioleaching yields over time. Averages and standard deviations of duplicate flasks are shown for each test condition.

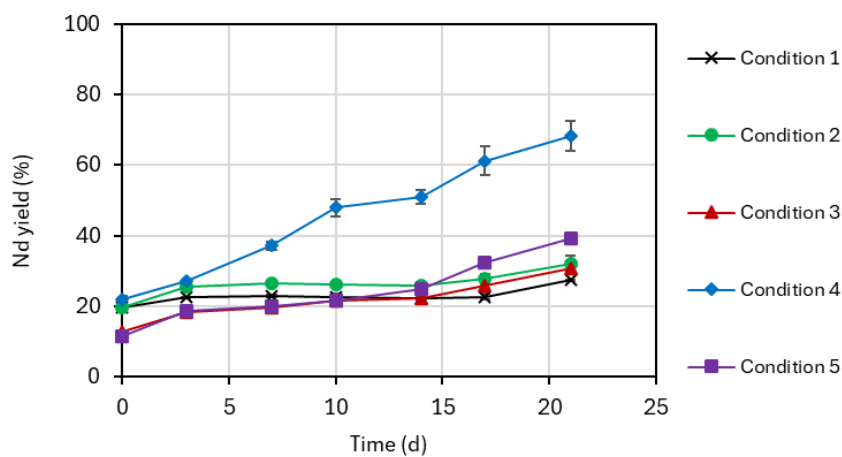
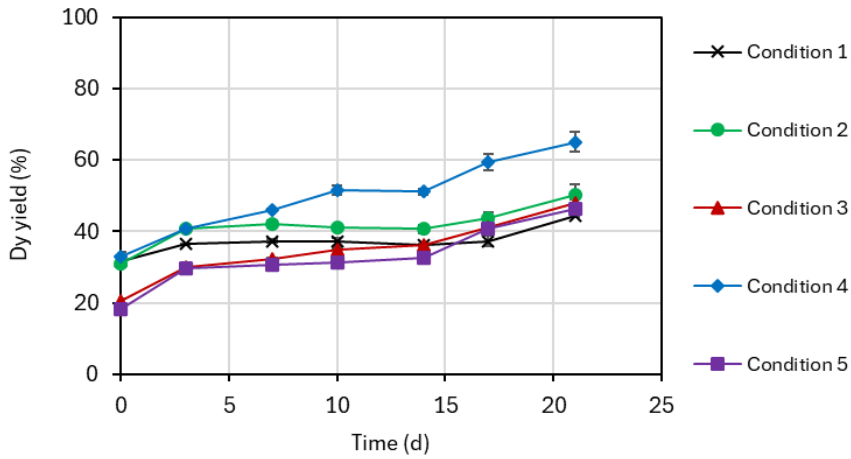
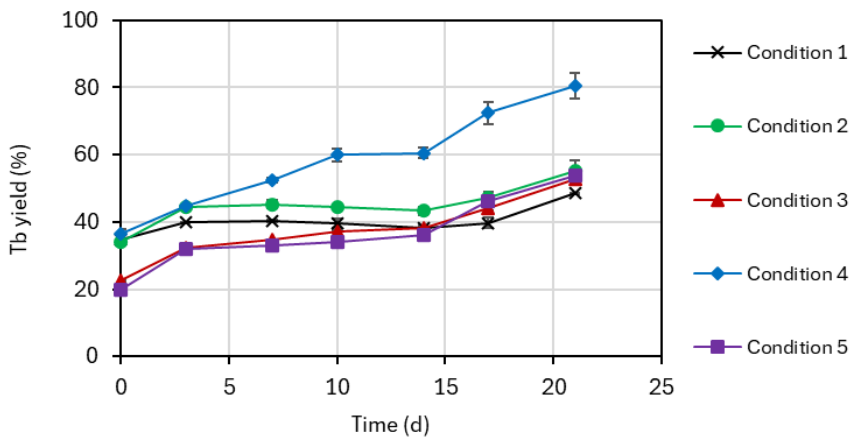


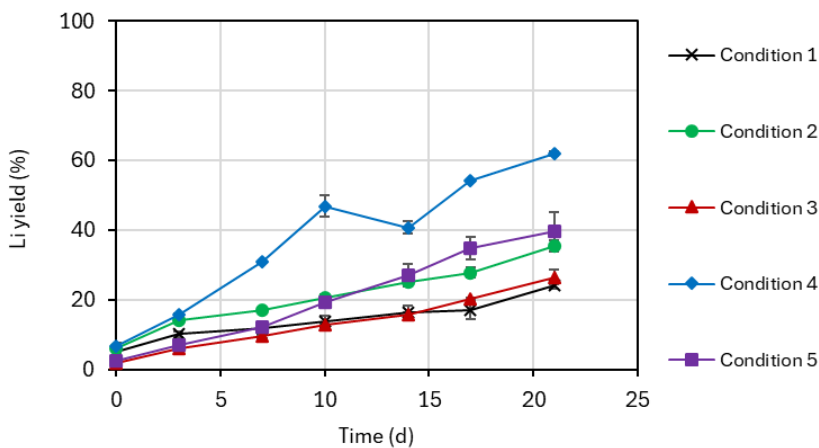
Figure 2. Changes in neodymium (Nd) bioleaching yields over time. Averages and standard deviations of duplicate flasks are shown for each test condition.



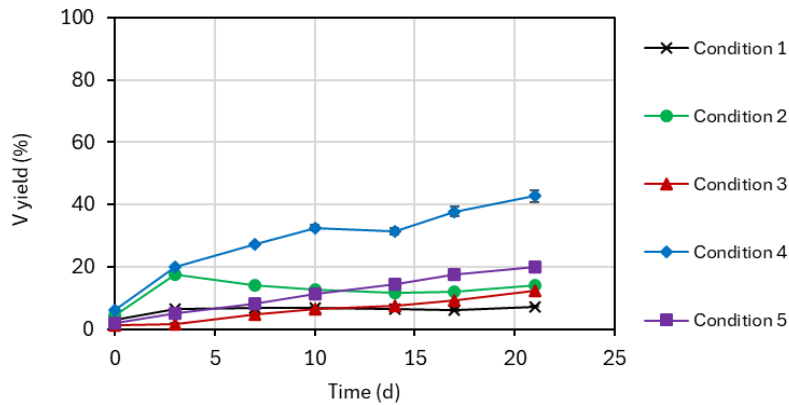
**Figure 3. Changes in dysprosium (Dy) bioleaching yields over time. Averages and standard deviations of duplicate flasks are shown for each test condition.**



**Figure 4. Changes in terbium (Tb) bioleaching yields over time. Averages and standard deviations of duplicate flasks are shown for each test condition.**



**Figure 5. Changes in lithium (Li) bioleaching yields over time. Averages and standard deviations of duplicate flasks are shown for each test condition. Note different vertical axis.**



**Figure 6. Changes vanadium (V) bioleaching yields over time. Averages and standard deviations of duplicate flasks are shown for each test condition. Note different vertical axis.**

### Project Acquisition – Exercise Option

The excellent initial testwork results achieved on Byro material by BiotaTec and CSIRO independently, have given Octava confidence to take 100% ownership of the Byro project. In January 2024, Octava signed a binding conditional share sale agreement to purchase 100% of the shares in Byro Mining Pty Ltd (Byro), Byro is the registered holder of the Byro project which comprises tenements E 09/2673 and E 09/2674.

The acquisition by Octava of Byro is subject to customary conditions applicable to a transaction of this nature including Octava and Byro obtaining all necessary board, shareholder and regulatory approvals to complete the transaction (which for Octava will include shareholder approvals for the purposes of Listing Rules 10.1 and 10.11 and Chapter 2E of the Corporations Act)

(Refer to ASX:OCT Release 24 January 2024).

### Next Steps

Following the excellent results of the CSIRO testwork, work is now underway planning a maiden drill program targeting higher grade zones at Byro. There has only been 5 historic drillholes at Byro, that were widely spaced, over a strike distance of 25km. The mineralisation at Byro appears continuous, with thick intervals intersected in all the 5 historic drillholes, indicating a potentially large volume of *in-situ* metals. Further information on the drilling program will be announced shortly.

Octava is now in discussions for the next stage of bioleaching testwork, looking to scale up the testwork under various conditions to evaluate the potential for bioheap leaching of Byro material and improving recoveries and leaching performance.

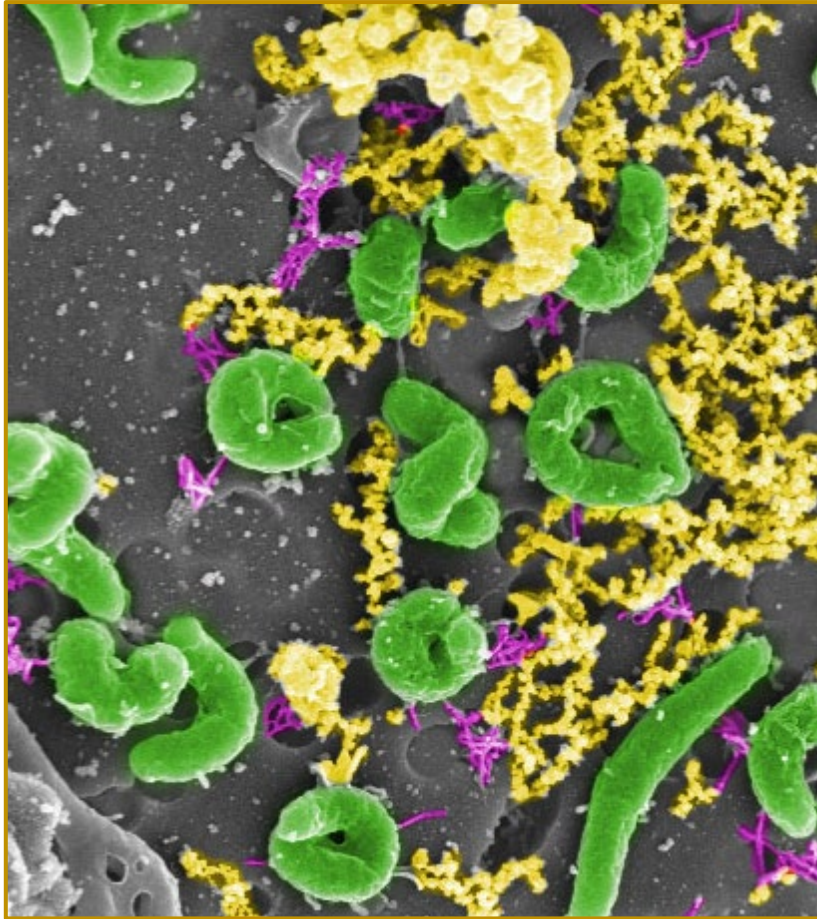


Figure 7. Biomining microorganisms (Photo by courtesy of CSIRO)

This announcement has been authorised for release by the Managing Director/CEO.

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**About Octava Minerals Ltd**

Octava Minerals Limited (ASX:OCT) is a Western Australian based exploration company. The Company has 4 strategically located projects in geographically proven discovery areas within Australia.

### **Forward looking Statements**

This announcement includes certain “forward looking statements”. All statements, other than statements of historical fact, are forward looking statements that involve risks and uncertainties. There can be no assurances that such statements will prove accurate, and actual results and future events could differ materially from those anticipated in such statements. Such information contained herein represents management’s best judgement as of the date hereof based on information currently available. The Company does not assume any obligation to update forward looking statements

### **Competent Person Statements**

#### **Exploration results**

Where Octava references previously announced Exploration Metallurgical Results in this report it refers to references under the heading Previously Released ASX Material. Octava confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters in those announcements continue to apply and have not materially changed.

#### **CSIRO Testwork**

Dr Anna Kaksonen is a Senior Principal Research Scientist at the CSIRO and has sufficient experience to advise the Company on matters relating to bioleaching microorganisms and process development for extraction of metals from black shale. Dr Kaksonen is satisfied that the information provided in the announcement on biomining and the CSIRO testwork has been presented accurately.

CSIRO advises that the information on CSIRO testwork is based on initial laboratory-scale scientific research, and that larger-scale testwork and techno-economic analysis are required to evaluate the technical and economic feasibility of bioleaching operations on a case-by-case basis.

#### **Previously Released ASX Material**

ASX:OCT 17 September 2025

ASX:OCT 21 August 2025

ASX:OCT 25 June 2025

ASX:OCT 25 February 2025

ASX:OCT 5 December 2024

ASX:OCT 24 January 2024

<sup>1</sup>See also – Terraframe Business Review October – December 2022, 3 March 2023, Slide 11