# ASX Release

17 June 2025

# Heap leach metallurgical testwork delivers encouraging rare earth recoveries

Australian Strategic Materials Limited (**ASM** or **the Company**) (**ASX:ASM**) is pleased to report very encouraging results from heap leach metallurgical testing undertaken as part of its Rare Earth Options Assessment (**REOA**) conducted at the Dubbo Project – ASM's globally significant rare earth and critical minerals mining and processing project located in Dubbo, NSW.

## Highlights:

- **Recoveries from selected leaching parameters for magnetic rare earth elements from bottle roll testing of three major Dubbo Project composites yielded positive recovery results.**
- **Optimal recovery results were achieved from HLC-West composite – estimated to be the first 8-10 years of mined ore – which yielded:**
    - **Nd recoveries up to 80%**
    - **Pr recoveries up to 85%**
    - **Tb recoveries up to 44%**
    - **Dy recoveries up to 38%**
- **Across the composites, crush sizes between 12.5 mm to 25 mm are optimal for the highest recoveries, which reduces crushing requirements and aids heap leach performance.**
- **The bottle roll test results highlight that the Toongi deposit at the Dubbo Project shows strong potential for heap leaching the recovery of rare earth oxides – including those restricted by Chinese export controls.**
- **The simpler heap leach process removes several capital-intensive processing steps, which simplifies the flowsheet and significantly reduces capital and operating costs, which is expected to facilitate funding and offtake discussions.**
- **The results of the testwork will support the development of the Heap Leach Scoping Study currently being undertaken by ASM, expected to be delivered early next quarter, and will underpin a further work program of column leaching testwork.**

## Management comment

"In the current rare earth market, it is essential that we explore more cost-effective and faster pathways to deliver the Dubbo Project and ensure strong project economics. That is why we initiated the Rare Earth Options Assessment – to evaluate alternative, lower-capital and shorter implementation options for recovering both light and heavy rare earth elements from the Dubbo Project.

"The initial results are very encouraging for both light and heavy rare earth elements, showing potential to simplify the flowsheet by removing capital-intensive processing steps, which could significantly reduce both capital and operating costs and deliver strong project economics. Based on these findings, we are now fast-tracking a Heap Leach Scoping Study to rapidly assess the economic viability of developing the Dubbo Project in phases – with the first phase focused on the production of light and heavy rare earth oxides," said Rowena Smith, ASM Managing Director and CEO.

## Lower capital, shorter implementation

The REOA has been evaluating lower capital, and shorter implementation options to recover light (neodymium and praseodymium) and heavy (dysprosium and terbium) rare earth elements from the Dubbo Project. The work to date has identified several potential options, with a focus on atmospheric tank and heap leaching methods. Metallurgical testwork and engineering studies have advanced these options, including assessments of both sulphuric and hydrochloric acid leach variants.

These leaching options offer the potential to develop and construct the Dubbo Project in a phased approach, eliminating the need for a capital and energy-intensive roaster and associated infrastructure in the first phase. The first phase of construction would focus on separated rare earth oxide production, with early revenue generation helping to fund a second phase of development. This subsequent phase would incorporate the additional processing steps required to recover the remaining valuable critical minerals in the Dubbo Project resource – zirconium, niobium and hafnium and the residual rare earth elements (including samarium and gadolinium).

As part of the REOA, ASM undertook a series of scoping variability tank leach and bottle roll tests on selected drill core intervals from the Dubbo Project to assess the various leaching techniques and reagent types and regimes (**Phase A Program**). Results from this scoping variability testing indicated a range of light and heavy rare earth recoveries across the ore deposit, with opportunities identified for further investigation and optimisation.

Following on from this scoping variability testing and to progress the heap leach option, ASM commenced a metallurgical and testwork program of bottle roll leach tests on drilled core intervals and three large mining zone composites using hydrochloric acid (**Phase B Program**).

A summary of the Phase B Program and results are presented below, along with details of the development of the composites used in the testwork.

## Metallurgical composite sample development

The Toongi deposit at Dubbo was divided into three east-to-west zones – heap leach composite (**HLC**)-East, HLC-Central, and HLC-West (Figure 1). Seven diamond-core holes completed in late 2024 have been combined with three earlier diamond-core holes (Figure 1; Table 1) to create one metallurgical composite for each zone, with three drill holes contributing to every composite. The composites are considered representative of the deposit.

Nine diamond-core holes were sampled to 360 m RL, with another being sampled to the end-of-hole above this depth. Sampling commenced at the coherent trachyte contact and included all available material to 360 m RL. Core diameter is predominantly HQ with some minor contributing PQ. Samples were typically cut half-core, intervals of quarter-core, three-quarter core, and full core also contributed.

- Holes TOD004 and TOD005 include short unsampled sections above 360m RL, this is due to the core being consumed by the previous testwork.

- TOD008 has one unsampled interval corresponding to a zone of nil core recovery.
- TOD012 was abandoned above 360 m RL due to drilling difficulties; all recovered core to the end-of-hole was sampled.

The fine-grained trachyte shows a uniform weathering profile from its upper contact down to 360 m RL. Much of the primary mineral assemblage of feldspars, aegirine, eudialyte, and quartz is replaced by clay, with the strongest alteration amongst the groundmass mineralogy. The more resistant quartz, phenocryst feldspar cores and phenocryst aegirine have undergone the least alteration. A later manganese-iron (Mn-Fe) oxide overprint occurs, locally forming fracture-related dendritic coatings. Oxidation and clay development are strongest near the surface and in a few fracture-controlled pockets, yet the overall style, intensity and mineralogy stay consistent to 360 m RL. Relative significant grain-size variation is confined to the HLC-East composite, with no significant lithological breaks elsewhere. Due to the consistencies in mineralogy, alteration and grade, the core from the trachyte contact to 360 m RL was combined for the testwork composites.

Core recovery in the metallurgical drill holes exceeded 98.5%. This figure includes the small losses that occurred while drilling through the overlying sedimentary cover before intersecting the shallow trachyte. Because most of that loss is attributed to the unconsolidated cover sequence, actual recovery within the trachyte itself is effectively higher than the reported value.

**Figure 1: Dubbo Project Toongi ore body showing the overlay of the three composite zones selected for the Phase B Program**

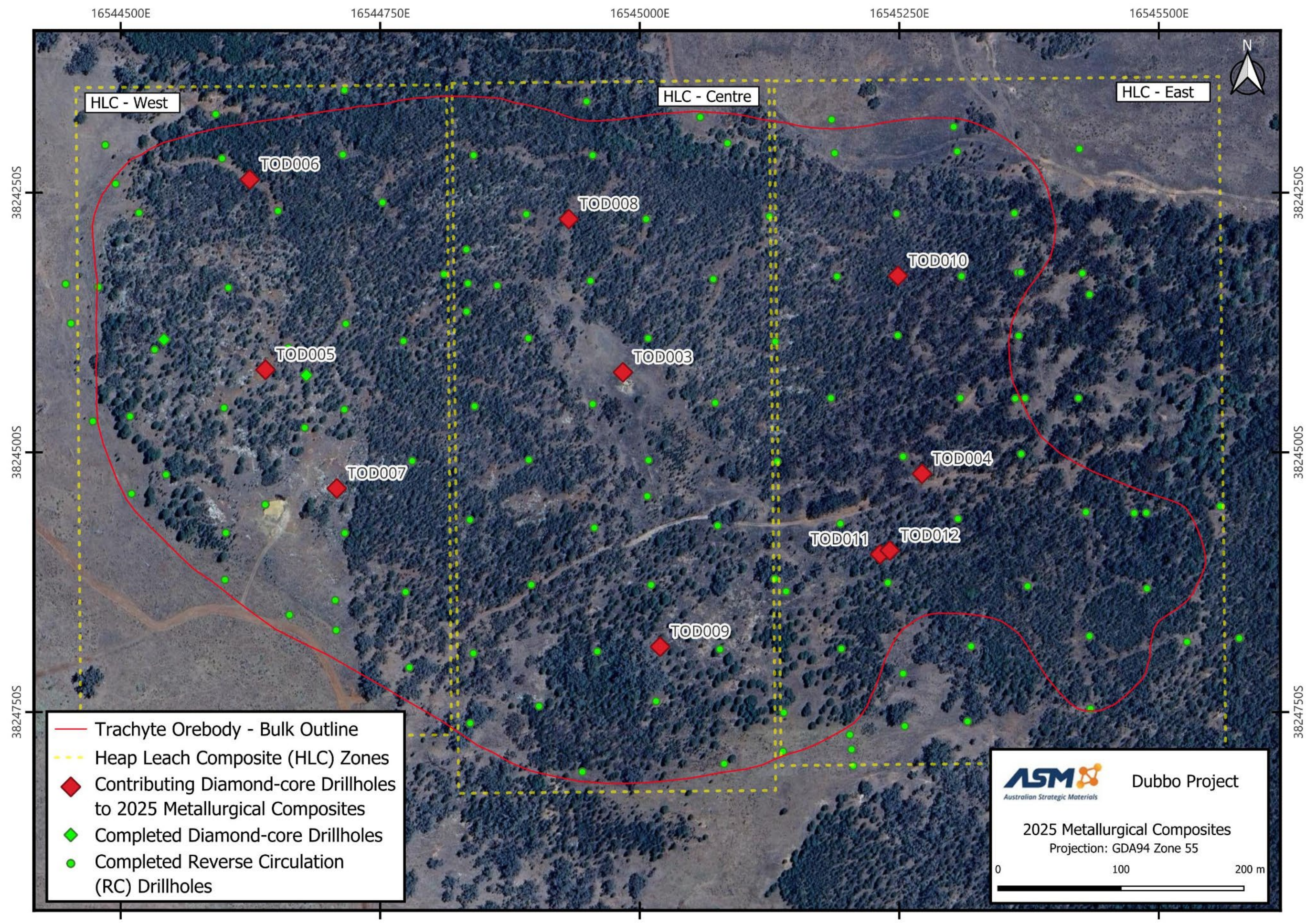


**Table 1: Dubbo Project Toongi Ore Body showing the overlay of the three composite zones selected for the Phase B Program**

| Hole ID | Sample Type | Easting | Northing | Dip | M RL | From | To |
|---|---|---|---|---|---|---|---|
| **Heap Leach Composite - West** | | | | | | | |
| TOD005 | | 652534.5 | 6406932 | -90 | 392.6 | | |
| | Cut Core | | | | | 0 | 2 |
| | Cut Core | | | | | 4 | 6 |
| | Cut Core | | | | | 10 | 11 |
| | Cut Core | | | | | 12 | 14.7 |
| | Cut Core | | | | | 16 | 17 |
| | Cut Core | | | | | 18 | 20 |
| | Cut Core | | | | | 20.1 | 21 |
| | Cut Core | | | | | 22 | 23 |
| | Cut Core | | | | | 24 | 25.5 |
| | Cut Core | | | | | 25.8 | 26 |
| | Cut Core | | | | | 27 | 29.3 |
| | Cut Core | | | | | 29.5 | 30 |
| | Cut Core | | | | 359.9 | 31 | 32.7 |
| TOD006 | | 652523.2 | 6407086 | -90 | 365.6 | | |
| | Cut Core | | | | 360 | 1.1 | 5.6 |
| TOD007 | | 652586.5 | 6406833 | -90 | 395.2 | | |
| | Cut Core | | | | 360 | 0 | 35.2 |
| **Heap Leach Composite - Centre** | | | | | | | |
| TOD003 | | 652825.2 | 6406925 | -90 | 390.3 | | |
| | Cut Core | | | | 359.8 | 5.9 | 30.5 |
| TOD008 | | 652783.3 | 6407046 | -90 | 387.6 | | |
| | Cut Core | | | | | 0.6 | 26.65 |
| | Cut Core | | | | 360 | 27.45 | 27.6 |
| TOD009 | | 652853.4 | 6406705 | -90 | 382.4 | | |
| | Cut Core | | | | 359.9 | 4.42 | 22.5 |
| **Heap Leach Composite - East** | | | | | | | |
| TOD004 | | 653067.1 | 6406840 | -90 | 381 | | |
| | Cut Core | | | | | 1.8 | 3 |
| | Cut Core | | | | | 5 | 6 |
| | Cut Core | | | | | 8 | 8.4 |
| | Cut Core | | | | | 8.8 | 10.5 |
| | Cut Core | | | | | 13 | 15 |
| | Cut Core | | | | | 16 | 16.5 |
| | Cut Core | | | | | 16.8 | 18 |
| | Cut Core | | | | 360 | 19 | 21 |
| TOD010 | | 653062.8 | 6406990 | -90 | 382.4 | | |
| | Cut Core | | | | 359.9 | 3 | 22.5 |
| TOD011 | | 653030 | 6406773 | -90 | 379.8 | | |
| | Cut Core | | | | 359.8 | 0.23 | 20 |
| TOD012 | | 653038.9 | 6406776 | -90 | 379.592 | | |
| | Cut Core | | | | 373.222 | 0.45 | 6.37 |

## Phase B Program composite handling and head grade characterisation

Each of the composites was prepared by crushing to a targeted top size of 25 mm before rotary splitting into 10 kg aliquots. One 10 kg aliquot from each of the crushed samples was crushed to a top size of 12.5 mm, and another 10 kg aliquot from each of the crushed samples was crushed to a top size of 6 mm.

The 12.5 mm and 6 mm crushed aliquots and an additional 25 mm aliquot from each sample were rotary subdivided into 1 kg aliquots for testwork. One 1 kg 6 mm aliquot was taken from each sample for head characterisation. The head characterisation will include FUSION-ICP-OES (Al, Fe, Mg, Si, Ti), 4AD-ICP-OES (Ca, Mn, Na, S, Zn), ALS methods ME-MS81 (REEs), ME-MS81 (Nb, Zr) and ME-F-ELE81a (F).

The assayed head grades of each composite are shown in Table 2.

**Table 2: Phase B Program composite head grade characterisation**

| Composite | Assayed Head Grade, ppm | | | | | | |
|---|---|---|---|---|---|---|---|
| | TREO* | MREO** | $Pr_6O_{11}$ | $Nd_2O_3$ | $Tb_4O_7$ | $Dy_2O_3$ | $Y_2O_3$ |
| HLC-West | 8,006 | 1,921 | 387 | 1,283 | 35.4 | 216 | 1.340 |
| HLC-Central | 7,884 | 1,808 | 372 | 1,207 | 34.2 | 195 | 1,276 |
| HLC-East | 7,624 | 1,803 | 369 | 1,207 | 32.0 | 196 | 1,269 |

** TREO (Total Rare Earth Oxide) = $La_2O_3$ + $CeO_2$ + $Pr_6O_{11}$ + $Nd_2O_3$ + $Sm_2O_3$ + $Eu_2O_3$ + $Gd_2O_3$ + $Tb_4O_7$ + $Dy_2O_3$ + $Ho_2O_3$ + $Er_2O_3$ + $Tm_2O_3$ + $Lu_2O_3$ **excluding** $Y_2O_3$*

*** MREO (Magnetic Rare Earth Oxide) = $Pr_6O_{11}$ + $Nd_2O_3$ + $Tb_4O_7$ + $Dy_2O_3$*

## Phase B Program: intermittent bottle roll leach testing

The Phase B Program intermittent bottle roll leach testing (**IBRT**) follows on from the previous bottle roll scoping testwork conducted on selected drill core intervals from the Dubbo Project ore.

This Phase B testwork evaluated the leach responses of the three prepared composites, investigating the main parameters of crush size and starting hydrochloric acid (**HCl**) concentration.

IBRT was conducted on a single 1 kg aliquot at three different crush sizes (25 mm, 12.5 mm and 6 mm) from each of the original samples and at two starting HCl acid concentrations (20 and 50kg/t) for a total of 3 x 3 x 2 = 18 tests. IBRT was conducted in 4 L bottles with a pulp density of 50 w/w% solids using an aliquot mass of 1 kg in each test. The leaches were run in intermittent mode (5 mins ON, 55 mins OFF) at ambient temperature for 28 days. Kinetic samples of liquor were taken twice weekly. For the first week, monitoring was conducted daily, and after that, twice weekly to coincide with kinetic sampling times. Inductively coupled plasma optical emission spectroscopy (ICP-OES) was used to analyse the elemental contents of the liquor in the kinetic samples and the final liquor at the end of each leach. Final solids were assayed via FUSION-ICP-OES (Al, Fe, Mg, Si, Ti), 4AD-ICP-OES (Ca, Mn, Na, S, Zn), ALS methods ME-MS81 (REEs), ME-MS81 (Nb, Zr) and ME-F-ELE81a (F).

## Bottle roll equipment

The apparatus for the IBRT utilised for initial scoping testwork and the Phase B Program testwork campaign are shown in Figures 2 and 3 respectively.

**Figure 2: Dubbo Project Phase A Program – intermittent bottle roll leach tests**

**Figure 3: Dubbo Project Phase B – intermittent bottle roll leach tests**

IBRT is used to simulate the leaching mechanism inherent in heap leaching and is the precursor to column leach testwork for additional heap leach parameter establishment. Each bottle is agitated (turned on rollers) for five minutes every hour, such that diffusion is the dominant mechanism for lixiviant transfer into the crushed ore. This is the same mechanism that dominates in heap leaching.

## Phase B Program bottle roll results

The results for each of the heap leach composites HLC-West, HLC-Central and HLC-East are presented below.

### HLC-West results (presented in Table 3 and Figures 4 and 5)

**The HLC-West composite represents the first stage of the proposed mining plan, estimated to be approximately eight to 10 years of ore.**

Results reported encompass the western zone of the Toongi deposit from the surface to an RL of 360 m. Mineralisation is identified below this RL and will be assessed in subsequent testwork programs.

Based on the recovery results from the bottle roll leaching, the following observations can be made:

- **Leaching is rapid with most final recoveries achieved around 18 to 20 days.**
- **Increased overall recoveries for the 12.5 mm and 6 mm crush sizes over the 25 mm crush size** – approximately a 6% increase in Nd/Pr recoveries and an 18% increase in Tb/Dy recoveries.
- **Little to no difference in overall recoveries between the 12.5 mm and 6 mm crush sizes.**
- **The 50kg/t starting acid concentration improves overall recovery and is more pronounced for the 25 mm crush size** - approximately 10% increase in Nd/Pr recoveries and 25% increase in Tb/Dy recoveries for the 25 mm crush size compared to a 4% increase in Nd/Pr recoveries and 9% increase in Tb/Dy recoveries for the 12.5 mm and 6 mm crush sizes.
- **The optimal recovery for HLC-West appears to correspond to the 12.5 mm crush size @ 50kg/t starting acid concentration**. Under this regime, final recoveries of Pr, Nd, Tb and Dy were 84.9%, 79.9%, 44.2% and 37.7% respectively.

**Table 3: Summary of Phase B bottle roll results for HLC-West**

| RE Element | HLC-West Final Extraction (%) (MS-81 Fusion/acid digestion/ICP-MS for solids, ICP-OES for liquids) | | | | | |
|---|---|---|---|---|---|---|
| | 25 mm crush | | 12.5 mm crush | | 6 mm crush | |
| | 50g/L HCl | 20g/L HCl | 50g/L HCl | 20g/L HCl | 50g/L HCl | 20g/L HCl |
| La | 86.8 | 79.3 | 90.9 | 87.0 | 91.9 | 88.0 |
| Ce | 79.8 | 69.9 | 83.4 | 79.8 | 84.5 | 80.9 |
| Pr | 80.0 | 73.5 | 84.9 | 81.8 | 85.4 | 82.5 |
| Nd | 75.1 | 68.1 | 79.9 | 77.0 | 80.4 | 77.2 |
| Sm | 58.1 | 53.1 | 63.8 | 63.4 | 64.7 | 62.2 |
| Eu | 54.7 | 41.8 | 59.6 | 51.9 | 57.9 | 53.3 |
| Gd | 50.7 | 39.4 | 56.4 | 51.0 | 55.0 | 50.8 |
| Tb | 38.6 | 31.5 | 44.2 | 40.9 | 44.7 | 40.8 |
| Dy | 30.6 | 21.3 | 37.3 | 29.8 | 35.3 | 29.8 |
| Ho | 25.9 | 24.0 | 30.9 | 32.3 | 31.1 | 32.0 |
| Er | 20.5 | 13.0 | 24.7 | 23.0 | 25.4 | 21.5 |
| Tm | 19.3 | 14.8 | 22.8 | 21.0 | 24.0 | 21.2 |
| Yb | 18.9 | 23.3 | 25.5 | 30.9 | 24.6 | 29.5 |
| Lu | 22.2 | 16.8 | 27.5 | 20.7 | 27.7 | 20.1 |
| Y | 24.9 | 21.5 | 28.5 | 30.2 | 29.8 | 27.2 |

**Figure 4: HLC-West bottle roll leach REE recovery by element**

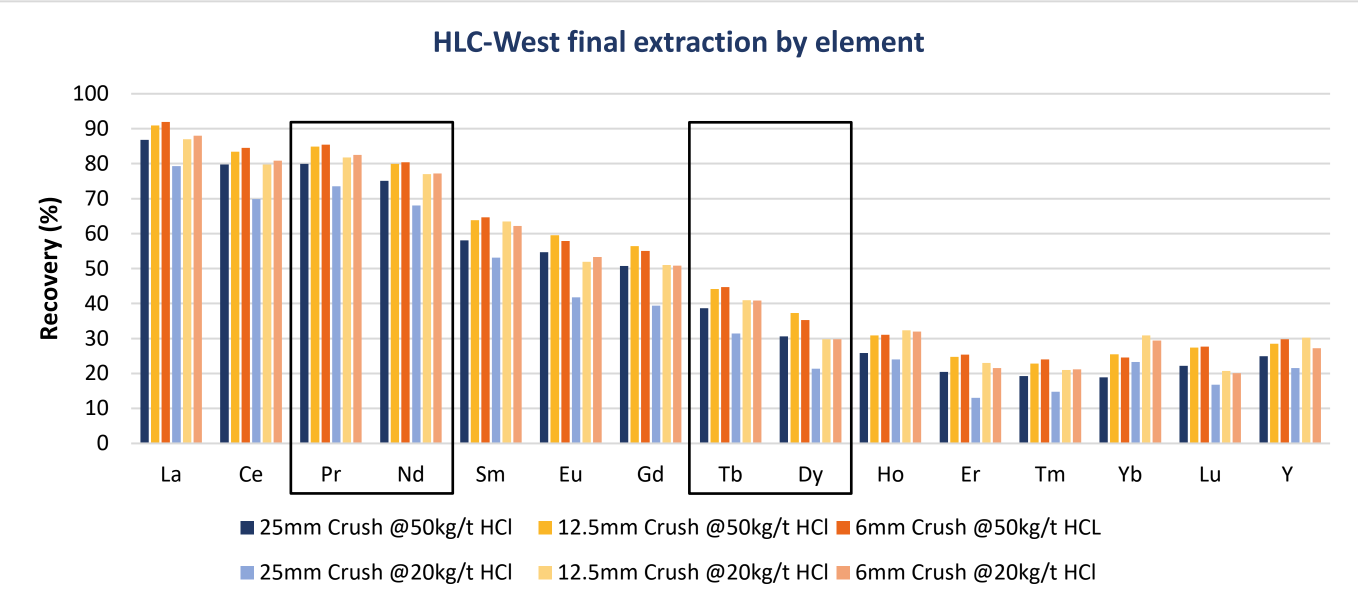
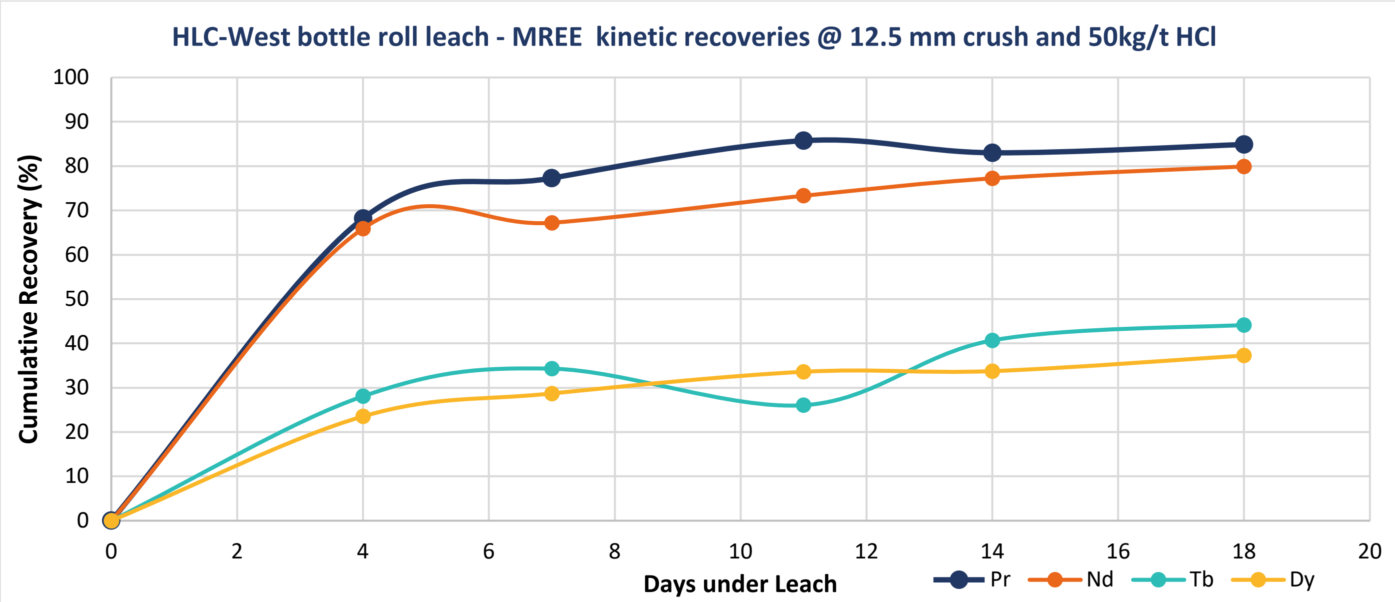


Figure 5: HLC-West bottle roll leach results – cumulative recovery by day




## HLC-Central results (presented in Table 4 and Figures 6 and 7)

Results reported encompass the central zone of the Toongi deposit from the surface to an RL of 360 m. Mineralisation is identified below this RL and will be assessed in subsequent testwork programs.

Based on the recovery results from the bottle roll leaching, the following observations can be made:

- **Similar to HLC-West, the leaching is rapid with most final recoveries achieved around 18 to 20 days.**
- **Unlike HLC-West, the central composite indicated no real difference in overall recoveries of Nd/Pr between all three crush sizes but a marked decrease in the Tb and Dy recoveries at the smaller crush sizes, exacerbated with the higher starting concentration** – further analysis of the results suggesting interference of recovery of heavy rare earths by the increase in Fe extraction at the smaller crush sizes.
- **Little to no difference in overall recoveries between the 12.5 mm and 6 mm crush sizes.**
- **The 50kg/t starting acid concentration slightly improves recovery of both Nd/Pr and Tb/Dy for the 25 mm crush size.**
- **The 50kg/t starting acid concentration slightly improves recovery of Nd/Pr but decreases recovery of Tb/Dy for the 12.5 mm and 6 mm crush sizes** – again this is believed to be attributed to the combination of smaller crush size and high acid concentration extracting more Fe, which seems to interfere with heavy rare earth recoveries.
- **The optimal recovery for HLC-Central appears to correspond to the 25 mm crush size @ 50kg/t starting acid concentration**. Under this regime, final recoveries of Pr, Nd, Tb and Dy were 74.9%, 68.7%, 36.1% and 22.8% respectively.

Table 4: Summary of Phase B bottle roll results for HLC-Central

| RE Element | HLC-Central Final Extraction (%) (MS-81 Fusion/acid digestion/ICP-MS for solids, ICP-OES for liquids) | | | | | |
|---|---|---|---|---|---|---|
| | 25 mm crush | | 12.5 mm crush | | 25 mm crush | |
| | 50g/L HCl | 20g/L HCl | 50g/L HCl | 20g/L HCl | 50g/L HCl | 20g/L HCl |
| La | 81.6 | 77.8 | 81.3 | 79.7 | 84.1 | 81.4 |
| Ce | 75.1 | 70.5 | 72.6 | 73.3 | 74.8 | 74.3 |
| Pr | 74.9 | 71.9 | 73.4 | 73.1 | 75.9 | 73.2 |
| Nd | 68.7 | 65.8 | 66.2 | 65.5 | 68.4 | 65.7 |
| Sm | 52.2 | 50.9 | 46.3 | 45.8 | 47.0 | 45.7 |
| Eu | 43.2 | 41.9 | 31.8 | 31.2 | 31.3 | 32.0 |
| Gd | 43.1 | 41.9 | 33.8 | 33.4 | 33.7 | 34.1 |
| Tb | 36.1 | 34.5 | 26.3 | 26.9 | 25.3 | 27.1 |
| Dy | 22.8 | 19.0 | 7.7 | 11.8 | 6.1 | 9.7 |
| Ho | 29.6 | 25.5 | 17.7 | 20.4 | 16.4 | 17.0 |
| Er | 17.9 | 16.8 | 8.9 | 10.7 | 7.2 | 6.2 |
| Tm | 16.0 | 12.0 | 4.3 | 10.8 | 6.0 | 5.3 |
| Yb | 25.5 | 21.4 | 17.6 | 19.3 | 14.6 | 15.6 |
| Lu | 17.4 | 10.2 | 5.1 | 13.5 | 3.0 | 5.3 |
| Y | 25.4 | 20.6 | 13.2 | 19.4 | 12.3 | 13.0 |

Figure 6: HLC-Central bottle roll leach REE recovery by element

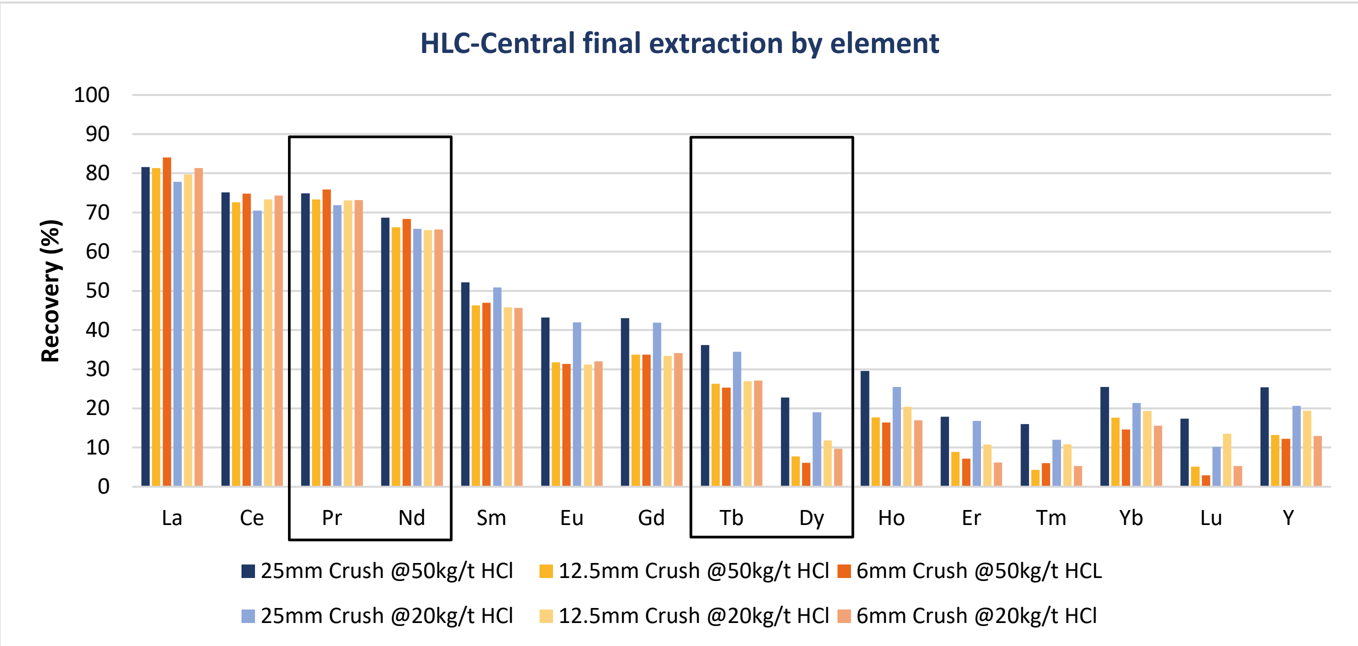
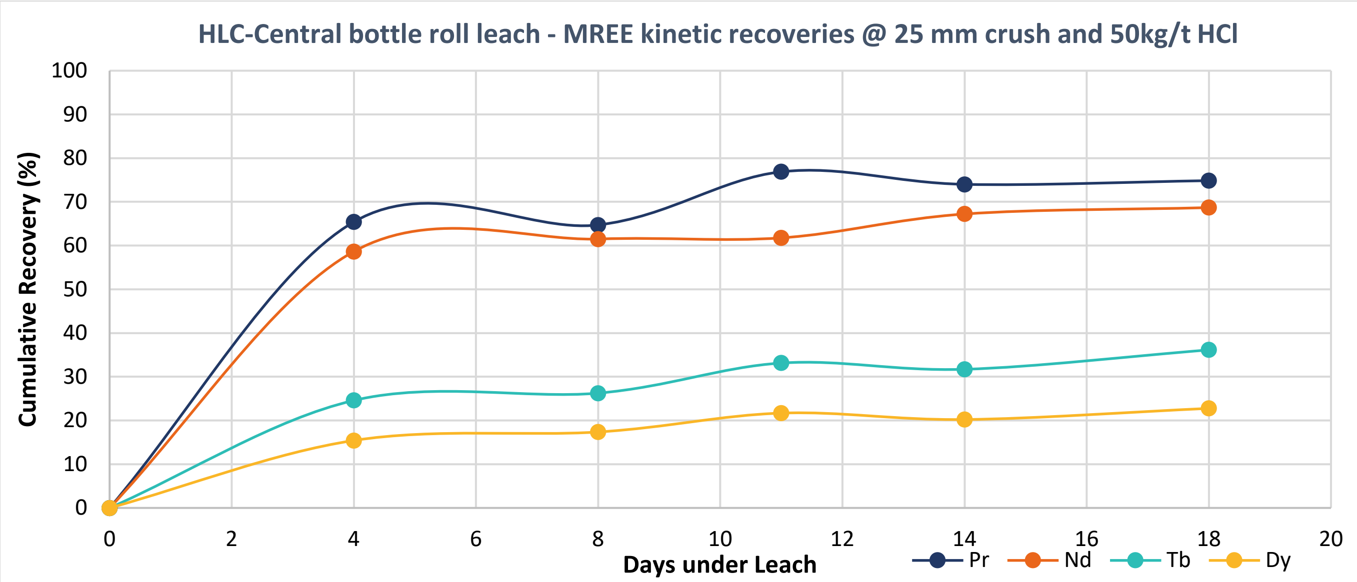


**Figure 7: HLC-Central bottle roll leach results – cumulative recovery by day**




## HLC-East results (presented in Table 5 and Figures 8 and 9)

Results reported encompass the eastern zone of the Toongi deposit from the surface to an RL of 360 m. Mineralisation is identified below this RL and will be assessed in subsequent testwork programs.

Based on the recovery results from the bottle roll leaching, the following observations can be made:

- **Similar to the HLC-West and HLC-Central composites, the leaching is rapid with final recoveries achieved around 18 to 20 days.**
- **Increased overall recoveries for the 12.5 mm and 6 mm crush sizes over the 25 mm crush size** – approximately a 4% increase in Nd/Pr recoveries and a 26% increase in Tb/Dy recoveries.
- **Little to no difference in overall recoveries between the 12.5 mm and 6 mm crush sizes at similar starting acid concentrations.**
- **The 50kg/t compared to the 20kg/t starting acid concentration improves the overall recovery of Nd/Pr and is more pronounced with increasing crush size –** approximately 17%, 15% and 11% respectively for the 25 mm, 12.5 mm and 6 mm sizes.
- **The 50kg/t compared to the 20kg/t starting acid concentration on average only slightly improves overall recovery of Tb/Dy for the 25 mm and 12.5 mm crush sizes but shows no improvement for the 6 mm crush size.**
- **The optimal recovery for HLC-East appears to correspond to the 12.5 mm crush size @ 50kg/t starting acid concentration**. Under this regime, final recoveries of Pr, Nd, Tb and Dy were 82.7%, 75.9%, 27.1% and 17.1% respectively.

**Table 5: Summary of Phase B bottle roll results for HLC-East**

| RE Element | HLC-East Final Extraction (%) (MS-81 Fusion/acid digestion/ICP-MS for solids, ICP-OES for liquids) | | | | | |
|---|---|---|---|---|---|---|
| | 25 mm crush | | 12.5 mm crush | | 6 mm crush | |
| | 50g/L HCl | 50g/L HCl | 50g/L HCl | 50g/L HCl | 50g/L HCl | 50g/L HCl |
| La | 83.9 | 73.4 | 88.5 | 77.5 | 88.2 | 78.9 |
| Ce | 75.2 | 65.2 | 79.8 | 68.1 | 79.3 | 70.4 |
| Pr | 79.7 | 68.6 | 82.7 | 72.5 | 82.7 | 74.0 |
| Nd | 72.9 | 61.9 | 75.9 | 65.5 | 75.8 | 68.1 |
| Sm | 51.4 | 43.4 | 53.8 | 44.8 | 52.7 | 48.9 |
| Eu | 46.8 | 33.8 | 43.9 | 34.4 | 45.0 | 36.2 |
| Gd | 38.2 | 29.8 | 36.6 | 26.8 | 34.9 | 34.8 |
| Tb | 20.2 | 23.5 | 27.1 | 19.6 | 26.0 | 27.4 |
| Dy | 14.3 | 11.9 | 17.1 | 6.3 | 16.4 | 16.9 |
| Ho | 14.8 | 12.6 | 16.8 | 8.3 | 15.5 | 16.6 |
| Er | 4.4 | 0.9 | 7.2 | -0.5 | 4.3 | 7.8 |
| Tm | 16.5 | 13.0 | 20.7 | 11.5 | 16.4 | 21.6 |
| Yb | 8.1 | 3.0 | 13.2 | 1.2 | 7.9 | 10.2 |
| Lu | 15.9 | 8.2 | 15.8 | 8.6 | 13.7 | 17.0 |
| Y | 14.6 | 6.0 | 14.4 | 5.0 | 11.3 | 12.6 |

**Figure 8: HLC-East bottle roll leach REE recovery by element**

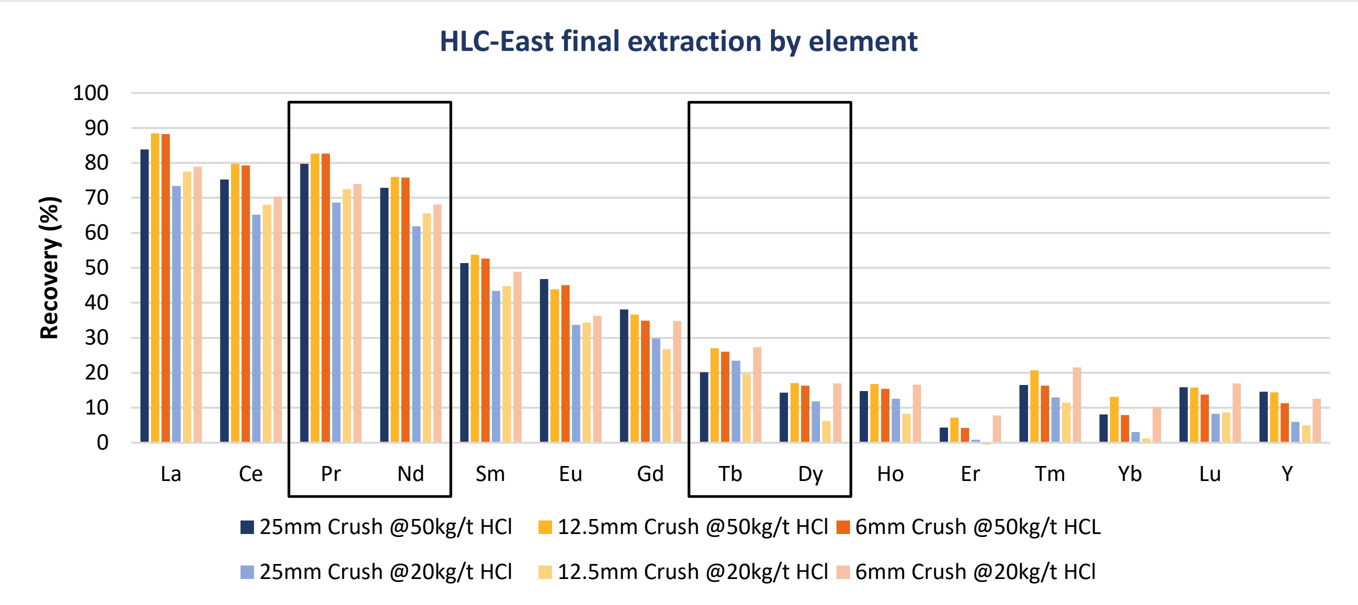
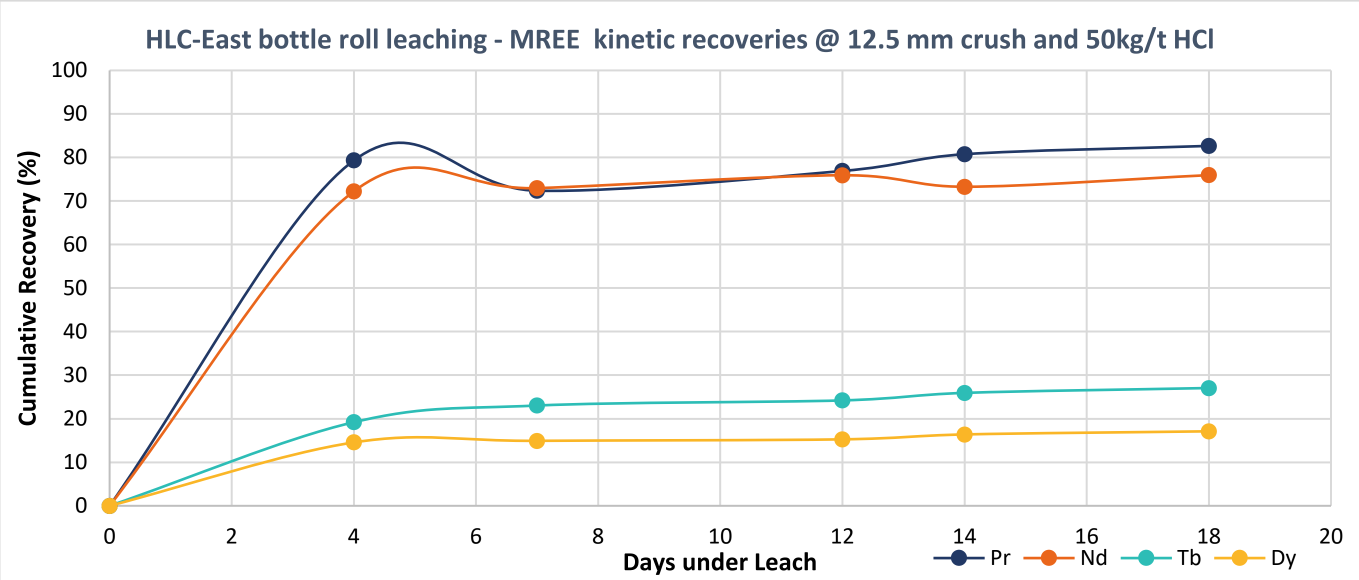


**Figure 9: HLC-East bottle roll leach results – cumulative recovery by day**




## Further testwork

The results from the Phase B Program are currently being used to establish parameters for the upcoming column leaching testwork which is due to commence in late June 2025. The column tests are the next phase in heap leach testwork development and will test the amenability of the Dubbo Project ore to heap leaching in greater detail. This testwork is expected to be operated over a three-to-four-month period. The column testwork will utilise the same three composites used in the bottle roll testwork for consistency and representativity.

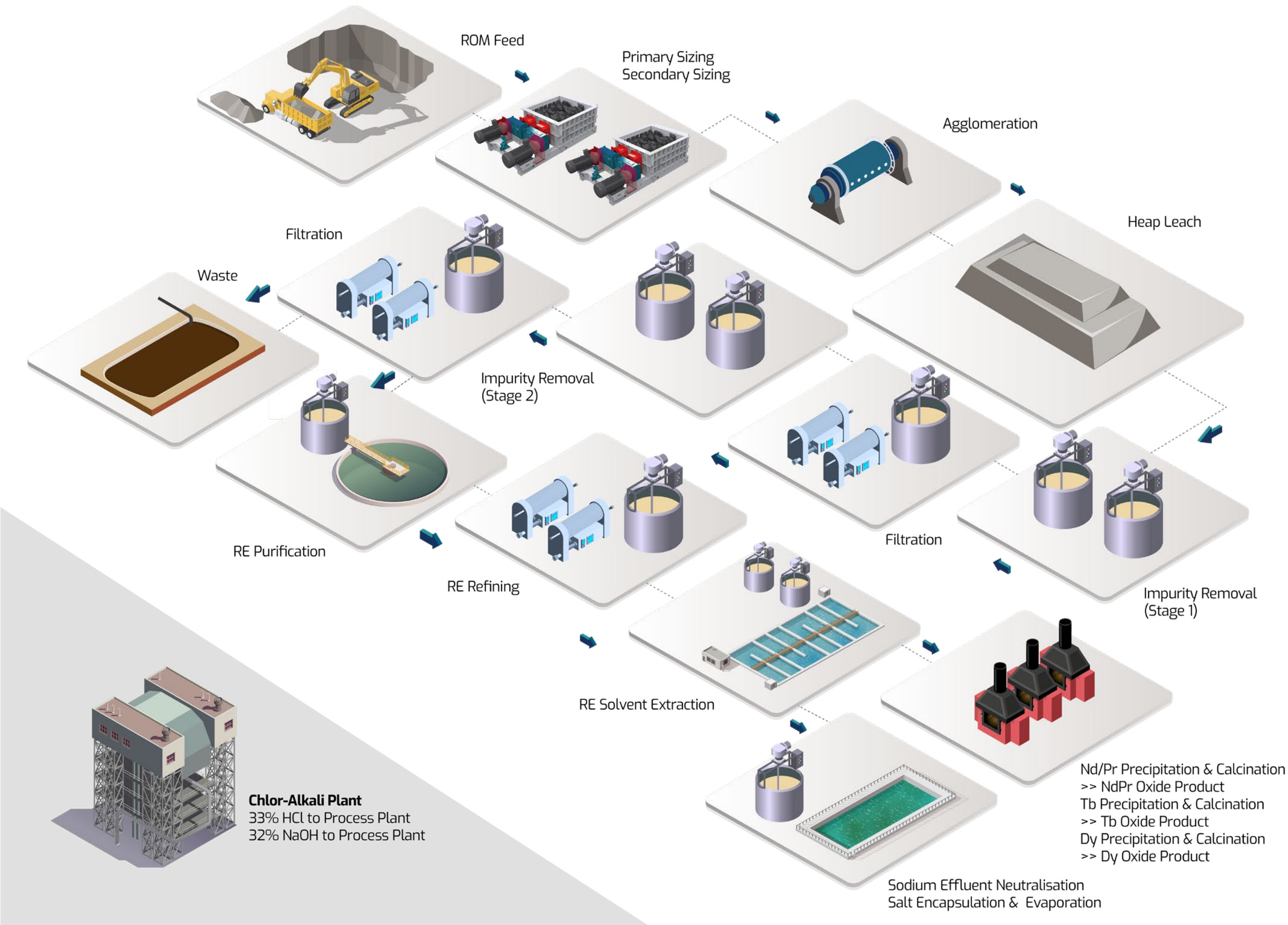
In addition to the column testwork, a further round of bottle roll tests is currently being planned to evaluate the deeper zones of the ore deposit. A similar compositing method will be employed as for the Phase B Program, targeting the drill core sample from RL360 mL down to RL330 mL (the Phase B Program tested sample from surface to RL360 mL).

## Simplified processing flowsheet

As part of the REOA and running in parallel with the metallurgical testwork, ASM has been progressing an engineering study on the heap leach flowsheet. This study utilises the heap leach for extraction of the rare earth elements from the Dubbo Project together with impurity removal and rare earth purification and separation technology already established for the Project through our long association with ANSTO (Australian Nuclear Science and Technology Organisation). This flowsheet is outlined in Figure 10.

**This flowsheet represents a potentially significantly lower capital and operating cost footprint than the industry standard grinding, flotation, drying, high-temperature acid baking (roasting), solid-liquid separation and large reagent consuming processes employed or proposed by most hard rock rare earth projects.**

**Figure 10: Proposed Heap Leach Flowsheet**




## Implications of the results

The results from this Phase B Program have identified a potential pathway to a simplified flowsheet centering around a low-cost industry-proven heap leaching method using dilute hydrochloric acid to achieve significant recoveries of rare earths from the Dubbo Project ore body.

These encouraging results add to ASM's confidence in a potential phased product approach to the Dubbo Project, commencing with a simple, low-cost, low-capital, heap leach process for separated rare earth oxide production. Key leach parameters have now been outlined for more detailed investigation.

"The results we have seen from the heap leach bottle roll testwork point to the opportunity for a phased implementation of the Dubbo Project focused on the initial recovery of light and heavy rare earths. This has the potential to deliver multiple benefits across funding, construction and capital requirements as we look to move the project into the execution phase," said Ms Smith.

These results will be leveraged by ASM in completing a Scoping Study that will provide a high-level economic evaluation of a rare earth focused, heap leach first phase implementation of the Dubbo Project. ASM anticipates updating the market on the outcome of that Scoping Study in early Q3 of CY2025.

In addition, ASM will further evaluate the heap leach recovery results by commencing a column testing regime which is expected to conclude in the second half of calendar year 2025.

The REOA work to date has been partially funded by a grant from the Australian Federal Government's International Partnerships in Critical Minerals Program[1]. This funding will continue to support the next stage of the REOA work.

**Potential benefits of a phased execution at the Dubbo Project**

- **Shorter implementation**
  An accelerated pathway to production of separated REE oxides at Dubbo, importantly including those restricted by Chinese export controls.
- **Lower capital and operating cost**
  Reduced initial capex expenditure and first phase opex costs, easing funding requirements – both debt and equity.
- **Focused pre-development**
  Streamlines the Front-End Engineering Design work, reducing pre-development costs for the Dubbo Project.
- **Simplified offtakes**
  A first phase will produce separated REE oxide products only, simplifying offtake agreements – a key funding requirement.
- **Easier funding**
  Facilitates funding for the second phase with an operational first phase.

**- ENDS -**

**FOR MORE INFORMATION PLEASE CONTACT:**


| Investors | Media |
|---|---|
| Stephen Motteram<br>CFO, ASM Ltd<br>+61 8 9200 1681 | Ian Donabie<br>Manager Communications<br>+61 424 889 841<br>idonabie@asm-au.com |


*This document has been authorised for release to the market by the Board.*

[1] Refer ASX Release, 15 October 2024: *ASM awarded A$5M Federal Government grant for Dubbo Project*

## Resource table

<table>
<tr><th rowspan="2">Resource Category</th><th rowspan="2">Tonnes (Mt)</th><th rowspan="2">$ZrO_2$ (%)</th><th rowspan="2">$HfO_2$ (%)</th><th rowspan="2">$Nb_2O_5$ (%)</th><th rowspan="2">$Ta_2O_5$ (%)</th><th rowspan="2">$Y_2O_3$ (ppm)</th><th rowspan="2">TREO* (ppm)</th><th colspan="4" rowspan="2">MREO** (ppm)</th></tr>
<tr></tr>
<tr><td rowspan="2">Measured</td><td rowspan="2">42.81</td><td rowspan="2">1.89</td><td rowspan="2">0.04</td><td rowspan="2">0.45</td><td rowspan="2">0.03</td><td rowspan="2">1400</td><td rowspan="2">7400</td><td colspan="4">1660</td></tr>
<tr><td>$Nd_2O_3$<br>1100</td><td>$Pr_6O_{11}$<br>340</td><td>$Dy_2O_3$<br>190</td><td>$Tb_4O_7$<br>30</td></tr>
<tr><td rowspan="2">Inferred</td><td rowspan="2">32.37</td><td rowspan="2">1.9</td><td rowspan="2">0.04</td><td rowspan="2">0.44</td><td rowspan="2">0.03</td><td rowspan="2">1400</td><td rowspan="2">7400</td><td colspan="4">1670</td></tr>
<tr><td>$Nd_2O_3$<br>1100</td><td>$Pr_6O_{11}$<br>350</td><td>$Dy_2O_3$<br>190</td><td>$Tb_4O_7$<br>30</td></tr>
<tr><td>Total</td><td>75.18</td><td>1.89</td><td>0.04</td><td>0.44</td><td>0.03</td><td>1400</td><td>7400</td><td colspan="4">1660</td></tr>
</table>

## Competent Persons Statement

The scientific and technical information that relates to process metallurgy is based on information reviewed by Mr Wayne Dicinoski (General Manager - Technical) of Australian Strategic Materials Limited. Mr Dicinoski is a member of the AusIMM and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined by the JORC Code. Mr Dicinoski participates in the Company's employee securities incentive plan. Mr Dicinoski consents to the inclusion in this announcement of the matters based on their information in the form and context in which it appears.

The information in this document that relates to ASM's Mineral Resources or Ore Reserves is extracted from ASM's ASX announcement titled "Dubbo Project Optimisation Delivers Strong Financials" released to ASX on 7 December 2021 and is available at www.asx.com.au. ASM confirms that it is not aware of any new information or data that materially affects the information included in that original market announcement and that all material assumptions and technical parameters underpinning the estimates in that announcement continue to apply and have not materially changed. ASM confirms that the form and context in which the findings of the Competent Person are presented have not been materially modified from the original market announcement. The Competent Person for that announcement was Mr D I Chalmers.

## JORC Code, 2012 Edition – Table 1 report template

**Section 1 Sampling Techniques and Data**

**(Criteria in this section apply to all succeeding sections.)**

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Sampling techniques* | • *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* | • Diamond drillhole (DDH) core sample intervals were defined by a geologist during logging to honour geological boundaries, were relevant, the core was cut with a Corewise automatic core saw.<br>• The diamond drillholes were orientated to ensure drill intersections were approximately perpendicular to the disseminated mineralisation hosted throughout the flat lying trachyte body. |
| | • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* | • Sampling and QAQC procedures are carried out using ASM protocols as per industry best practice. |
| | • *Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.* | • Core was laid out in suitably labelled core trays. A core marker (core block) was placed at the end of each drilled run (nominally 3m) and labelled with the hole number, down hole depth, length of drill run. Core was aligned and measured by tape, comparing back to this down hole depth consistent with industry standards. Half core is cut with a Corewise automatic core saw.<br>• Mineralisation is disseminated throughout the host trachyte and has been determined by differing geochemistry methods. Predominantly the geochemistry lab method used in relation to the samples used in the metallurgical activities detailed above, a lithium metaborate fusion followed by an inductively coupled mass spectrometry method by ALS. |
| *Drilling techniques* | • *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).* | • Two different diamond drilling methods were used to drill the 11 holes of various depth:<br>1. 9 holes via triple tube diamond drilling with HQ3 bit wireline producing 61.1mm diameter (HQ3) sized core.<br>2. 2 holes via Triple tube diamond drilling with PQ3/HQ3 bit wireline producing 83mm diameter (PQ3) and 61.1mm diameter (HQ3) sized core.<br>• The core was not oriented, drilled vertically. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Drill sample recovery* | • *Method of recording and assessing core and chip sample recoveries and results assessed.* | • Core loss was identified by drillers and calculated by geologists when logging. ≥98.5% of core was recovered, with loss typically in portions of the oxide cover sequence. |
| | • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* | • Triple tube coring was used to maximise core recovery, larger diameter (PQ3) core was used where the cover sequence/oxide zone was considered significant.<br>• Sample quality is qualitatively logged. |
| | • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.* | • There is no known relationship between sample recovery and grade |
| *Logging* | • *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* | • The core was geologically logged for characteristics such as lithology, weathering, alteration (type, character and intensity), veining (type, character and intensity) and mineralisation (type, character and volume percentage) |
| | • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* | • Mostly logging was qualitative with visual estimates of the various characteristics.<br>• All drill holes were geologically logged into Geobank Mobile, followed by validation before importing into the central Geobank database.<br>• Each tray of core is photographed post logging prior to being cut.<br>• All drill holes were logged by qualified and experienced geologists. |
| | • *The total length and percentage of the relevant intersections logged.* | • All drill holes were logged in full. |
| *Sub-sampling techniques and sample preparation* | • *If core, whether cut or sawn and whether quarter, half or all core taken.* | • Various core types (half core, quarter core and full core) contributed to the metallurgical testwork. Where relevant the core was sawn by Corewise automatic core saw. See Table 1 within this announcement. |
| | • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* | • Only core samples are relevant to this announcement. |
| | • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* | • Being as the diamond core drill-holes were drilled vertically, the split line from the beginning of the run was extended along length of run to be used as a cut line for the core saw (to remove placement of the cut line from geologists determination). Samples (between >0.3m and <1.3m) were delivered to ALS Minerals Laboratory, Orange NSW. Crushed with 70% <2mm (ALS code CRU-31), split by Boyd Rotary splitter (ALS code SPL-21 or SPL-22Y), and up to 250g pulverized to 85% <75um (ALS code PUL-31). Crushers and pulverisers are washed |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | with QAQC tests undertaken (ALS codes CRU-QC, PUL-QC and WSH-22). |
| | • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* | • Internal QAQC system in place to determine accuracy and precision of sampling and the resulting assays. |
| | • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* | • Non-biased core cutting using a line marked on the core determined by the split line at the beginning of the run (this is done after the core is interlocked).<br>• Matric matched Certified Reference Materials and blanks regularly submitted with samples per the internal QAQC system. |
| | • *Whether sample sizes are appropriate to the grain size of the material being sampled.* | • Samples for geochemistry were considered of appropriate size, all samples <1.3m and predominantly >0.3m. Sample size took into consideration the grain size and the disseminated nature of the ore minerals. |
| *Quality of assay data and laboratory tests* | • *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* | • All samples were analysed by ALS Minerals.<br>• All samples underwent the high-grade rare earth specific geochemical method provided by ALS. Lab code: ME-MS81h. This is a total dissolution method (lithium metaborate fusion ICP-MS method). |
| | • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* | • No geophysical tools were used to determine any element concentrations |
| | • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.* | • Full QAQC system in place, which includes the regular use of matrix/ concentration matched Certified Reference Materials and blanks submitted with samples.<br>• Certified Reference Materials, blank samples and duplicates were inserted into the drill sample stream such as to represent approximately 5% of the samples submitted to the laboratory for analysis. |
| *Verification of sampling and assaying* | • *The verification of significant intersections by either independent or alternative company personnel.* | • Drill data is compiled, collated, and reviewed by senior staff or independent personnel. External consultants do not routinely verify exploration data until deemed necessary. |
| | • *The use of twinned holes.* | • No twinned (duplicated) holes have been drilled. |

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td><ul><li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li></ul></td><td><ul><li>All drill hole logging and sampling data are entered directly into Geobank Mobile in the field for validation, transfer, and storage into Geobank database with verification protocols in place.</li><li>All primary assay data is received from the laboratory as electronic data files which are imported into sampling database with verification procedures in place. QAQC analysis is undertaken for each laboratory report.</li></ul></td></tr>
<tr><td></td><td><ul><li>Discuss any adjustment to assay data.</li></ul></td><td><ul><li>Multielement results (REE and other) are converted to stoichiometric oxide (REO and other) using element-to-stoichiometric conversion factors:</li></ul>
<table>
<tr><th>Element (ppm)</th><th>Conversion Factor</th><th>Oxide Form</th></tr>
<tr><td>Ce</td><td>1.2284</td><td>$CeO_2$</td></tr>
<tr><td>Dy</td><td>1.1477</td><td>$Dy_2O_3$</td></tr>
<tr><td>Er</td><td>1.1435</td><td>$Er_2O_3$</td></tr>
<tr><td>Eu</td><td>1.1579</td><td>$Eu_2O_3$</td></tr>
<tr><td>Gd</td><td>1.1526</td><td>$Gd_2O_3$</td></tr>
<tr><td>Hf</td><td>1.1793</td><td>$HfO_2$</td></tr>
<tr><td>Ho</td><td>1.1455</td><td>$Ho_2O_3$</td></tr>
<tr><td>La</td><td>1.1728</td><td>$La_2O_3$</td></tr>
<tr><td>Lu</td><td>1.1371</td><td>$Lu_2O_3$</td></tr>
<tr><td>Nb</td><td>1.4305</td><td>$Nb_2O_5$</td></tr>
<tr><td>Nd</td><td>1.1664</td><td>$Nd_2O_3$</td></tr>
<tr><td>Pr</td><td>1.2082</td><td>$Pr_6O_{11}$</td></tr>
<tr><td>Sm</td><td>1.1596</td><td>$Sm_2O_3$</td></tr>
<tr><td>Ta</td><td>1.2211</td><td>$Ta_2O_3$</td></tr>
<tr><td>Tb</td><td>1.1762</td><td>$Tb_4O_7$</td></tr>
<tr><td>Tm</td><td>1.1421</td><td>$Tm_2O_3$</td></tr>
<tr><td>Y</td><td>1.2699</td><td>$Y_2O_3$</td></tr>
<tr><td>Yb</td><td>1.1387</td><td>$Yb_2O_3$</td></tr>
<tr><td>Zr</td><td>1.3508</td><td>$ZrO_2$</td></tr>
</table>
</td></tr>
</table>

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | • Rare earth oxide is the industry accepted form for reporting rare earths. The following calculations are used for compiling REO into their reporting and evaluation groups:<br>- TREO (Total Rare Earth Oxide) = $La_2O_3$ + $CeO_2$ + $Pr_6O_{11}$ + $Nd_2O_3$ + $Sm_2O_3$ + $Eu_2O_3$ + $Gd_2O_3$ + $Tb_4O_7$ + $Dy_2O_3$ + $Ho_2O_3$ + $Er_2O_3$ + $Tm_2O_3$ + $Yb_2O_3$ + $Lu_2O_3$ ***(excluding $Y_2O_3$)***<br>- MREO (Magnetic Rare Earth Oxide) = $Pr_6O_{11}$ + $Nd_2O_3$ + $Tb_4O_7$ + $Dy_2O_3$<br>- $ZrO_2$, $HfO_2$, $Nb_2O_5$, $Ta_2O_5$, $Y_2O_3$, Th and U are reported separately to the TREO%<br>• There are three commonly applied approaches to calculating extraction for leaching:<br>- **Tail over Head**, which is calculated as 1 – tail grade/head grade. Where notable mass loss occurs in leaching, as is common for acid leaching, the tail grade is increased due to the mass loss and would result in an underestimated extraction. In this case, the tail grade is corrected via accounting for the solids mass loss.<br>- **Mass Basis**, which is calculated as element mass in liquor/ (element mass in liquor + element mass in solids) for the discharge liquor and solids. This method ignores the head assay and somewhat eliminates sampling error impacting the head assay. It also accounts for any mass loss within the test.<br>- **Liquor out over solids in**, which is calculated as element mass in liquor/element mass in solids in. This method is the most prone to error, as it includes sampling error on the head assay, error in the liquor assay and error in the liquor SG assay. Small errors in the liquor assay can results in large percentage differences in extraction when the extraction extent is high (>70%) due to the nature of the calculation.<br>• The tail over-head extraction method has been used throughout the testwork program for rare earth elements. The final residue from IBRT was completely pulverised prior to sampling to ensure the final residue assay was reliable.<br>• The liquor out over solids in method has been used for kinetic extractions for the IBRT tests due to tail/head and mass basis extraction methods not being feasible. The kinetic extraction curves presented in the report have been normalised against the final tail over head extractions. |
| *Location of data points* | • *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* | • Drillholes are laid out using hand-held GPS (accuracy ±2m) then DGPS surveyed accurately (± 0.1m) by licensed surveyors on completion. |
| | • *Specification of the grid system used.* | • Grid system: GDA94, MGA (Zone 55) |
| | • *Quality and adequacy of topographic control.* | • DGPS surveyed accurately (± 0.1m) by licenced surveyors. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Data spacing and distribution* | • *Data spacing for reporting of Exploration Results.* | • Seven diamond-core holes completed in late 2024 have been combined with three earlier diamond-core holes (Figure 1; Table 1 of this announcement) to create metallurgical composites for testwork<br>• The diamond drill holes do not form part of, or alter the current mineral resource and have been used for metallurgical testwork only. |
| | • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* | • No changes to the estimation of the current mineral resource were evaluated as part of the work carried out for this announcement.Refer ASM's ASX Announcement titled "Dubbo Project Optimisation Delivers Strong Financials" released to ASX on 7 December 2021 for ASM's Mineral Resource statement. |
| | • *Whether sample compositing has been applied.* | • The deposit has been divided into three east-to-west composite zones—HLC-East, HLC-Central, and HLC-West. Seven diamond-core holes completed in late 2024 have been combined with three earlier diamond-core holes to create one metallurgical composite for each zone, with three drill holes contributing to every composite. Details around sample selection etc can be found within the body of this release. See Figure 1 and Table 1 within this announcement for specific details. |
| *Orientation of data in relation to geological structure* | • *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* | • Drillholes were vertical and approximately perpendicular to the disseminated mineralisation hosted throughout the flat lying trachyte body. Geochemical and petrology have informed the mineralisation style understanding. The sampling and drill orientation are not considered to provide a bias. |
| | • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.* | • No key mineralisation structures have been observed. Mineralisation has been observed as disseminated throughout the host trachyte. |
| *Sample security* | • *The measures taken to ensure sample security.* | • All samples are bagged into tied calico bags, calicos are grouped into polyweave bags, the polyweave bags are grouped into bulk bags, bulk bags are placed into plastic tubs and transported to ALS Minerals Laboratory in Orange via freight companies. The calico to the resulting bulk bag is documented internally and cross checked with ALS tracking system.<br>• All sample submissions are documented via ALS tracking system with results reported via email.<br>• Sample pulps are returned to site and stored for an appropriate length of time (minimum 3 years).<br>• The Company has in place protocols to ensure data and sample security. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Audits or reviews* | • *The results of any audits or reviews of sampling techniques and data.* | • Regular metallurgical result reviews were conducted between ASM and the technical team at Core Resources. The results were reviewed and analysed by ASM's General Manager-Technical, and verified by external independent metallurgical specialists, for inclusion in this announcement. |

## Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Mineral tenement and land tenure status* | • *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* | • The mining lease ML1724 of which the Dubbo Project is within is wholly owned by Australian Strategic Materials Pty Ltd. |
| | • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.* | • The licence is in good standing, with the mining lease granted and expiring on the 18/12/2036. |
| *Exploration done by other parties* | • *Acknowledgment and appraisal of exploration by other parties.* | • All work has been completed by Australian Strategic Materials Ltd (formerly known as Australian Zirconia Ltd) and prior to 2020 by the parent company Alkane Resources Pty Ltd.<br>• The historical data has been assessed and is considered of good quality. |
| *Geology* | • *Deposit type, geological setting and style of mineralisation.* | • The deposit consists of rare earth oxide mineralisation disseminated throughout a trachyte laccolith that occurs within the sedimentary units of the Jurassic Napperby Formation. Extensive fractionation at shallow crustal levels and limited volatile release developed enrichment of REE and HFSE within the host intrusive. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Drill hole Information* | • *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*<br>○ *easting and northing of the drill hole collar*<br>○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*<br>○ *dip and azimuth of the hole*<br>○ *down hole length and interception depth*<br>○ *hole length.* | • See Table 1 within the announcement. |
| | • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.* | • All drill holes and relevant information have been reported in this announcement. |
| *Data aggregation methods* | • *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* | • No data aggregation methods have been applied. |
| | • *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | • No metal equivalents are reported. |
| *Relationship between mineralisation widths and intercept lengths* | • *These relationships are particularly important in the reporting of Exploration Results:*<br>- *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*<br>- *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').* | • The drillholes intercepted the mineralised body at an approximately perpendicular angle. Drilled width is approximately true width. |
| *Diagrams* | • *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.* | • Plans showing geology with drill collars are included within the announcement. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Balanced reporting* | • *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.* | • All composite bottle roll testwork results have been reported. See text of this announcement and refer to Table 3 to 5 and Figures 4 to 9. |
| *Other substantive exploration data* | • *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.* | • Bottle roll testing procedure performed by Core Resources and subsequent results are detailed within the announcement. |
| *Further work* | • *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* | • Column leach testwork planned to commence June 2025, trialing different crush sizes, agglomeration characteristics, acid addition rates and leaching duration.<br>• Extension of the bottle roll testwork program to evaluate the deeper zones of the Toongi ore deposit. A similar compositing method will be employed as for the Phase B Program, targeting drill core sample from RL360 mL down to RL330 mL (the Phase B Program tested sample from surface to RL360 mL).<br>• Impurity removal and mixed rare earth precipitation testwork on leach liquors generated from IBRT discussed in this report are underway. |
| | • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | • NA |

**[Ends]**