PURE RESOURCES LIMITED | ASX:PR1

PR1 Targets REE Used in Quantum Computing as ORNL SPP Advances to Phase Characterisation

Programme scope directed beyond the magnet rare earths to the heavy and minor rare earths on which quantum computing, quantum networking, photonics, precision optics and defence systems depend.

HIGHLIGHTS

- The Company's rare earth recovery programme with Oak Ridge National Laboratory is directed at the full rare earth suite - not the neodymium–praseodymium magnet pair alone - including the heavy and minor rare earths on which **quantum computing and quantum networking** hardware depend.
- **Quantum computing** platforms use rare earth elements as functional materials rather than as bulk commodities: **erbium** in telecom-band quantum networking, **ytterbium** in trapped-ion qubits, **europium** and **praseodymium** in solid-state quantum memory research, and yttrium as the host crystal lattice and in microwave components. Neodymium and ytterbium are also used in the laser systems that control qubits.
- The characterisation work supports the invention disclosure, X-ray diffraction and Raman spectroscopy work has been undertaken at ORNL to identify the phases present in the reaction products generated from Garnet Hills garnet under Strategic Partnership Project No. NFE-25-10985.
- Work remains laboratory-scale, preliminary and qualitative. No recovery figures, purities, grades, Exploration Results, Mineral Resources or Ore Reserves are reported. The recovery method is the subject of the Company's collaboration with ORNL and is being protected as confidential intellectual property, with a prospective patent filing and licensing pathway; process details are not disclosed in this announcement.
- Rare earth volumes consumed by quantum computing and quantum information research are very small in absolute terms and the Company does not expect them to be material to revenue. The relevance of these applications to the Company is technical and strategic, not a volume market opportunity.

ANNOUNCEMENT

ORNL Programme Advances to Phase Characterisation of Reaction Products

Pure Resources Limited (ASX: PR1) ("Pure Resources" or the "Company") provides an update on the progress of its Strategic Partnership Project (SPP No. NFE-25-10985) ("SPP") with Oak Ridge National Laboratory ("ORNL"), a United States Department of Energy national laboratory, concerning the recovery of rare earth elements from garnet from the Company's Garnet Hills Project.

Further to the Company's earlier announcement that rare earth elements ("REE"), including heavy rare earth elements, had been recovered into solution from Garnet Hills garnet at a proof-of-concept stage[1], ORNL has progressed the programme to the characterisation of the reaction products generated by the process. X-ray diffraction and Raman spectroscopy measurements have been undertaken by a specialist group at ORNL to identify the phases present.

The purpose of this work is to establish precisely what the process produces. That understanding is a necessary input to the invention disclosure being progressed under the partnership and to the design of the next phase of testwork.

To preserve the commercial value of the technology ahead of a prospective patent filing and any licensing process, the process itself, its reagents, conditions, proportions, and all associated analytical data remain confidential and are not disclosed in this announcement.

The Company also takes this opportunity to set out the strategic reasoning behind the scope of the programme. The programme is not confined to the neodymium and praseodymium used in permanent magnets. It is directed at the full rare earth suite, including the heavy and minor rare earths that are used in quantum computing hardware, quantum networking, photonics, precision optics and defence systems.

DETAIL — PROGRAMME

Programme Progress

Since the Company's last update on the partnership, ORNL has completed a series of experiments varying the key process parameters, and has transferred the resulting products to a separate ORNL group for phase identification by X-ray diffraction and Raman spectroscopy. The Company is progressing an invention disclosure in respect of the process developed under the partnership.

No quantified recovery figure has been established. Quantifying and optimising recovery, and assessing the distribution of individual rare earth elements, remain the focus of the next phase of testwork.

[1] HREE Successfully Recovered from Garnet Hills – ORNL – Dated 21 August 2026.

COMMENTARY

Rocco Tassone, Chief Executive Officer

> *"Most rare earth projects are assessed on neodymium and praseodymium for magnets. Our objective with ORNL is deliberately broader. The heavy and minor rare earths - erbium, ytterbium, yttrium and europium among them - are the elements that photonics and quantum hardware depend on. They are produced in small volumes globally, separated almost entirely within a single jurisdiction, and in most of these applications they cannot be substituted. That is why we asked ORNL to look at the full suite rather than the magnet pair alone. This work is early-stage and laboratory-scale, and there is a great deal still to establish, but understanding precisely what our process produces is the necessary next step before anything further can be assessed."*
>
> **— Rocco Tassone, Chief Executive Officer Pure Resources Limited**

DETAIL — TECHNOLOGY CONTEXT

Rare Earths in Quantum Computing and Quantum Networking

Quantum computing is generally discussed by reference to superconductors, cryogenics and control electronics. Rare earth elements are a less visible but recurring input across several of the leading hardware approaches. The following description is general industry information compiled from publicly available sources. It is not Company data and it is not a statement about the Company's capability, products or customers.

- Erbium emits at approximately 1.54 micrometres, the wavelength at which the world's optical fibre network operates. Erbium-doped materials are therefore central to research into telecom-band quantum memories and quantum repeaters - the components required to link quantum processors over existing fibre infrastructure.
- Ytterbium is used as the ion species in trapped-ion quantum computing research and in optical atomic clocks, and ytterbium-doped fibre is used in laser gain media.
- Yttrium is used as the host crystal lattice for rare earth-doped optical and quantum memory materials, and yttrium iron garnet is used in microwave isolators and circulators in the control chain of superconducting quantum processors.
- Europium and praseodymium are used as dopants in solid-state optical and quantum memory research, where long coherence times have been demonstrated in laboratory settings.
- Neodymium and ytterbium are used in the laser systems that cool, initialise, control and read out qubits.

DETAIL — STRATEGIC CONTEXT

Why the Full Rare Earth Suite

These applications share a common characteristic. They do not consume rare earths in bulk; they consume very small quantities of rare earths at very high purity and with tightly specified impurity profiles. The Company's interest in quantum computing applications is accordingly a technical and strategic one — they define the upper end of the purity and specification spectrum, and they sit within the group of heavy and minor rare earths for which supply outside China is limited. They are not, and are not presented as, a volume market or a revenue thesis.

Rare earth projects are commonly assessed by reference to neodymium and praseodymium, the elements used in permanent magnets. The Company's objective under the ORNL programme is broader: to assess whether rare earths can be recovered from garnet across the full suite, including the heavy and minor rare earths used in the quantum computing, photonics and defence applications described above.

The Company's reasoning is that the heavy and minor rare earths are produced in small volumes globally, are separated almost entirely within a single jurisdiction, and are used in applications for which substitution is limited or unavailable. The table below is provided as general industry context to explain why the Company is assessing the broader suite.

ELEMENT	PRINCIPAL AND EMERGING APPLICATIONS (GENERAL INDUSTRY INFORMATION)
Neodymium, Praseodymium	Permanent magnets for electric vehicle traction motors, wind turbines and industrial drives.
Dysprosium, Terbium	High-temperature coercivity additives in neodymium-iron-boron magnets; defence actuators and sensors.
Erbium	Optical fibre amplifiers underpinning long-haul and subsea telecommunications; quantum computing and quantum networking research — telecom-band quantum memories and quantum repeaters at 1.54 micrometres.
Yttrium	Quantum computing hardware — host crystal lattices for rare earth-doped quantum memory materials and yttrium iron garnet microwave isolators in superconducting qubit control chains; thermal barrier and technical ceramics.
Europium	Quantum computing research — dopant in solid-state optical and quantum memory materials; phosphors.
Ytterbium	Quantum computing — trapped-ion qubit species and qubit control lasers; optical atomic clocks; fibre laser gain media.
Lutetium	Scintillator crystals for medical imaging and radiation detection.
Holmium, Thulium	Specialty laser gain media; magnetic and photonic research applications.

Table 1: General industry information compiled from publicly available sources. This is not Company data. The inclusion of an element in this table is not a statement that the element is present in, or recoverable from, Garnet Hills material, nor that the Company produces or will produce any product for the applications described.

NEXT STEPS

Planned Work Programme

- Completion of phase characterisation of the reaction products and incorporation of the findings into the invention disclosure.
- Expanded laboratory testwork by ORNL directed at quantifying recovery and assessing the distribution of individual rare earth elements, including the heavy rare earths.
- Preliminary assessment of separation and purification pathways for recovered rare earths.
- Advancing the Company's intellectual property position, including a prospective patent filing.

AUTHORISATION

Approval & Release

This announcement has been authorised for release by the Board of Pure Resources Limited.

Rocco Tassone
Chief Executive Officer
Pure Resources Limited

INVESTOR & MEDIA CONTACTS

Rocco Tassone, CEO investors@pureresources.com.au
Media enquiries media@pureresources.com.au

ABOUT

Pure Resources Limited (ASX: PR1) is an ASX-listed advanced materials and critical minerals company pursuing an integrated mine-to-market strategy — from 100% ownership of an upstream graphite and garnet asset in Western Australia, through a US DoE Strategic Partnership for heavy rare earths, to its TEMPERON™ Thermal Management funded downstream R&D collaboration with Rice University (Houston) in high-performance carbon nanotube fibre.

> ***THE MATERIAL OF THE INTELLIGENCE AGE***
>
> ***"CNTFs are not just an incremental improvement — they represent a step change in materials capability. Through advanced materials science, they unlock lighter, stronger and more conductive systems that redefine performance across defence, energy and advanced manufacturing. This is not evolution; it is a fundamental revolution in what materials can do."***

01 UPSTREAM

Garnet Hills Project
Graphite & Garnet

The Company's 100% owned **Garnet Hills Project** provides upstream exposure to graphite and garnet under a granted mining lease in Western Australia.

02 STRATEGIC PARTNERSHIP

Oak Ridge National Laboratory
HREEs & Yttrium

The deposit has attracted a **Strategic Partnership Projects Agreement with the US Department of Energy (DoE) Oak Ridge National Laboratory**, targeting the recovery of **Heavy Rare Earth Elements and Yttrium** for United States critical materials supply chains.

03 TEMPERON™

Rice University
Carbon Nanotube Fibre (CNTF)

Pure is executing a thermal management downstream strategy in collaboration with **Rice University**, focused on **Carbon Nanotube Fibre thermal management technology** for AI data centre infrastructure, defence, drones and robotics applications.

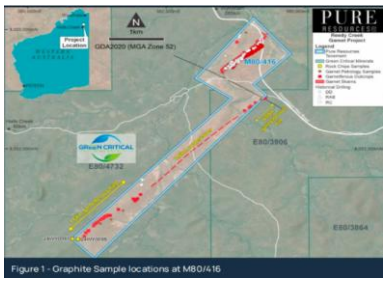

Fig. 1 Graphite sample locations at M80/416, Reedy Creek Garnet Project (GDA2020, MGA Zone 52).

• WESTERN AUSTRALIA · GRANTED MINING LEASE

Fig. 2 US DoE Oak Ridge National Laboratory — HREE & Yttrium recovery programme.

• US DEPARTMENT OF ENERGY · ORNL PARTNERSHIP

TEMPERON
THERMAL MANAGEMENT

Fig.3 TEMPERON™ is a trade mark for Pure Resources Ltd thermal management strategy".

• THERMAL MANAGEMENT STRATEGY IN COLLABORATION WITH RICE UNIVERSITY (HOUSTON)

DISCLAIMER

Competent Person and JORC Code (2012) Statement

This announcement does not report Exploration Results, Mineral Resources or Ore Reserves and is not stated to comply with the JORC Code (2012). No rare earth grades, Mineral Resource or Ore Reserve estimates are reported or implied. The information relating to the recovery of rare earth elements is metallurgical/processing testwork conducted by ORNL and is preliminary, qualitative and at a proof-of-concept stage. Any future disclosure of Exploration Results, grades, recoveries or estimates that falls within the scope of the JORC Code (2012) will be made only after review and sign-off by a relevant Competent Person and will include the disclosures required by the Code.

Previously Reported Information (ASX Listing Rule 5.23)

The information in this announcement that relates to the Exploration Results including recovery of rare earth elements, heavy rare earth elements, from Garnet Hills garnet under the SPP is extracted from the Company's ASX announcement titled "HREE Successfully Recovered from Garnet Hills – ORNL" dated 21 August 2026, which is available to view at www.asx.com.au and pureresources.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement. The Company confirms that the form and context in which the findings are presented have not been materially modified from the original market announcement.

Cautionary Statement

The activities and results described in this announcement relate to early-stage, laboratory-scale research and development. Results are preliminary and qualitative; no recovery rates or grades are reported. There is no assurance that these early indications will be confirmed by further testwork, that an economically viable process can be developed or scaled, or that any commercial or production outcome will result. Investors should not make investment decisions solely on the basis of the information in this announcement.

Forward-Looking Statements

*This announcement contains forward-looking statements concerning Pure Resources Limited (ASX: PR1) (**"Pure"** or the **"Company"**) and its current expectations, intentions and projections regarding the Company's future operating and financial performance, business plans, projects, strategies, prospects and the markets in which it operates. Forward-looking statements can generally be identified by the use of words such as "anticipate", "believe", "expect", "intend", "may", "plan", "project", "potential", "estimate", "target", "forecast", "guidance", "should", "will" and similar expressions.*

This announcement may contain forward-looking statements, including in relation to future testwork, the Company's intellectual property and commercialisation plans, and the potential of the Garnet Hills Project. Forward-looking statements are based on the Company's current expectations and assumptions and are subject to known and unknown risks, uncertainties and other factors, many of which are beyond the Company's control, and actual results may differ materially. The Company does not undertake to update forward-looking statements except as required by law. The research and analytical results are produced by ORNL; certain information remains confidential and/or subject to ORNL approval prior to release and is omitted from this announcement.