Pure Forges IP Collaboration for Carbon Nanotube Fibre Thermal Management Systems

Highlights

- **Pure enters Research & Development Collaboration with Rice University to research carbon nanotube fibre (CNTF) thermal management systems for advanced electronics**
- **Collaboration focused on the use of graphite materials in 3D CNTF heat sink architectures, a new class of lightweight, thermal infrastructure for high power computing environments**
- **CNTF systems facilitate directional heat management through recyclable textile-enabled 3D architectures that are unattainable with traditional metal machining.**
- **The research team will be led by Professor Matteo Pasquali a global pioneer in carbon nanotube fibre technology**
- **Initiative extends Pure's graphite mine-to-materials strategy, exploring downstream opportunities in advanced carbon materials from the Company's Garnet Hills Project**
- **Garnet Hills Project surrounded by GCM Corporation Ltd's (ASX:GCM) McIntosh Graphite Project**

Pure Resources Limited (ASX:PR1) ("**Pure**" or "**Company**") is pleased to announce it has entered into a sponsored research and development collaboration with Rice University (Houston, Texas) to research and develop advanced thermal management systems based on Carbon Nanotube Fibre (**CNTF**) heat sink architectures.

The collaboration will focus on evaluating CNTF materials for high-performance cooling applications for such uses as AI data centres, advanced electronics and defence systems. The team will be backed by Rice University who is at the forefront of global carbon nanotechnology and advanced materials science.

Rice's critical minerals and materials science capability has been validated through partnerships with ASX listed Metallium Ltd (ASX:MTM) on Flash Joule Heating and Locksley Resources Ltd (ASX:LKY) on the DeepSolve technology, underscoring Rice's position as a repeat collaborator in scalable, high-impact materials innovation.

The research to be undertaken by the collaboration targets structural bottlenecks designed to unlock next-generation performance in Hyperscale **AI data centres, directed-energy weapons and advanced** RF platforms and autonomous defence systems. The key material terms of the research and development collaboration are set out on page 2 below.

The collaboration will utilise graphite and carbon materials from the Company's 100% owned Garnet Hills Project and will produce intellectual property and technical data points that will assist the Company in determining potential commercial applications for the Project's materials going forward.

Recent petrographic studies on the Company's Garnet Hills Project have confirmed the presence of large to jumbo flake graphite, with typical flake sizes averaging ~200 µm and occurrences exceeding 300 µm, supporting strong beneficiation and premium pricing potential[1]. The graphite is clean, inclusion-free and hosted in high-grade metamorphic rocks, positioning Garnet Hills as a technically compelling hard-rock graphite opportunity and viable material for the purpose of the collaboration with Rice.

[1] Refer PR1 ASX Announcement; 9 December 2025.

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Overview: Strategic Positioning: Graphite to Advanced Carbon Materials

Research into the use of carbon nanotube fibre thermal systems represents a natural extension of Pure's graphite strategy. Graphite and carbon materials form the foundation of a rapidly expanding advanced materials ecosystem underpinning next-generation energy, electronics and AI infrastructure.

Historically, graphite companies have focused on producing concentrate for use in batteries and industrial applications. However, global technology trends are increasingly shifting value creation further downstream into engineered carbon materials, including graphene, carbon fibres and carbon nanotube-based systems.

Carbon nanotube fibres represent one of the most advanced forms of engineered carbon, combining exceptional thermal conductivity, mechanical strength and lightweight structural properties. These characteristics are increasingly sought after in high-performance applications such as AI data centre infrastructure, aerospace systems and advanced defence platforms.

By collaborating with Rice University, a global leader in carbon nanotechnology, Pure is exploring how its graphite exposure can evolve into participation in higher-value carbon materials markets. This strategy aims to position the Company and its Projects within emerging supply chains linking critical minerals, advanced materials manufacturing and next-generation digital infrastructure.

Mr Quinton Meyers, Non-executive Chairman of Pure Resources, commented:

"With the thermal management market now surpassing $100 billion, it has become the bottleneck for AI computing and next-generation defence technologies. Traditional metal heat sinks are reaching the limits of their capabilities.

"Carbon Nanotube Fibre technology represents a step change, not only in conductivity, but in how thermal systems can be designed. CNTF systems enable directional heat management through recyclable textile-enabled 3D architectures that are not achievable with traditional metal machining.

"It is an exciting opportunity to use graphite samples from Pure's wholly owned Garnet Hills Project for the research and development of the cutting-edge Carbon Nanotube Fibre technology."

Material Terms of the Research & Development Collaboration Agreement

As the research will include testing of material from the Garnet Hills Project, Pure's intention is to derive intellectual property in respect of how the large flake graphite materials from its Project performs as a result of thermal testing, various integration assessments and heat transfer applications both generally, and in the context of CNTF structures for thermal management.

This will provide the Company with an early stage understanding of the technical capabilities and potential commercialisation avenues for the materials from the Garnet Hills Project.

The material terms of the legally binding agreement between Rice and the Company are as follows:

1. Pure will provide samples of graphite materials from the Garnet Hills Graphite Project to Rice for the purpose of developing and testing different forms and structures of CNTF systems;
2. Rice University will provide the research team (Prof. Matteo Pasquali, Prof. Daniel J. Preston, Prof. Vanessa Sanchez, Prof. Geoff Wehmeyer), testing facilities and deliver copies of all assessments and technical outputs to the Pure;
3. Pure will provide Rice up to US$500,000 in research and development funding over a maximum 24-month term for the purpose of the collaboration;
4. Both Pure and Rice will have joint ownership of any intellectual property where there are inventors from both Rice and Pure Resources.

Figure 1: Hierarchically Structured recyclable Textile Heat Exchanges and 3D Knit equipment.

Overview: CNTF Heat Sinks a Game Changer – A Structural Shift Beyond Metals

Carbon Nanotube Fibre (CNTF) heat sink architectures represent a generational departure from conventional metal-based cooling, it is not another metal heat sink. It represents a new class of engineered thermal infrastructure, one where material architecture replaces machining, and performance is defined by system-level optimisation rather than bulk conductivity alone

For decades, aluminum and copper have underpinned thermal management across electronics, data infrastructure and defence systems. However, as AI compute density accelerates and defence platforms operate at increasingly extreme power loads, traditional metal heat sinks are approaching their physical and structural limits. Incremental design optimisation is no longer sufficient. The constraint is now the material class itself.

Power densities are rising faster than traditional cooling can dissipate heat and metal heat sinks as aluminium and copper are reaching structural limits: Too heavy, too rigid, too constrained by machining geometry and marginal gains per incremental redesign. This is not an optimisation problem; it is a materials problem.

Further, CNTF heat sinks are manufactured as knitted or woven 3D recyclable textile architectures rather than machined blocks. This allows open, high-surface-area geometries optimised for airflow and system integration with structures that cannot be replicated through conventional subtractive metal manufacturing. The result is improved surface efficiency, structural flexibility and integration capability within next-generation platforms.

Figure 2: Hierarchical carbon nanotube fibres (CNTF) processable as recyclable yarns and textiles

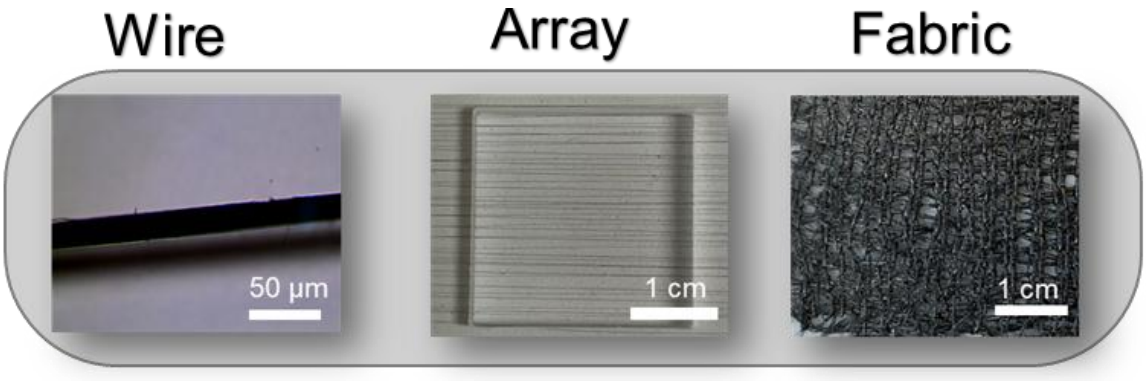

Figure 3: Lightweight, high-surface-area heat exchange structures

Overview: The Thermal Management Problem – A US$100bn+ Infrastructure Shift

Across hyperscale AI facilities, directed energy weapons and high-frequency RF platforms, power density is rising faster than conventional cooling architectures can scale. The problems metals are struggling to solve:

- Increasing mass per unit heat rejected
- Geometric constraints imposed by machining and extrusion
- Limited ability to directionally control heat flow
- Diminishing marginal performance gains

The global data centre cooling market is projected to exceed US$60–70 billion annually by 2030, driven by AI-intensive workloads and hyperscale expansion.

The U.S. defence thermal management segment forms part of a broader defence technology ecosystem exceeding US$40-50 billion annually in thermal-critical subsystems.

The result is a growing thermal bottleneck in industries that collectively represent over US$100 billion annually in thermal-critical infrastructure markets, including:

Thermal Management and the Rice University Team (The Birthplace of Carbon Nanotechnology)

Pure's CNTF research and development partnership is anchored by a **deep bench of world-class scientists and engineers at Rice University**, an institution widely recognised as the

intellectual birthplace of carbon nanotechnology and the architect of breakthrough nanomaterial platforms.

- **Professor Matteo Pasquali –** Global pioneer in carbon nanotube fibre technology and leader in high-performance CNT materials stronger than Kevlar.
- **Dr Daniel Preston –** Advanced thermal systems engineer specialising in high-flux heat transfer and materials integration.
- **Dr Geoff Wehmeyer –** Nanoscale heat transport physicist engineering next-generation thermal conductivity in CNT architectures.
- **Dr Vanessa Sanchez –** Advanced textile manufacturing specialist translating CNT fibres into scalable 3D thermal structures.

Professor Matteo Pasquali is one of the world's foremost carbon nanomaterials scientists. Prof. Pasquali's team has developed **carbon nanotube fibres that are stronger than Kevlar and highly conductive**, demonstrating transformational potential across aerospace, energy and high-performance materials.

Rice's Carbon Hub initiative represents a strategic national capability: it is pioneering the production of high-performance, fully recyclable nanotube fibres. This positions Rice not just as a creator of high-performance materials, but as a leader in sustainable, advanced manufacturing platforms, an increasingly critical axis for industrial and defence supply chains.

Placement

The Company has received firm commitments for an equity placement to raise $3,000,000 (before costs) via the issue of 12,000,000 shares at $0.25 per share (**Placement**). The Placement will be completed subject to prior shareholder approval at a meeting expected to occur on towards the end of April 2026.

Placement funds will be directed towards:

- Follow-up exploration and drilling programs at the Garnet Hills Project;
- Exploration of Pure's Kilarney Project, Mt Monger Project, Yandal Project and Yundamindra Project;
- Advancement of metallurgical and beneficiation studies that allow for the advancement of carbon downstream strategy initiatives to benefit the Company's existing projects such as collaborations with Rice University and other institutions; and
- General working capital.

- End -

This announcement is approved for release by the Board of Pure Resources Limited.

Mr Quinton Meyers
Non-Executive Chairman
Pure Resources Limited

About Pure Resources

Pure's vision is to build a modern, ESG-aligned critical minerals company focused on high-value industrial applications. The Company's Garnet Hills Project provides a dual-commodity development platform in graphite and garnet, with downstream technology and U.S. market alignment aimed at thermal management, defence applications, and potential REE extraction pathways.

ASX LR Statement

The Company confirms that the Exploration Results referenced in this announcement were previously disclosed in the Company's ASX announcements titled High-Value Jumbo Flake Graphite Identified at Garnet Hills - Dated 9 December 2025. The Company confirms that it is not aware of any new information or data that materially affects the information included in those earlier announcements. All material assumptions and technical parameters underpinning the Exploration Results continue to apply and have not materially changed.

Forward Looking Statements

Statements contained in this release, particularly those regarding possible or assumed future performance, costs, dividends, production levels or rates, prices, resources, reserves or potential growth of Pure Resources, are, or may be, forward looking statements. Such statements relate to future events and expectations and, as such, involve known and unknown risks and uncertainties. Actual results and developments may differ materially from those expressed or implied by these forward-looking statements depending on a variety of factors.