

# PETRATHERM LIMITED



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**REPORT FOR THE QUARTER  
ENDING 31 DECEMBER 2006**

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# HIGHLIGHTS

## 1. Corporate

- A landmark Memorandum of Understanding for the supply of power to Heathgate Resources' Beverley Uranium Mine was established on 1 November 2006 at a signing ceremony witnessed by SA Mineral Resources Minister, the Honourable Paul Holloway.
- Petratherm announced, also on 1 November 2006, that it was successful in obtaining Project endorsement from the Asia Pacific Partnership on Climate and Clean Development (AP6) to undertake a study to "Identify high prospect geothermal energy projects in China".
- Joint Venture opportunities for geothermal exploration and development at Paralana are being explored, with discussions under way and progressing well, with a number of interested third parties.
- The Company successfully completed a placement of 6,500,000 fully paid ordinary shares at 32 cents, in November 2006, raising \$2,080,000 before expenses.
- At the end of the quarter the Company held \$3,071,000 in cash.

## 2. Operations

- An exceptionally high heat flow of 129 milliwatts per square metre ( $\text{mW}/\text{m}^2$ ) was established in December 2006, at the Paralana geothermal site, providing further confidence in the economic viability of the thermal resource interpreted to be located at a depth of 3.5 – 4.0 kilometres.
- The Company secured a new geothermal exploration licence (GEL 254) (Figure 1) to cover the full extent of the thermal resource at Paralana. This new tenement brings the Company's tenure position at Paralana to approximately 2000 square kilometres.

# REVIEW OF OPERATIONS

## Corporate Activities

At the end of the quarter, the Company held \$3,071,000 in cash, including the net proceeds of \$1,976,000 from recent financing activities. The net expenditure of \$458,000 during the quarter was primarily (\$449,000) associated with costs aimed at preparing the Company for its Phase 3 development of the Paralana Geothermal Project and assessing overseas opportunities.

The Company entered into a landmark Memorandum of Understanding for the supply of power to Heathgate Resources' Beverley Uranium Mine. The MOU was established on 1 November 2006 at a signing ceremony witnessed by SA Mineral Resources Minister, the Honourable Paul Holloway. The MoU aims to provide Petrathern and Heathgate Resources with a base from which to explore opportunities in relation to supplying electricity, additional to Heathgate's current requirements, to help the mine's growing future needs.

Petrathern announced, also on 1 November 2006, that it was successful in obtaining Project endorsement from the Asia Pacific Partnership on Climate and Clean Development (AP6) to undertake a study to "Identify high prospect geothermal energy projects in China". The Project proposal involves a study of the geothermal prospectivity of China over the next nine months, utilising Petrathern's innovative Exploration Model to identify high quality, commercial geothermal projects.

Joint Venture opportunities for geothermal exploration and development at Paralana are being explored, with discussions under way and progressing well, with a number of interested third parties.

The Company successfully completed a placement of 6,500,000 fully paid ordinary shares at 32 cents, raising \$2,080,000 before expenses. The funds are being applied to engineering and well design for the deep well at the Paralana geothermal, plus procurement of associated long lead-time drilling resources and materials, and ongoing working capital.

## Operations Summary

### Paralana Hot Rock Project

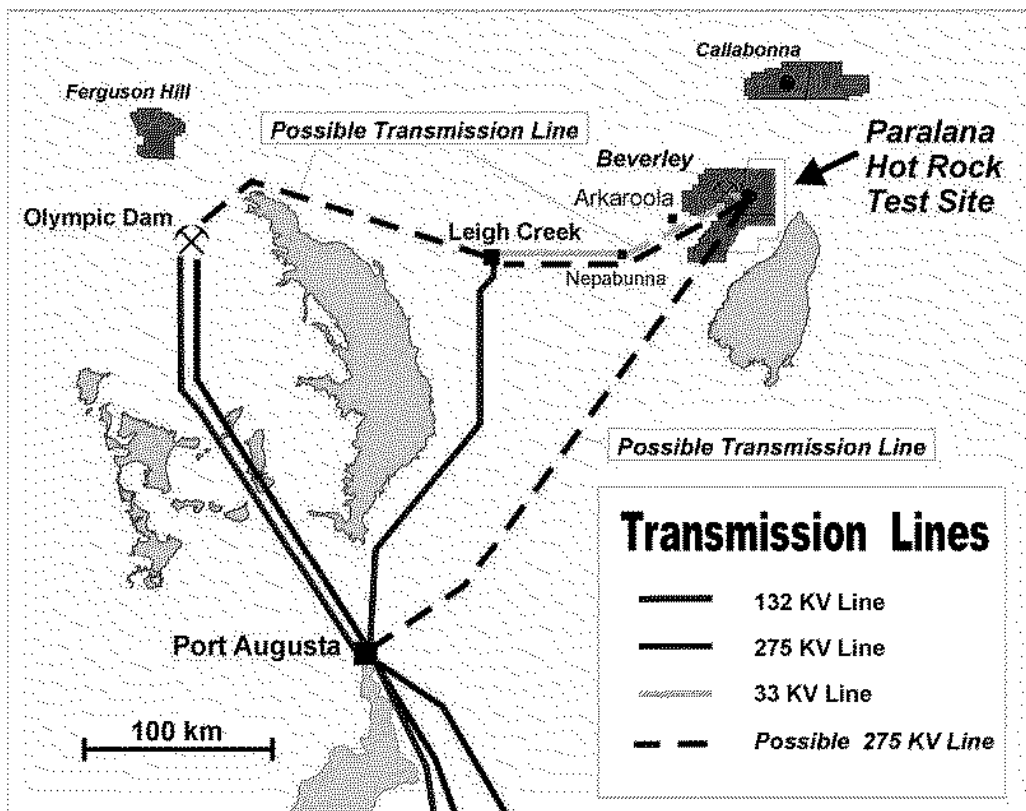
#### Field Activities

An exceptionally high heat flow of 129 milliwatts per square metre (mW/m<sup>2</sup>) has been established at the Paralana geothermal discovery, providing further

confidence in the economic viability of the thermal resource interpreted to be located at a depth of 3.5 - 4 kilometres.

The high heat flow of 129 mW/m<sup>2</sup> has been calculated using thermal conductivity measurements of drill core and temperature log data acquired in the Paralana-1B geothermal evaluation well drilled in June 2006. This heat flow is amongst the highest recorded in Australia and is more than double the global average.

To cover the full extent of the geothermal resource the Company has secured a new geothermal exploration licence (GEL 254) (Figure 1). This new tenement brings the Company's tenure position to approximately 2000 square kilometres. The Paralana thermal resource has an estimated theoretical resource potential of 13,000 MWe which is approximately eight times South Australia's average daily capacity requirement.



**Figure 1.** Petratherm's geothermal licence areas (new licence in yellow) and possible transmission connection routes for the Paralana Hot Rock site.

## **Electricity Development Plan**

The Company has signed a Memorandum of Understanding (MoU) with Heathgate Resources the owner of the operating Beverley Uranium Mine in November. The signing of the MoU by Petratherm's Managing Director, Mr Terry Kallis and Heathgate Resources' General Manager, Mr Patrick Mutz, was witnessed by the South Australian Minister for Mineral Resources Development, the Hon. Paul Holloway.

The MoU aims to provide Petratherm and Heathgate Resources with a base from which to explore opportunities for supplying electricity to the mine from the Company's Paralana Geothermal Energy Project.

Heathgate Resources' Beverley Uranium Mine is just 11 kilometres from the Paralana Geothermal Energy Project, meaning transmission infrastructure costs would be at a minimum. Heathgate Resources' power requirements are expected to increase as its mining operations continue to develop and expand, and thus the mine represents a substantial local electricity market for the Paralana project site.

The MoU provides an important first step for Petratherm and Heathgate Resources in the development of competitive, reliable, base load geothermal power to meet Heathgate's future electricity requirements and will be the first step for Petratherm becoming a "green" energy supplier.

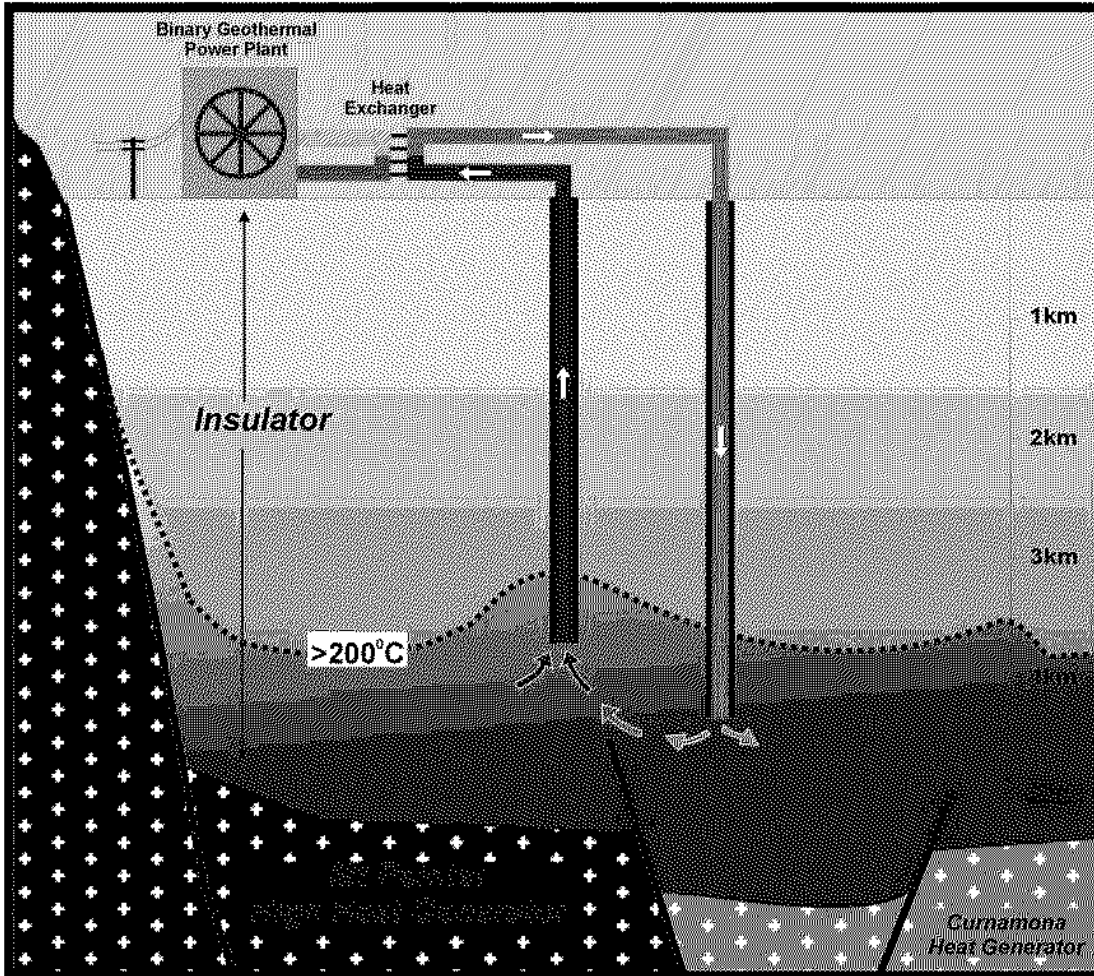
## **Paralana Geothermal Field Development Update**

The next phase of major works at Paralana involves the drilling of an injector and a producer well and the subsequent development of a fluid circulation cell (the sub-surface heat exchanger) between these two wells. The drilling and circulation work will be a precursor to constructing an electricity generation plant (of around 7.5 MW) to meet local power needs at the neighbouring Beverley Uranium Mine.

Petratherm's strategy is to lower risks and costs of both the drilling and circulation operations by engineering the underground heat exchanger within the insulating rocks (the HEWI model) above the high heat producing granites (Figure 2).

The first (injector) well will be drilled to at least 3.6 kilometres depth where bottom hole temperatures are expected to exceed 200°C. The program will then move to characterising fluid circulation systems within the underground heat exchanger. Depending on these findings mechanical or chemical enhancement of the sub-surface fluid circulation cell may need to be undertaken prior to drilling of the second (producer) well and completion of the circulation system.

Procurement and set up of a suitable drilling rig is the time limiting factor for a well of this magnitude and the Company is developing work contracts for design and management of the drilling operations. Drilling of the first well is expected to begin during the September 2007 Quarter.



**Figure 2.** The Heat Exchanger Within Insulator (HEWI) Model. The HEWI model aims to exploit potential higher natural flow rates within the overlying insulator rather than the granite below as a means to optimise commercial viability.

### China – Geothermal Exploration Program

Petratherm has been successful in obtaining project endorsement from the Asia Pacific Partnership on Climate and Clean Development (AP6) to undertake a study to identify high prospect geothermal energy projects in China. The six members of the Asia Pacific Partnership are USA, China, India, Japan, South Korea and Australia. The Partnership aims to facilitate the implementation of

practical projects that can contribute tangible improvements to Climate and Clean Development.

The AP6 Project is consistent with the Company's strategy of seeking to identify opportunities where both the local geology and renewable energy policy framework is conducive for commercial geothermal energy projects.

The Project proposal involves Petratherm undertaking a study of the geothermal prospectivity of China over the next nine months, utilising Petratherm's innovative Exploration Model to identify high quality, commercial geothermal projects. This work will be undertaken in cooperation with Chinese Geological Institutions, Provincial Governments and Utilities. Petratherm plans to take an equity position in those projects which offer the best potential for developing commercially viable power generation from geothermal energy.

In support of its AP6 Project, Petratherm's Managing Director and Operations Manager attended the Australia – China Climate Change Partnership Renewable Energy and Energy Efficiency Business Mission in November 2006. Visits to Beijing and Xian with the Mission were very successful, with Petratherm securing key contacts and information regarding;

- Access to the necessary geological information
- Potential joint venture partnering with companies that have already successfully entered the renewable energy market in China.
- Determining the legal framework relating to renewable energy, regulatory arrangements and related policy initiatives relevant to geothermal energy projects in China.



Petratherm's AP6 project is currently the only geothermal energy project in the Renewable Energy and Distributed Generation Task Force Action Plan. The Project creates an exciting growth opportunity for the Company in the fastest growing electricity market in the world.

#### **Other**

Work continued in reviewing further opportunities both in Australia and overseas.