

# PETRATHERM LIMITED



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**REPORT FOR THE QUARTER  
ENDING 30 JUNE 2007**

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## HIGHLIGHTS

- Appointment of Petratherm's Spanish Manager, Mr Raul Hidalgo was announced during the quarter together with the Company's intention to secure around 7 or 8 geothermal projects in Spain and to establish a local office.
- A geothermal exploration license (GEL) was awarded for Tenerife in Spain's Canary Islands, off the north-west coast of Africa, in June 2007. The GEL area will focus on conventional geothermal energy, in close proximity to substantial transmission infrastructure which supports an average population of 1 million and peaks at around 1.5 million during the tourist season.
- Appointment of Jonathan Teubner as Petratherm's Business Development Manager in late May 2007. As a former senior Executive with Origin Energy, Jonathan's extensive knowledge and experience in the energy market will be vital as Petratherm plans to extend its electrical supply agreements.
- The Paralana Energy Joint Venture in South Australia (between Petratherm Limited and Beach Petroleum) engaged US-based Global Power Solutions and Australian Drilling Associates Pty Ltd to undertake the planning and design of the first of two deep wells of Stage 3 and to commence the drilling rig specification and selection process.
- A two week visit to China and Hong Kong by Petratherm's Operations Manager, Mr Peter Reid has resulted in a draft agreement with key Chinese geological and geothermal institutions, preliminary identification of high prospect regions and identified interested joint venture parties.
- A US study tour by Petratherm management identified potential gains in surface plant costs and well operating parameters from emerging new efficiencies in geothermal-related generating plants
- The Federal Government initiated the COAG road map project for geothermal energy - the Australian Geothermal Industry Development Framework – aimed at developing a clear path for the industry to develop and succeed. As a recognized leader in industry, Petratherm was appointed to a small reference group that will oversight the project.
- A total of \$6.3 million (before expenses) was successfully raised through a share placement and share purchase plan. The placement raised \$3.6 million and the shareholder purchase plan raised \$2.7 million. The funds will be applied to developing the Company's Australian and Spanish operations.

## **REVIEW OF OPERATIONS**

At the end of the quarter, the Company held \$8,181,000 in cash. Income from capital raisings was \$6.32 million (before expenses) and expenditure during the quarter included exploration costs of \$273,000 for projects in Australia and Spain, ongoing administration costs of \$415,000 reflecting the expanding nature of the business with the recruitment of staff and new geothermal projects.

In addition, an amount of \$121,000 was received from the Australian Tax Office (ATO) under a successful research & development tax offset claim and a sum of \$50,000 was drawn down under Petratherm's \$5 million Renewable Energy Development Initiative grant. Those amounts together with interest received of \$78,000 provided cash inflow from operating activities of \$249,000 during the quarter.

The activities during the quarter focused on securing the necessary funds (capital raising) to undertake circulation testing, which will determine the commercial viability of the large thermal resource at Paralana in SA.

The total cost of undertaking this program is budgeted at approximately \$20 million. To this end the Company successfully raised additional funds (\$6.32 million) to complement its existing Joint Venture Agreement with Beach Petroleum potentially involving up to \$30 million expenditure by Beach, and the \$5 million Grant from the Australian Federal Government.

The Company is now in a position to move forward with the next phase of the Paralana Project – drilling of a deep production well (approximately 3.6 kilometres), reservoir stimulation and related heat exchanger testing.

### **Staff Appointments**

During the quarter the Company made a number of key appointments:

- Mr. Raul Hidalgo – Petratherm's Spanish Manager, an experienced consulting geologist with twenty years experience in the Spanish mining and resources sector.
- Mr. Jonathan Teubner – Petratherm's Business Development Manager, a former executive of Origin Energy with a wealth of experience in the energy sector and contract management.
- Ms Hayley Weaver – the Company's Business Accountant, an experienced consulting accountant, formerly with firm PKF.

The appointments have strengthened the Company's ability to deliver on its plans in Australia and Spain, in particular as Petratherm's portfolio of projects expands.

## **Paralana Project**

The next phase of major works at Paralana involves the drilling of an injector and producer well and the subsequent development of a fluid circulation cell (the sub-surface heat exchanger) between the 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 1).

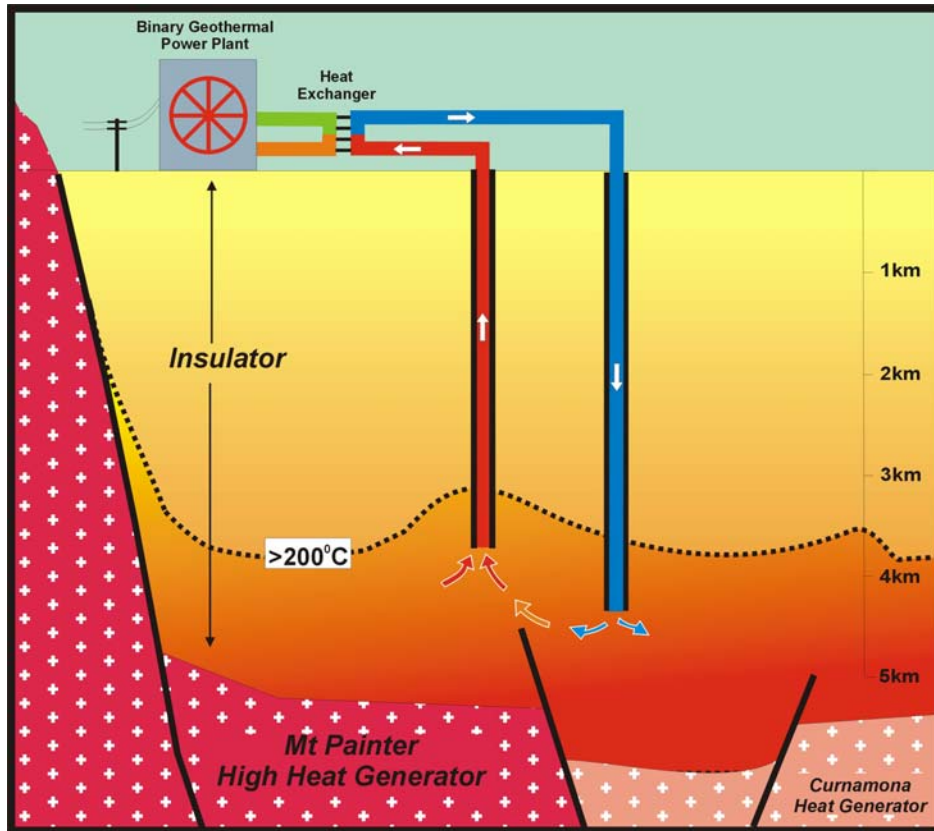
The first (injector) well will be drilled to at least 3.6 kilometres depth where bottom hole temperatures are expected to exceed 200°C. The program will then move to characterising fluid circulation systems within the underground heat exchanger.

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, subject to suitable drilling rig availability, is expected to begin in the New Year.

A recent visit to geothermal and research facilities in the US by the Company's executives with Petratherm's US based consultants, reviewed operating geothermal energy plants and technology development in California's Imperial Valley. This review confirmed that advances in conventional (double flash) steam generating plant have greatly improved operating efficiencies to the extent that they are capable of commercially exploiting thermal resources with 23% lower grade than those targeted at Paralana. This technology development, in commercial application for several years in the US, has the potential to simplify surface facility design and operation, lower capital and operating costs and improve overall thermal conversion efficiency in the Paralana geothermal energy project.

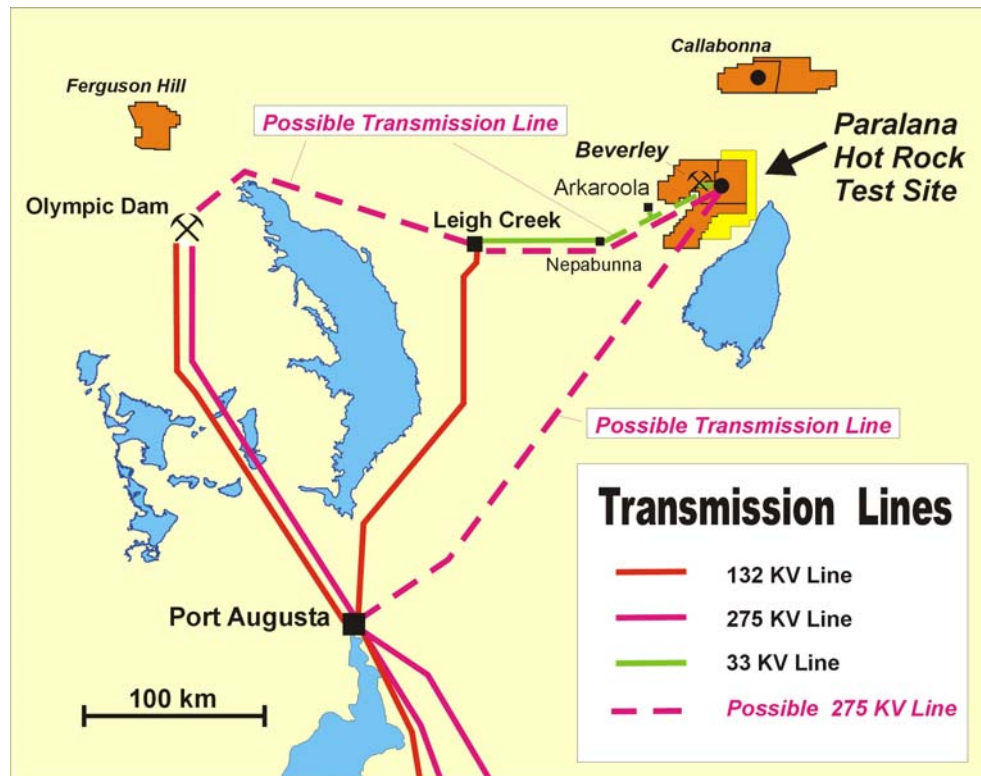
This affords greater risk coverage to the next stage of this project, insofar as the commercial threshold for the grade of the heat resource at Paralana has been lowered substantially relative to that targeted in the next round of drilling.



**Figure 1** The Heat Exchanger within Insulator (HEWI) Model.

## Paralana Energy Joint Venture

In late January 2007 the Company announced a \$30 million Joint Venture agreement with Beach Petroleum on the Paralana geothermal project.



**Figure 2** Petratherm's geothermal licence areas and possible transmission connection routes for the Paralana Geothermal Energy Project site.

The Paralana Energy Joint Venture Operating Committee met during the quarter appointing key consultants (US based geothermal experts - Global Power Solutions and Australian Drilling Associates – highly experienced oil & gas drilling project managers) and established a technical subcommittee comprised of key Petratherm and Beach Petroleum representatives.

The current focus of the JV Operating Committee is to design the first deep well, specify rig requirements, determine long lead items and to secure a suitable rig to complete the well to the desired design. That work is expected to be completed during August 2007, at which time long lead time items can be ordered and a clearer timetable for drilling can be announced.

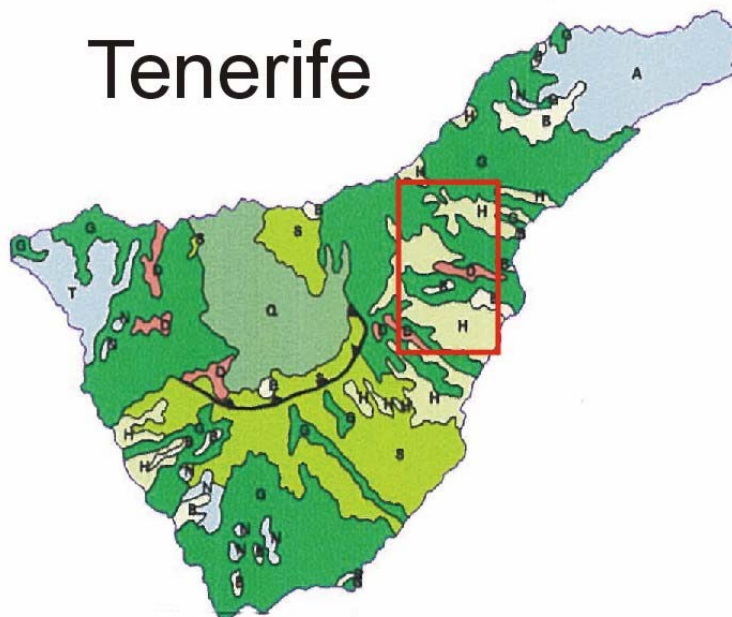
## Spanish Conventional Geothermal Project – Tenerife Island, Canary Islands

Earlier in calendar 2007, the Company announced that it had commenced securing geothermal energy sites in Spain. The entry into Spain is a strategic move that is consistent with the Company's stated objective of pursuing opportunities in areas where the geology, energy market and regulatory environment are conducive to commercially viable geothermal energy projects.

The Company had previously announced, in the March quarter, its focus on two projects near Madrid and Barcelona. During the quarter, Petrathern announced it had secured a geothermal exploration license (GEL) on Tenerife (Refer Figure 3), the largest of the seven islands in this Spanish archipelago located off the west coast of North Africa,

The Canary Islands are well known for their volcanism and are considered excellent sites for exploiting conventional geothermal technology. Conventional geothermal projects are commercially established in many parts of the world accounting for more than 10,000 MW of installed power generation capacity (greater than six times the average capacity of the state of South Australia)..

***Very high temperatures (over 300°C) at relatively shallow depths of around 2 kilometres are often found in active volcanic geological settings analogous to those of the newly acquired project area.***



**Figure 3** Location of Petrathern GEL on the Spanish island of Tenerife.

Tenerife has a permanent population in excess of 1 million. During the peak tourist season the population can exceed 1.5 million placing a large demand on peak power generation, in excess of 800 MW. The island has substantial transmission infrastructure within close proximity of Petratherm's Geothermal Exploration Licence (GEL).

### **Conventional Geothermal means Lower Risk and Earlier Development**

Petratherm's Tenerife Project provides a major opportunity to develop a conventional geothermal power project with minimal associated technical project risk with an attractive market that is focused on the development of sustainable energy alternatives to imported fossil fuel sources.

Lower costs and risks of this project arise from three key factors, namely;

- The process for extraction and conversion of the heat is known and understood, with considerable project development, drilling and plant operation experience and technology readily available around the world.
- Such thermal resources are of very high quality, with naturally formed reservoirs and very high temperatures, greater than 300°C, at depths of around 2 kilometres.
- The Petratherm licence area has been carefully selected after extensive study, so as to be positioned over the location of the most attractive geology for geothermal power generation in proximity to transmission infrastructure.

### **Project Portfolio expands to three – with further exploration underway**

The new conventional Tenerife project brings Petratherm's portfolio of projects under Spanish jurisdiction to three, including the Madrid and Barcelona projects previously announced in February 2007 (Refer Figure 4).

Petratherm's strategy is to continue its geothermal evaluation program in the European Union with a focus on Spain. As a result of this ongoing effort, it is anticipated that the Spanish geothermal portfolio will increase to around 7 or 8 projects in the foreseeable future.

Petratherm's strategic move into Spain has secured a significant "first mover" advantage in one of the most attractive countries in the world for developing renewable energy projects.

This comes at a time when, across the world, there is a renewed focus on geothermal energy (Conventional and EGS) as a key part of the solution of the challenge of Climate Change.





**Figure 4** Locations of Petratherm’s geothermal project areas in Spain. Site 1 (Madrid) is approximately 40 kilometres north-east of Madrid, and Site 2 (Valles) is approximately 25 kilometres north of Barcelona and Site 3 Tenerife – Canary Islands (refer inset)

## 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 US, 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.

During the quarter, Petratherm's Operations Manager visited China and Hong Kong to progress the China geothermal study and spent two weeks examining various prospective sites and developing draft agreements with key Chinese project study participants. Those participants will include the China Geothermal Energy Society, China Geological Survey, China Institute of Geo-Environment Monitoring and the Chinese Academy of Sciences. A draft work agreement and budget to undertake the study has been presented to Petratherm for review.

In addition, discussions were held with the Chinese Renewable Energy Industry Association (CREIA) in Beijing and interested joint venture parties in Hong Kong and Australia.

## **Australian Geothermal Industry Development Framework**

In late March, Federal Government Ministers Ian Macfarlane (Industry, Trade and Resources) and Malcolm Turnbull (Environment and Water) announced an initiative under the COAG process to develop a framework to support the emerging geothermal energy industry.

Known as the Australian Geothermal Industry Development Framework, it aims to support the growth of Australia's geothermal industry through strategies agreed by stakeholders from government, industry and the research community.

A comprehensive Project Plan has been prepared to undertake strategic analysis of Australia's geothermal energy industry with the aim of identifying opportunities for the industry and impediments to the industry's growth and to develop a set of coordinated actions that will contribute towards the development of a self-supporting, sustainable and internationally competitive industry.

The project is expected to be completed in March 2008 and a number of preliminary outputs are expected during that period.

Petratherm as a recognized industry leader has been appointed to a small Project Reference Group to guide the development of the Framework.

The Project is being led by the Federal Department of Industry, Trade and Resources (Energy & Environment Division) and proposals have been recently sought from expert consultants to assist the Framework development.

## **Business Development Activities**

The Company's Business development activities have been increased with the recent appointment of Mr. Jonathan Teubner and the appointment of US – based geothermal consulting experts – Global Power Solutions.

During the quarter considerable progress was made on a number of initiatives including;

- Comprehensive update and expansion of the Company's Business Modeling capability – both software development and improved project technical and cost assumptions
- An updated ranking assessment of Petratherm's project portfolio, the Company's competitor projects, and potential projects in Australia and Overseas (conventional and EGS)
- A number of discussions with a variety of interested parties considering potential joint ventures in Australia, Spain and China.
- Detailed project assessments and assessment of enhancement opportunities of the Paralana Geothermal Energy Project.

Yours faithfully



**Terry Kallis**  
Managing Director

### **MEDIA CONTACT:**

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**APPENDIX 5B**  
**Mining exploration entity quarterly report**

**PETRATHERM LTD**

**ABN 17 106 806 884**

Quarter ended

30-Jun-07

**Consolidated statement of cash flows**

	Current quarter	Year to date (12 months)
	\$A'000	\$A'000
<b>Cash flows related to operating activities</b>		
1.1 Receipts from product sales and related debtors	-	-
1.2 Payments for (a) exploration and evaluation	(273)	(1,295)
(b) development		
(c) production		
(d) administration	(415)	(1,371)
1.3 Dividends received		
1.4 Interest and other items of a similar nature received	78	168
1.5 Interest and other costs of finance paid		
1.6 Income taxes paid		
1.7 Other - REDI Grant Proceeds	50	50
1.7 Other - Tax Offset (R & D)	121	121
<b>Net Operating Cash Flows</b>	<b>(439)</b>	<b>(2,327)</b>
<b>Cash flows related to investing activities</b>		
1.8 Payment for purchases of: (a) prospects	-	-
(b) equity investments	-	-
(c) other fixed assets	(7)	(64)
1.9 Proceeds from sale of: (a) prospects	-	-
(b) equity investments	-	-
(c) other fixed assets	-	2
1.10 Loans to other entities	-	-
1.11 Loans repaid by other entities	-	-
1.12 Other (provide details if material)	-	-
<b>Net Investing cash flows</b>	<b>(7)</b>	<b>(62)</b>
1.13 Total operating and investing cash flows (carried forward)	<b>(446)</b>	<b>(2,389)</b>

1.13 Total operating and investing cash flows (brought forward)	(446)	(2,389)
<b>Cash flows related to financing activities</b>		
1.14 Proceeds from issues of shares, options, etc	6,320	8,400
1.15 Proceeds from sale of forfeited shares	-	-
1.16 Proceeds from borrowings	-	-
1.17 Repayment of borrowings	-	-
1.18 Dividends paid	-	-
1.19 Other (Share issue costs)	(280)	(384)
<b>Net financing cash flows</b>	<b>6,040</b>	<b>8,016</b>
<b>Net increase (decrease) in cash held</b>	<b>5,594</b>	<b>5,627</b>
1.20 Cash at beginning of quarter / year to date	2,587	2,554
1.21 Exchange rate adjustments to item 1.20	-	-
1.22 <b>Cash at end of quarter</b>	<b>8,181</b>	<b>8,181</b>
<b>Payments to directors of the entity and associates of the directors</b>		
<b>Payments to related entities of the entity and associates of the related entities</b>		Current quarter \$A'000
1.23 Aggregate amount of payments to the parties included in item 1.2		85
1.24 Aggregate amount of loans to the parties included in item 1.10		-
1.25 Explanation necessary for an understanding of the transactions		
Directors' fees, superannuation for the Quarter		
<b>Non-cash financing and investing activities</b>		
2.1 Details of financing and investing transactions which have had a material effect on consolidated assets and liabilities but did not involve cash flows		
Nil		

2.2 Details of outlays made by other entities to establish or increase their share in projects in which the reporting entity has an interest

Nil
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**Financing facilities available**

	Amount available \$A'000	Amount used \$A'000
3.1 Loan facilities	-	-
3.2 Credit standby arrangements	-	-

**Estimated cash outflows for next quarter**

	\$A'000
4.1 Exploration and evaluation	600
4.2 Development	-
<b>Total</b>	<b>600</b>

**Reconciliation of cash**

	Current quarter \$A'000	Previous quarter \$A'000
Reconciliation of cash at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts is as follows.		
5.1 Cash on hand and at bank	128	97
5.2 Deposits at call	8,053	2,490
5.3 Bank overdraft	-	-
5.4 Other (provide details) - 30 and 60 day term deposits	-	-
<b>Total: cash at end of quarter (item 1.22)</b>	<b>8,181</b>	<b>2,587</b>

**Changes in interests in mining tenements**

	Tenement reference	Nature of interest (note 2)	Interest at beginning of quarter	Interest at end of quarter
6.1		Interests in mining tenements relinquished, reduced or lapsed		
6.2		Interests in mining tenements acquired or increased		

**Issued and quoted securities at end of current quarter**

	Total number	Number quoted	Issue price per security (cents)	Amount paid up per security (cents)
7.1 <b>Preference securities</b> <i>(description)</i>				
7.2 Changes during quarter (a) Increases through issues (b) Decreases through returns of capital, buy-backs, redemptions				
7.3 <b>Ordinary securities</b>	57,774,626	57,774,626	Fully Paid	Fully Paid
7.4 Changes during quarter (a) Increases through issues (b) Decreases through returns of capital, buy-backs				
7.5 <b>Convertible debt securities</b> <i>(description)</i>				
7.6 Changes during quarter (a) Increases through issues (b) Decreases through securities matured, converted				
7.7 <b>Options</b> <i>(description and conversion factor)</i>			<u>Excise Price</u>	<u>Expiry Date</u>
	5,000,000		20 cents each	24/03/2009
	2,600,000		20 cents each	4/04/2009
	2,000,000		20 cents each	26/07/2009
	650,000		20 cents each	27/07/2009
	40,000		31.5 cents each	23/08/2009
	50,000		32 cents each	15/12/2009
	30,000		40 cents each	31/12/2010
	200,000		32 cents each	21/05/2011
	200,000		37 cents each	21/05/2011
	30,000		32 cents each	29/05/2011
	750,000		32 cents each	30/04/2012
	750,000		37 cents each	30/04/2013
	200,000		53 cents each	1/01/2012
	40,000		91 cents each	4/03/2012
	20,000		91 cents each	21/03/2012
7.8 Issued during quarter	40,000	40,000	90 cents each	31/05/2012
	400,000	400,000	91 cents each	31/05/2013
	20,000	20,000	93 cents each	25/06/2013

7.9	Exercised during quarter				
7.10	Cancelled during quarter				
7.11	<b>Debentures</b> <i>(totals only)</i>				
7.12	<b>Unsecured notes</b> <i>(totals only)</i>				

### Compliance statement

- 1.0 This statement has been prepared under accounting policies which comply with accounting standards as defined in the Corporations Act or other standards acceptable to ASX (see note 4).
- 2.0 This statement does give a true and fair view of the matters disclosed.



Sign here:..... Date: 27/06/2007  
Company Secretary

DONALD STEPHENS

Print name: .....

### Notes

- 1.0 The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity wanting to disclose additional information is encouraged to do so, in a note or notes attached to this report.
- 2.0 The "Nature of interest" (items 6.1 and 6.2) includes options in respect of interests in mining tenements acquired, exercised or lapsed during the reporting period. If the entity is involved in a joint venture agreement and there are conditions precedent which will change its percentage interest in a mining tenement, it should disclose the change of percentage interest and conditions precedent in the list required for items 6.1 and 6.2.
- 3.0 **Issued and quoted securities** The issue price and amount paid up is not required in items 7.1 and 7.3 for fully paid securities.
- 4.0 The definitions in, and provisions of, *AASB 1022: Accounting for Extractive Industries* and *AASB 1026: Statement of Cash Flows* apply to this report.
- 5.0 **Accounting Standards** ASX will accept, for example, the use of International Accounting Standards for foreign entities. If the standards used do not address a topic, the Australian standard on that topic (if any) must be complied with.