



ANNUAL REPORT

**GEL 128, 129, 161, 162, 163, 206
& 213**

2 June 2005 to 1 June 2006

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Olympic Dam Geothermal Project

GEL 128, 129, 161, 162, 163, 206, & 213

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1. INTRODUCTION

1.1 Background

Exploration for geothermal energy stored in buried hot rocks in the licences was focussed near the Olympic Dam mine and existing high voltage power line.

1.2 Period

This report covers the activities in respect of GEL 206 & 213 for year 1 and of GEL 128, 129, 161, 162 and 163 for Year 2 being the period from 2 June 2005 to 1 June 2006.

1.2 Licence Data

Exploration Licences GEL 128 (308 km²), 129 (408 km²), 161 (496 km²), 162 (488 km²), 163 (497 km²), were granted on 2 June 2004, GEL 206 (494 km²) and GEL 213 (206 km²) on 21 April 2005 and 22 September 2005 respectively for an initial term for each of 5 years.

There was no change in the area of the licences during the year.

1.3 Licensee

GEL 128, GEL 129, GEL 161, GEL 162, GEL 163 and GEL 206 are held in equal shares by Green Rock Geothermal Pty Ltd and Green Heat Resources Pty Ltd respectively. Both companies are wholly owned subsidiaries of Green Rock Energy Limited. GEL 213 is held solely by Green Rock Energy Limited.

There was no change in working interests for any of the licences during the period.

2. WORK REQUIREMENTS

The exploratory operations required to be conducted in GEL 128, GEL 129, GEL 161, GEL 162, GEL 163 and GEL 206 are:

Year	Minimum Work Requirements	Estimated Cost \$
1	Review data & assess technical application of HDR technology	Commercial in Confidence
2	Design & plan stratigraphic well to evaluate temperatures, stress regime & rock characteristics	
3	Drill stratigraphic well to 1,500-2,000m	
4	Evaluate results of stratigraphic well, re-evaluate economics of HDR technology, design an appropriate pilot program	
5	Drill pilot well to assess geothermal energy potential of HDR regime	

The exploratory operations required to be conducted in GEL 213 are:

Year	Minimum Work Requirements	Estimated Cost \$
1	Geological & geophysical review of the licence area	Commercial in Confidence
2	Re-entry (if possible) & geophysical logging of a drill hole	
3	Drill or deepening of existing stratigraphic well to 1,500-2,000m if warranted	
4	Geological & geophysical review, economic evaluation, design of pilot program	
5	Drill pilot well to assess geothermal energy potential of HDR regime.	

No variations to the Year 1 or Year 2 Work Program for any GEL were requested or approved during the period.

3. WORK CONDUCTED

The following work conducted during the year fulfilled the Year 1 Work Requirement for GEL 206 and GEL 213 and the Year 2 Work Requirement for GELs 128, 129, 161, 162 and 163:

3.1 Data & Technical Reviews

a. Market Analysis

Updates and evaluation of the electric power market and electricity generation technologies and preliminary economic assessment of the Hot Dry Rock technologies (sub-surface and surface) were carried out in respect of all the GELs.

Preliminary studies were carried out into the requirements for water for generation of electricity from hot dry rocks and the availability of water supplies for injection into hot rock reservoirs and for cooling of power plants generating electricity from hot rocks within the GEL areas. Estimates of requirements for water to be injected and circulated were calculated and discussions were held with BHP Billiton concerning potential use of mine and process waste water. BHP – Billiton have agreed to allow us to test that water for our purposes.

b. Acquisition & Review of Geological, Geophysical & Thermal Data

Geophysical, geological and thermal data from mineral exploration drill holes obtained from WMC Resources and others in the public domain together with information provided in confidence by WMC Resources in respect of the licence areas was collected, analysed and mapped to assist siting of geothermal exploration wells in the licence areas. The Company's proposed exploration program was

reviewed in confidence by external consultants having suitable experience in development of geothermal energy.

c. Seismic Reprocessing

Reflection seismic data acquired by Geoscience Australia and PIRSA in a line orientated East-West was reprocessed using CSIRO & Curtin University and modelled to enhance the response from the top 10 kilometres of crust within the Company's GELs. This work was designed to assist the Company to map the granite boundaries, to distinguish un-fractured granite from fractured rocks and to assist the siting of the first geothermal exploratory well.

d. Exploratory Well Drilling

A contract was let in February 2005 to Boart Longyear to drill a number of geothermal exploration wells in the licence areas and preparations were made to commence drilling by June 30, 2005.

4. YEAR'S EXPENDITURE (commercial in confidence)

5. WORK PROGRAM for the YEAR

The Company commissioned CSIRO and Curtin University to reprocess the top 10 kilometres of the East-West seismic line acquired by Geoscience Australia and PIRSA which traverse the GELs to enhance the response of the target granitic basement. This was done in order for the Company to discriminate internal structure in granite so that the Company could site the first exploratory geothermal well where the granite was expected to be homogeneous and devoid of obvious major faulting.

Drilling of Blanche No 1 in GEL 128 - the Company's first geothermal exploration well was completed at a depth of 1,935 metres in September, 2005. Blanche No. 1 was located on reprocessed 2003 Geoscience Australia and PIRSA seismic reflection line 03GA-OD2 at a location only 8km from the Olympic Dam mine known to combine favourable features such as a cover sequence and granite basement with a minimal number of structures.

The Company purchased a Kuster K10 temperature logging gauge, believed by the Company to be the only one of its kind in Australia, which can measure temperatures up to 300°C & can be used at high pressures in slim drill holes (NQ diameter) with allowance for the pressure profile. This gauge was used to log the temperature profile in Blanche No 1 in GEL 128 and old drill hole SAP No 1 in GEL 213.

Blanche No 1 (GEL 128) - Logging of temperature profiles and geophysical properties were carried out in Blanche No 1 after reaching the total depth for the well. A suite of geophysical logs (acoustic televiwer, natural gamma ray, density, neutron, (sonic failed due to high temperature in excess of 85°C combined with moderately high pressures), and geological logs were taken and all of the drill core was photographed and is stored in Adelaide. An initial temperature of

85.35°C was encountered at the bottom of the hole. Temperature was measured using Green Rock's Kuster temperature gauge. The well completion report submitted contains the details of the methodology and results of temperature and geophysical logging. Petrology and chemical analyses were carried out on the drill core and on the observed fracturing. Abundant fracturing was observed in the core which towards the bottom of the drill hole was obscured by excessive discing of the core caused by stress relief and cooling of the core. Even so, preliminary analysis of the acoustic televiewer down-hole imaging suggests there is an east/west compressional stress regime at Blanche No 1. Further analysis of this data is planned for this year to better define the stress regime for purposes of designing the fracture stimulation program for the deeper wells. This is encouraging for setting up a subsurface heat exchanger in the vicinity.

Results from Blanche No.1 were sufficiently encouraging for the Company to decide to focus its efforts on establishing a sub-surface circulation system in the general vicinity of Blanche No. 1 rather than drill other expensive exploratory drill holes in the adjacent licence areas at this stage. Instead the Company may drill a second exploratory drill hole in GEL 128 about 4 kilometres to the west of Blanche No 1 to measure the thermal insulating properties of the thicker package of overlying blanketing sediments (approximately 1.7 kms thick compared to 0.7 kms at Blanche No. 1) to refine the location of the deeper production wells. The S.A. Government PACE grant of \$68,000 will assist the funding of this well.

SAP 1 DW 1 (GEL 213) - On completion of Blanche No 1 the Company used the Boart Longyear UDR-1200 drill rig to clean out and re-enter the 1970's mineral exploration drill hole SAP 1, located about 17 kilometres south west of Blanche No 1 in GEL 213. The objective of cleaning out SAP 1 was to record a temperature gradient within an area where the sedimentary cover rocks were known to be in excess of 1,396m deep, the depth of SAP 1. Basement rock had not been intersected in the local area. The cleaned out hole was referred to as SAP 1 DW 1. Due to down-hole blockages in SAP 1 the Company was unable to measure temperatures below a depth of 696 metres. Although these measurements were taken immediately after completion of the drilling and may not be a equilibrium temperature they suggest that SAP 1 is outside the Olympic Dam heat flow anomaly.

Estimated cost of environmental and aboriginal clearances for SAP1 and drilling and temperature measurements for SAP 1 is \$154,550.

An update review of the electricity market and pricing in South Australia was carried out.

6. COMPLIANCE WITH PETROLEUM ACT

6.1 Regulated Activities

Most of the field activities undertaken were in preparation for and implementation of the exploration drilling in the GELs or temperature measurements in old drill hole SAP No. 1 in GEL 213. Prior to commencement of any site work for drilling, environmental clearances were sought and obtained from Fatchen Environmental Pty Ltd for 16 potential drill sites:

- Blanche 1 and WMC Resources exploration hole site SGD4 on GEL128;
- WMC Resources exploration drill sites ACD3, PD2 & 3 and WRD1 & 2 on GEL129;
- WMC Resources exploration drill sites TOD1 & 2 and 3 new sites on GEL161;
- WMC Resources exploration drill site SGD5 on GEL162;
- WMC Resources exploration drill site WRD3 and one new site on GEL163;
- SAP 1 WD 1 on GEL 213.

This included re-entering the old WMC drill holes as listed above. Clearance was also obtained from three aboriginal claimant groups (Barngarla, Kokatha & Kuyani) for four of those (ACD3, PD2, SGD5, WRD2) and four of the new sites which included the site of the first exploratory well Blanche No 1. Drilling of Blanche No 1 was carried out by the major international drilling company Boart Longyear and geophysical logging by Geoscience Associates (GA). Some geophysical logs could only be measured down to depths that corresponded to about 75°C because some of GA's down hole logging tools could not operate at higher temperatures. Lack of affordable logging tools for higher temperatures that can be used in slim holes is an impediment to effective geothermal exploration in Australia.

6.2 Compliance

No instances of non-compliance were noted.

6.3 Management Systems

Green Rock Energy is committed to implementing the highest standards of corporate governance. In determining what those high standards should involve, the Company has been guided by the ASX Corporate Governance Council's Principles of Good Corporate Governance and Best Practice Recommendations. The Company has in place a detailed Health, Safety and Environment Management Plan, Occupation Health and Safety Procedures and Emergency Response Procedures to cover the activities of the Company, its contractors and visitors. No significant change was made to these procedures which were implemented in the first licence year.

6.4 Relevant Reports and Data

Reports and data submitted to PIRSA during the course of the year were as follows:

- Blanche No 1 Geothermal Exploration Hole Completion Report (dated 2 March 2006)
- Well Completion Report SAP 1 DW1 (dated 17 March 2006)
- Geophysical Well Logs – Blanche No 1 and SAP1 DW1 (dated January 2006)

6.5 Reportable Incidents

Small oil spills were noted at Blanche 1. It was estimated that the spillages ranged from small, temporary leaks less than one litre in volume to about 2 to 3 litres spilled at the generator spill site and a similar amount under the drill rig. Spillages covered areas from a few square centimetres to about 0.5m². The oil leaks were examined with the drilling contractor on Friday 26th August 2005 and the following changes were made to how oils and fuel are handled on site:

- A minor hydraulic fluid leak was fixed on the rig. The entire base of the rig was covered with a PVC mat and an absorbent layer and banded at the edges.
- The freestanding generator was filled from a fuel dispensing truck. The truck carried absorbent matting in case of inadvertent fuel leaks are noted. The drilling rig was also filled from the truck.

6.6 Foreseeable Threats

No threats have been identified.