



ANNUAL REPORT

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

2 June 2007 to 1 June 2008

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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 to the west of the Olympic Dam mine and existing high voltage power line.

1.2 Period

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.

This report covers the activities in respect of GEL 128, 129, 161, 162 and 163 for Year 4, GEL 206 for year 3 and GEL 213 for year 2 being the period from 2 June 2007 to 1 June 2008. With the approved variation to the work program (see 2. Below) the work for each permit year can be performed in any of GEL 128, GEL 129, GEL 161, GEL 162, GEL 163, GEL 206 and GEL 213.

1.2 Licence Data

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

1.3 Licencee

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

A floating work program over common licence years for GEL 128, 129, 161, 162, 163, 206 and 213 was approved and entered on the public register on 30 May 2007. As a result, the exploratory operations required to be conducted in GEL 128, GEL 129, GEL 161, GEL 162, GEL 163, GEL 206 and GEL 213 are:

Year	Minimum Work Requirements	Estimated Cost \$
1	Review existing geological data & assessment of the technical application of HDR technology Evaluation of electric power market and preliminary economic assessment of the technology	25,000
2	Drill Blanche No 1 stratigraphic well (1,500 -2,000m) to to evaluate temperatures, stress regimes & rock	1,500,000

	characteristics at depth	
3	Borehole breakout analysis of Blanche No 1 well to ascertain direction and magnitude of principal horizontal stresses. Geological and geophysical studies <i>Year 3 program for GEL 206 to be conducted anywhere within the boundaries of GELs 128, 129, 161, 162, 163, 206 and 213.</i>	50,000
4	Mini-hydro fracture stimulation in Blanche No 1 in GEL 128 Geological and geophysical studies <i>Year 4 program to be conducted anywhere within the boundaries of GELs 128, 129, 161, 162, 163, 206 and 213</i>	400,000
5	Drill a deep well (4,500 to 6,000 metres) Fracture stimulation Microseismic monitoring <i>Year 5 program to be conducted anywhere within the boundaries of GELs 128, 129, 161, 162, 163, 206 and 213</i>	\$10,000,000

3. WORK CONDUCTED

As a result of the approved variations to the work program for GELs 128, 129, 161, 162, 163, 206 and 213 the following work conducted during the year fulfilled the minimum Work Requirements for all of those GELs for the year ended 1 June 2008 9ie Year 4 for GELs 128, 129, 161, 162, 163, Year 3 for GEL 206 and Year 2 for GEL 213):

3.1 Data & Technical Reviews

a. Water Requirements

Consultations continued with BHP Billiton concerning the potential use of BHPB waste water for the deep water circulation requirements to recover heat from the hot granites.

b. Expert Review

The Company commissioned a review by international geothermal energy expert organisation, GeothermEx, of electricity generation potential of the hot granites near Blanche No 1.

3.2 Work Program

a. Hydraulic Fracturing/Hydraulic Injection Stress Measurements in Blanche No 1

Hydraulic-pressure testing was carried out to confirm the stress field and associated pressure required to open fractures in Blanche No 1. The testing was performed with the co-operation of MeSy, CSIRO and Southern Geosciences using equipment supplied by MeSy and a televiewer imported from Europe supplied by ALS.

b. Seismic Monitoring of Blanche-1 Mini-Frac

Seismic monitoring of the hydraulic fracture testing was carried out by Institute of Earth Science and Engineering, University of Auckland. The monitoring commenced around one month before the actual testing and continued for about a month after the hydro-fracture testing was completed. Monitoring of BHP Billiton activities over this duration was also carried out for BHP Billiton at no cost to BHP Billiton.

c. Thermal Conductivity Measurements of Sediments

In order to assess the thermal insulating properties in the Stuart Shelf sediments to the west of Blanche No 1, a comparison was made between Pandurra Formation lithologies intersected in various drill holes to the west and south of Blanche 1. These included the two recently drilled Minotaur holes (Westopolis and Northopolis) and a number of holes drilled to the south of Olympic Dam in the former Green Rock Energy Stuart Shelf Project area.

The information obtained will be useful for future evaluation and development drilling near Blanche 2 where a significant thickness of Pandurra Formation is expected. It should be noted that the Pandurra Formation was intersected in Blanche 1. This makes the formation more extensive in area than the limits shown in the PIRSA 3D Geological Map of South Australia.

Lithological logs were sourced from Minotaur as well as the PIRSA SARIG library. Thermal conductivities were measured by Hot Dry Rocks Pty Ltd from 20 selected core specimens from the Minotaur drill holes. Results ranged from

- a. to 5.66 W/mK in keeping with the lithologies.

4. FORWARD WORK COMMITMENT

During the next licence year Green Rock Energy intend to drill one geothermal production well to a depth of 3,500m near the original test well, Blanche 1. This will include determining the final preferred location of the well, compiling the drilling and completion designs of the well and designing the well testing program. The well testing activities will include geophysical wireline logging, fracture stimulation and micro-seismic monitoring of the fracture stimulation. The estimated cost to drill and test the well is \$11 million.

Prior to determining the preferred location for the new well Green Rock Energy may re-process the existing seismic survey and complete a vertical seismic profile in Blanche 1 and re-run full wave sonic and gamma, density geophysical logging tools to improve the accuracy of the seismic results.

5. YEAR'S EXPENDITURE (commercial in confidence)

6. COMPLIANCE WITH PETROLEUM ACT

6.1 Regulated Activities

Field work carried out within the GELs included Hydraulic Fracturing & Seismic Monitoring in Blanche No 1. In addition mineral drill holes within the GELs were re-entered to record temperatures and measurements taken from the core of thermal conductivities within the Stuart Shelf sediments to the south of Blanche No 1.

6.2 Compliance

No instances of non-compliance were noted.

6.3 Statement of Compliance

Obj.	Assessment Criteria or Guide	Compliance
	General/Management Systems	
1	HSE induction for employees and well-site visitors	Site Induction, HSE Systems Bridging Document, and Emergency Response Plan prepared and presented to all site personnel prior to min-frac test.
2	Hazardous area plan visible onsite.	Covered by documents noted in Objective 1.
3	Effective Preventative Maintenance System in place.	Covered by documents noted in Objective 1.
4	Effective Safety Management System in place. Records available? Sling/wire rope register?	Green Rock Energy Health, Safety & Environmental management system in place.
5	Bridging documents onsite where operator has bridged into contractors management systems/SOP's.	Covered by documents noted in Objective 1.
6	Organisational structure in place - reporting.	Covered by documents noted in Objective 1.
7	Emergency Response Plan in place and documents present at worksite. Time to last exercise?	Covered by documents noted in Objective 1.
8	House keeping	Min-frac site was generally laid out in an organised and efficient manner with minimal clutter.
	On-site Activities	
1	Signage in place to warn third parties of access restrictions and trucking movements.	Signage was placed at the site during the mini-frac test.
1	Appropriate PPE is issued and is available if required.	Safety hats with wide brims were supplied. An air-conditioned shelter was provided during summer.
1	Permit to work system is in place.	Permit to work was provided by PIRSA for the mini-frac operations.
1,7	Fire procedures in place. Adequate fire appliances on site.	Fire extinguishers were provided on site.
2	No evidence of any off-road driving or creation of shortcuts.	No off-road activities.
2	No evidence of major pad construction.	No pads needed.
2	No construction activities on gibber.	No gibber at Blanche 1.

2	No evidence of vehicle movement on the gibber and exposed soils in wet conditions (rutting).	No rutting or gibbers evident.
2,7	Surface scrapings of soils and plant material (including sumps) has been stockpiled on cleared edge of site in preparation for rehabilitation.	Not needed for the mini-frac project.
2,12	Gibber mantle on access tracks has not been removed, only rolled, during construction and restoration on gibber and tableland land systems.	No gibbers.
2	Assess road levelling and borrow usage (if required).	No new access road required.
2	All fuel, oil and chemical storages banded in accordance with the appropriate standards.	Oil absorbency mats used for all oil containers. No large volume fuel storage on site.
2	No evidence of spills or leaks outside of areas designed to contain them (banded areas).	No spills.
3	No pest plant species or feral animals to be imported into the operational area.	No.
4	Existing access tracks utilised, minor changes to track definition only, in conjunction with lease construction to maintain existing water flows.	No new tracks needed for the mini-frac test.
4	Refuelling procedures in place to avoid groundwater contamination (trailer or banded area for non-trailer/overhead tank systems).	Oil absorbency mats used for all oil containers. No large volume fuel storage on site.
5	Any identified cultural heritage sites have been identified and avoided.	Blanche 1 site subject to an archaeological and ethnographic inspection prior to drilling.
7	Facilities (e.g. borrow pits, well cellars) not established in a location that appears to pose an unacceptable risk to stock or wildlife and is fenced where appropriate.	No excavations carried out.
10	Potential sources of contamination are fenced as appropriate to prevent stock access.	No potential contamination sources.
11	No evidence of spills or leaks from sewage processing/storage facilities. Disposal in EPA approved centres off-site.	No in-ground sewage systems used on site.
11	Waste on site is confined by covered bins/skips. No evidence of waste disposal to sumps. Evidence of litter clean-up during and post drilling.	All litter and waste was removed from site.
1,12	Induction for all employees and contractors covers pastoral, conservation, legislation and infrastructure issues.	A site induction with local pastoral manager was completed prior to activities.
12	No ripping of the gibber during rehabilitation. Sump and pits filled. Top soil and stones, if removed during levelling, respread and soil profile and contours are reinstated following completion of operations.	No site clearing activities were needed.

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 initiated 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:

- a. Hydraulic Fracturing/Hydraulic Injection Stress Measurements in Blanche No 1- Final Report
- b. Blanche No 1 – Mini-Frac Seismic Monitoring – Final Report
- c. Reprocessing of GA/PIRSA Seismic lines, Olympic Dam

6.5 Reportable Incidents

There were no reportable incidents.

6.6 Foreseeable Threats

No material threats have been identified.

The Company had a number of meetings in Adelaide with BHPB to ensure BHPB were advised of Green Rock Energy's plans for evaluating and developing the geothermal energy in the vicinity of Blanche No 1 and to avoid BHPB planning to install facilities in the same area which could sterilise the land for geothermal energy developments.

Seismic monitoring before, during and after the hydro-fracking revealed no detectable movements originating underground from the hydro-fracturing activities or from natural events. The seismic sensors did detect movements from blasting and other activities by BHPB and by trucks moving past the site of Blanche No 1.

Some BHPB personnel viewed the hydro-pressure testing on site at the invitation of the Company. Senior personnel who attended while the pressure testing was in progress, included Barry Mitchell Vice President, Mining, Glenton Mungur Superintendent, Geotechnical Engineering, and Kevin Stacey Geotechnical Engineer.

Date prepared 10 July 2008