Geothermal Exploration License 97 Annual Report for 2002
Revised as requested by 30 September 2003

Introduction

GEL 97 was granted to South Australian Geothermal Energy Pty Ltd (SAGE) on 14th November 2001. On 8th May 2002 SAGE was acquired by Geodynamics Limited as a wholly owned subsidiary. As part of the transfer agreement a number of studies relating to the geothermal energy potential of GEL 97 were undertaken by CSIRO. These studies were aimed at fulfilling the guaranteed 1st years work program negotiated by SAGE with Primary Industries and Resources South Australia (PIRSA).

Location for Main Injection Well

Once Geodynamics had acquired SAGE, a matrix-type analysis was carried out to determine the optimal site for the main injection well, now named Habanero 1. Two general locations were considered for the first well, in the vicinity of the Burley wells in GEL 97 and adjacent to McLeod 1 in GEL 98. The main considerations in order of importance were:

Condition	**Burley area**	**McLeod area**
Flooding	Very prone	No concerns
Scale up (faults and granite top topography)	Seismic indicates no concerns	Seismic indicates no concerns
Granite type	High radiogenic content possibly more variation	Lower radiogenic content less variation
Stress field	S_h close to S_v	S_h more likely to be higher than S_v
Existing monitoring wells	Two wells available but condition uncertain	One well available with access to 2,800m
Temperature	245ºC at granite contact	232ºC at granite contact
Gravity anomaly	Closer to centre	South of centre
Water storage	Difficult	Good site
Depth to granite	3,600m	3,750m

Consultants were employed to study the existing seismic data covering the two regions with reinterpretation of the depth to granite over the areas, and a study of the likelihood of faults lying close to the proposed new well. After full discussion and analyses of these conditions McLeod 1 in GEL98 was determined as the best location to carry out the “Proof of Concept” despite the fact that the Burley area is know to be hotter.

Other activities

Much of the work that was carried out was managed by Dr John Shirley, Director of SAGE. The reports covering GEL 97 including those directed by Dr John Shirley are listed in Table 1. Many of these reports are also of relevance to GEL 98 owned directly by Geodynamics, and are also listed in the GEL 98 Year 1 Annual Report

Table 1 – Year I Work Program Reports completed relating to Geothermal Potential of GEL 97

Author	Title	Digital file
C.J.Otto	Aquifer Pumping Test Simulations for Water requirements at the Hot Dry Rock Pilot Site near Innamincka, South Australia	pumpingtests (Water Study).doc
P.W. Schmidt and D.A. Clark	Magnetic and Gravity Models for Geothermal Exploration Licenses 97 and 98, South Australia	Hot Dry Rocks Restricted Report(Gravity&Magnetic).doc
R.V. Halyburton	Wire-Line Log Response in Granodiorite – A Review of Three Wells in the Cooper Basin, South Australia	Altered Granite Note.doc
R.V. Halyburton	A Review of Bottom-Hole Temperature Estimation in McLeod-1, Cooper Basin, South Australia	BHT Analysis.doc
B. Jensen-Schmidt	Burley & McLeod Area Granites Seismic Study Report for Geodynamics Ltd	Brent report.doc (plus tif images
CSIRO	Risk and Uncertainty Management Project	HDR RUG progress 11Sep02.ppt
Milovan Urosevic	Geothermal project – reprocessing of seismic data and analysis	COOPER_REPORT (Seismic).ppt
R.V. Halyburton	Analysis of possible Temperature/ Pressure Changes in a HDR System in the Cooper Basin, South Australia	P-T Sensitivity.doc

Reporting Against Requirements of the Petroleum Act 2000

(a) Summary of the regulated activities conducted under the licence during the year

Geodynamics did not embark on any regulated activities under the Petroleum Act 2000 in GEL 97 during the period. Digital copies of the reports of activities undertaken (see above Table) are attached to this report. None of these activities are regulated activities.

(b) Report for the year on compliance with the Act, these regulations, the licence and any relevant statement of environmental objectives

As no regulated activities were undertaken much of the regulations have no bearing on this Annual report. However there were two instances of non- compliance. (i) the reports listed in the Table above were not conveyed to PIRSA within the two month period from receiving them as laid down by the Regulation 47. (ii) The Annual Report was not received within 2 months after the end of the licence year as laid down by Regulation 33.

(c) Actions to rectify non-compliance with obligations imposed by the Act, these regulations or the licence, and to minimise the likelihood of the recurrence of any such non-compliance; and (d) a summary of any management system audits undertaken during the relevant licence year, including information on any failure or deficiency identified by the audit and any corrective action that has, or will be, taken.

Geodynamics is putting into effect significant changes to its management system for undertaking activities under the Petroleum Act. The company has employed a Manager of Logistics and Compliance whose role will be to specifically track our activities under the Act and ensure that we comply with all Regulations. Computer based tracking systems are being implemented.

(e) List all reports and data relevant to the operation of the Act during the relevant licence year.

All reports are listed in the Table above. We have double checked our files and there are no other reports.

(f) Report of incidents reportable to the Minister under the Act and regulations

None reported.

(g) Report on any reasonably foreseeable threats that reasonably present, or may present, a hazard to facilities or activities under the licence, and a report on any corrective action that has, or will be, taken.

No threats identified

(h) Operations proposed for the ensuing year

Work on GEL 97 in the year 1 work program has shown that the granite may be larger than originally modelled, and the topography of the granite top is greater than previously indicated on the seismic lines examined. There is also a indications that the alteration zone is mappable into the upper part of the granite.

The main aim of the year 2 work program in GEL 97 will be to extend the gravity database. At present only 27 gravity data points have been measured in GEL 97, and this is no where near sufficient to locate the granite contact. We are confident that by combining a detailed gravity survey with accurate depth to basement determined along seismic lines a very good understanding of the granite distribution can be made. We propose to add approximately 300 gravity stations on detailed gravity traverses (500m spacing) along existing seismic lines and roads.

Table of Activities proposed for GEL 97 Year Two Program

Assessment of tenement environmental issues
Assessment of tenement aboriginal heritage issues
Gravity survey: (contract)
Gravity data: Supervision, processing and analysis
Seismic reprocessing and analysis
Granite margin interpretation and internal structure
Temperature logging of existing petroleum wells (may not be possible)

Expenditure for year 1

Commercial in confidence