

Petroleum Act 2000
S.115

MEMORANDUM

**GEOHERMAL EXPLORATION LICENCES
GEL 97 AND GEL 98**

1. Notation of revision to security arrangements is hereby entered on the public register of licences.



**C. D. COCKSHELL
A/Director Petroleum
Minerals and Energy Division
Primary Industries and Resources SA
Delegate of the Minister for Mineral Resources
Development**

Date: 23 June 2005

File: 27/2/215
27/2/216


Petroleum Act 2000
S.115

MEMORANDUM

GEOHERMAL EXPLORATION LICENCE
GEL 97

1. The following amendment is hereby entered on the public register.
2. The condition referred to in the instrument "Variation of Geothermal Exploration Licence GEL 97" dated 11 April 2003 should be taken to read condition "1" in lieu of "2" and "1" instead of "2", effective from 11 April 2003.
3. Condition 1 now reads:
 1. During the term of the licence, the Licensee shall carry out or cause to be carried out exploratory operations on the area comprised in the licence in accordance with such work programs as are approved by the Minister from time to time. Year one exploratory operations are guaranteed. These exploratory operations shall include but not necessarily be limited to:-

Year of Term of Licence	Minimum Work Requirements
One	Area Review; Feasibility and commercial negotiations for funding.
Two	Conduct gravity survey and temperature logging of existing wells (if practicable)
Three	Interpret gravity, seismic and temperature data to delineate sub-basin granite distribution.
Four	Review geological, environmental and heritage information to establish potential best location for HDR development.
Five	Investigate feasibility for commercial development of geothermal resource.



TERENCE AUST
Acting Director Petroleum
Minerals and Energy Division,
Primary Industries and Resources SA
Delegate of the Minister for Mineral Resources
Development

Date: 14 April 2004

27/2/215

Petroleum Act 2000
S.115

MEMORANDUM


GEOHERMAL EXPLORATION LICENCE
GEL 97

1. Notation of approval and registration of the following document is hereby entered on the Public Register:

SA 2003-47 Assignment Agreement dated 9 October 2003 between Geodynamics Limited and South Australia Geothermal Energy Pty Ltd.

Interests in the Licence are:

Geodynamics Limited	100%
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BARRY A. GOLDSTEIN
Director Petroleum
Minerals and Energy Division
Primary Industries and Resources SA
Delegate of the Minister for Mineral Resources
Development

Date: 27 November 2003

27/2/215

PETROLEUM ACT 2000

Grant of Speculative Survey Licence SSL 5

NOTICE is hereby given that Speculative Survey Licence SSL 5 has been granted pursuant to delegated powers dated 28 March 2002, *Gazetted* 11 April 2002, page 1573.

No. of Licence	Licensee	Locality	Date of Expiry	Area in km ²	Reference
5	Essential Petroleum Resources Limited	Otway Basin of South Australia	10 April 2004	37	27/2/256

Description of the Area

All that part of the State of South Australia, bounded as follows: Commencing at a point being the intersection of latitude 37°58'00"S GDA94 and longitude 140°55'00"E GDA94, thence east to the eastern border of the State of South Australia, thence southerly along the border of the said State to the northern boundary of Piccaninnie Ponds Conservation Park, thence generally westerly along the boundary of the said Park to longitude 140°55'00"E GDA94 and north to the point of commencement but excluding Lower Glenelg River Conservation Park.

Area: 37 km² approximately.

Dated 11 April 2003.

B. A. GOLDSTEIN, Director Petroleum,
Minerals, Petroleum and Energy,
Primary Industries and Resources SA
Delegate of the Minister for Mineral Resources Development

PETROLEUM ACT 2000

Variation of Exploration Licence GEL 97

NOTICE is hereby given that pursuant to delegated powers dated 28 March 2002, *Gazetted* 11 April 2002, page 1573, the conditions of Exploration Licence GEL 97 have been varied as follows:

Condition 2 has been omitted and the following substituted:

'During the term of the licence, the Licensee shall carry out or cause to be carried out exploratory operations on the area comprised in the licence in accordance with such work programs as are approved by the Minister from time to time. Year one exploratory operations are guaranteed. These exploratory operations shall include but not necessarily be limited to:

Year of Term of Licence	Minimum Work Requirements
One	Area Review Feasibility and commercial negotiations for funding.
Two	Conduct gravity survey and temperature logging of existing wells (if practicable).
Three	Interpret gravity, seismic and temperature data to delineate sub-basin granite distribution.
Four	Review geological, environmental and heritage information to establish potential best location for HDR development.
Five	Investigate feasibility for commercial development of geothermal resource.'

The effect of this variation is to nominally reduce the work program in GEL97 from that originally proposed (but not guaranteed). As no other competitive tenders were received for this area at the time of offer of the licence, no other parties are affected by this variation. The variation recognises the now common ownership with the adjacent GEL98 and that the work originally proposed will be carried out in one or other of the licence areas.

Dated 11 April 2003.


B. A. GOLDSTEIN, Director Petroleum,
Minerals, Petroleum and Energy,
Primary Industries and Resources SA
Delegate of the Minister for Mineral Resources Development

**Petroleum Act 2000
S.115**

MEMORANDUM

**PETROLEUM EXPLORATION LICENCE
GEL 97**

1. Variation of licence conditions is hereby entered on the public register.



**B A GOLDSTEIN
Director Petroleum
Minerals, Petroleum and Energy
Primary Industries and Resources SA
Delegate of the Minister for Mineral Resources Development**

Date: 11 April 2003

Ref: 27/2/215

Petroleum Act 2000

VARIATION OF GEOTHERMAL EXPLORATION LICENCE GEL 97

I, BARRY ALAN GOLDSTEIN, Director Petroleum, Minerals Petroleum and Energy, Department of Primary Industries and Resources in the State of South Australia, pursuant to section 25 of the *Petroleum Act 2000* and all other enabling powers, for and on behalf of Paul Holloway, Minister for Mineral Resources Development (Minister), pursuant to delegated powers dated 28 March 2002, Gazetted 11 April 2002, page 1573 hereby vary the conditions of geothermal exploration licence GEL 97 held by -

South Australia Geothermal Energy Pty Ltd

Condition 1 of the licence is omitted and the following substituted:

- “ 2. During the term of the licence, the Licensee shall carry out or cause to be carried out exploratory operations on the area comprised in the licence in accordance with such work programs as are approved by the Minister from time to time. Year one exploratory operations are guaranteed. These exploratory operations shall include but not necessarily be limited to:-

Year of Term of Licence	Minimum Work Requirements
One	Area Review; Feasibility and commercial negotiations for funding.
Two	Conduct gravity survey and temperature logging of existing wells (if practicable)
Three	Interpret gravity, seismic and temperature data to delineate sub-basin granite distribution.
Four	Review geological, environmental and heritage information to establish potential best location for HDR development.
Five	Investigate feasibility for commercial development of geothermal resource.

Dated: 11 April 2003



B A GOLDSTEIN
Delegate of the Minister for Mineral Resources
Development

GRANT OF EXPLORATION LICENCE (P)EL 88

Office of Minerals and Energy Resources, Adelaide, 16 November 2001

NOTICE is hereby given that the undermentioned Exploration Licence has been granted under the provisions of the Petroleum Act 2000, pursuant to delegated powers dated 25 September 2000, *Gazetted* 28 September 2000, page 2289.

R. A. LAWS, Director Petroleum, Office of Minerals and Energy Resources,
Delegate of the Minister for Minerals and Energy

No. of Licence	Licensee	Locality	Date of Expiry	Area in km ²	Reference
88	Liberty Petroleum Corporation	Cooper Basin of South Australia	15 November 2006	4 987	SR.27.2.166

Description of the Area

All that part of the State of South Australia, bounded as follows: Commencing at a point being the intersection of the northern border of the State of South Australia and longitude 140°20'E, thence easterly along the border of the said State to the eastern border of the State of South Australia, thence southerly along the border of the said State to latitude 26°50'S, west to longitude 140°45'E, north to latitude 26°35'S, west to longitude 140°20'E and north to the point of commencement but excluding the area bounded as follows:

Commencing at a point being the intersection of latitude 26°48'30"S and longitude 140°50'25"E, thence east to longitude 140°50'55"E, south to latitude 26°48'40"S, east to longitude 140°51'05"E, south to latitude 26°49'20"S, east to longitude 140°51'10"E, south to latitude 26°49'30"S, west to longitude 140°51'05"E, south to latitude 26°49'40"S, west to longitude 140°50'25"E, north to latitude 26°49'30"S, west to longitude 140°50'15"E, north to latitude 26°48'40"S, east to longitude 140°50'25"E, and north to the point of commencement, all the within latitudes and longitudes are geodetic and expressed in terms of the Australian Geodetic Datum as defined on p. 4984 of *Commonwealth Gazette* number 84 dated 6 October 1966.

Area: 4 987 km² approximately.

GRANT OF GEOTHERMAL EXPLORATION LICENCE (G)EL 97

Office of Minerals and Energy Resources, Adelaide, 14 November 2001

NOTICE is hereby given that the undermentioned Exploration Licence has been granted under the provisions of the Petroleum Act 2000, pursuant to delegated powers dated 25 September 2000, *Gazetted* 28 September 2000, page 2289.

R. A. LAWS, Director Petroleum, Office of Minerals and Energy Resources,
Delegate of the Minister for Minerals and Energy

No. of Licence	Licensee	Locality	Date of Expiry	Area in km ²	Reference
97	South Australia Geothermal Energy Pty Ltd	Cooper Basin of South Australia	13 November 2006	497	SR.27.2.215

Description of the Area

All that part of the State of South Australia, bounded as follows: Commencing at a point being the intersection of latitude 27°41'00"S GDA94 and longitude 140°36'00"E GDA94, thence east to longitude 140°41'00"E GDA94, south to latitude 27°52'00"S GDA94, west to longitude 140°39'00"E GDA94, south to latitude 27°53'00"S GDA94, west to longitude 140°35'00"E GDA94, south to latitude 27°54'00"S GDA94, west to longitude 140°30'00"E GDA94, north to latitude 27°53'00"S GDA94, west to longitude 140°28'00"E GDA94, north to latitude 27°51'00"S GDA94, west to longitude 140°27'00"E GDA94, north to latitude 27°50'00"S GDA94, west to longitude 140°26'00"E GDA94, north to latitude 27°43'00"S GDA94, east to longitude 140°32'00"E GDA94, north to latitude 27°42'00"S GDA94, east to longitude 140°36'00"E GDA94, and north to point of commencement.

Area: 497 km² approximately.

MEMORANDUM

GEOHERMAL EXPLORATION LICENCE NO. (G)EL 97

1. This Licence granted on *14* November 2001 is hereby entered on the Petroleum Register.

2. Interests in the Licence are:

South Australia Geothermal Energy Pty Ltd	100%
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R A LAWS
Director Petroleum
Office of Minerals and Energy Resources
Delegate of the Minister for Minerals and Energy

Date: *14* November 2001

SR 27/2/215

PETROLEUM ACT 2000

EXPLORATION LICENCE (G)EL 97

I, ROBERT ANTHONY LAWS, Director Petroleum, Office of Minerals and Energy Resources, in the State of South Australia pursuant to the provisions of the *Petroleum Act, 2000* and all other enabling powers, for and on behalf of Wayne Anthony Matthew, Minister for Minerals and Energy (Minister), pursuant to delegation dated 25 September 2000, (refer Government Gazette dated 28 September 2000 page 2289), HEREBY GRANT to:

South Australia Geothermal Energy Pty Ltd
ACN 097 124 653

(hereinafter referred to as the Licensee) an Exploration Licence in relation to a source of geothermal energy in respect of the area set out below, to have effect for a period of five years and to expire on 13 November 2006 but carrying the right of renewal under the *Petroleum Act 2000*.

DESCRIPTION OF AREA

The land comprised in this licence is that part of the State of South Australia described in the Schedule hereto:

CONDITIONS

1. During the term of the licence, the Licensee shall carry out or cause to be carried out, exploratory operations on the area comprised in the licence in accordance with such work programs as are approved by the Minister from time to time. Year one exploratory operations are guaranteed. These exploratory operations shall include but not necessarily be limited to:-

Year of Licence	Minimum Work Requirements
One	Area review. Feasibility and commercial negotiations for funding.
Two	Feasibility and funding negotiations. Final drill site selection. Source high temperature equipment. Design and drill HDR#1 – injection well. Initial stimulation HDR#1 and microseismic reservoir definition.
Three	Feasibility, design continuing. Completion of testing program, design for HDR#2. Drill HDR#2 – first production well. Source pumping equipment for flow test. Stimulation and reservoir definition. Commence flow testing using the 2 wells.

Four	Feasibility, design continuing. Drill HDR#3 - second production well. Stimulate HDR#3 and further stimulation in injection well HDR#1 with continuing reservoir definition. Continuation of flow testing.
Five	Further flow testing. Design and install demonstration generator. Commence feasibility for commercial development, a 10 unit (each of 50 MWe) unitised development for supply of 350MWe.

2. The Licensee and any staff, consultants and contractors of the Licensee shall abide by any rules the Minister may from time to time establish for safe driving on roads and use of roads in the Cooper Basin region (herein defined to be that area bounded by 29°30' south latitude, 139° east longitude and the border of South Australia with Queensland).
3. The Licensee must take all reasonable precautions to minimise the risks of its activities resulting in a significant loss of petroleum reserves or a significant reduction in the recovery of petroleum reserves.
4. The Licensee must:
 - (a) upon commencement of regulated activities under this licence, maintain in force during the term of this licence public liability insurance to cover regulated activities under this licence (including sudden and accidental pollution) in the name of the Licensee for a sum not less than twenty million dollars (\$20,000,000.00) or such greater sum as specified by the Minister and make such amendments to the terms and conditions of the insurance as the Minister may from time to time require;
 - (b) maintain in force during the drilling of any well or operation in any well, control of well insurance in the name of the Licensee for a sum not less than ten million dollars (\$10,000,000.00) or such greater sum as specified by the Minister and make such amendments to the terms and conditions of the insurance as the Minister may from time to time require;
 - (c) upon request by the Minister, provide the Minister with a cover note or certificate of currency of each insurance policy referred to in paragraphs (a) and (b).
5. The Minister in specifying the levels of insurance accepts no liability for the completeness of their listing, the adequacy of the sum insured, the limit of liability, the scoped coverage the conditions or exclusions of these insurances in respect to how they may or may not respond to any loss, damage or liability.
6. The Licensee will ensure, when preparing an Environmental Impact Report under Part 12 of the *Petroleum Act 2000*, that the report also includes an assessment of the potential economic consequences for other licensees under the *Petroleum Act 2000* or *Mining Act 1971* and owners of land, arising out of proposed regulated activities to be carried out in the licence area.
7. The Licensee must keep confidential any measurements made in a well which would enable the estimation of petroleum reserves ("Confidential Information") and must not disclose the Confidential Information without first obtaining the written consent of the licensee of the overlapping compatible licence, unless:

- (a) it is a disclosure required under the Act, this licence or any other law;
- (b) it is a disclosure which is for the purposes of prosecuting or defending any legal proceedings; or
- (c) it is information which is or becomes public knowledge other than by breach of this licence condition.

8. A contract or agreement entered into by the licensee to transfer or accept liability for any well or facility constructed for the purpose of undertaking a regulated activity under the *Petroleum Act 1940 or 2000* cannot transfer, limit or exclude liability under the *Petroleum Act 2000* unless written consent of the Minister is obtained.
9. In the event that the Licensee during any year of the term of this licence (a year being the period of twelve calendar months ending on the anniversary of the date upon which the licence comes into force) fails to comply with the work program requirements of this licence, it is an express term of this licence that the Minister then may use discretion to either cancel this licence or authorise such variation to these requirements as the Minister thinks fit.
10. The Licensee shall during periods determined by the Minister lodge and maintain a security of \$50,000 (fifty thousand dollars) with the Minister in the form acceptable to the Minister for the satisfaction of obligations arising under the Act or this licence.

Signed by the Director Petroleum,
Office of Minerals and Energy Resources at Adelaide

this 14th day of November 2001



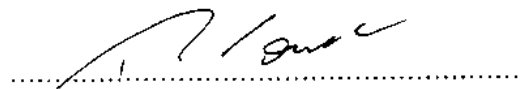
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R A LAWS
Director Petroleum
Office of Minerals and Energy Resources
Delegate of the Minister for Minerals and Energy

Signed sealed and delivered
 by the said LICENSEE

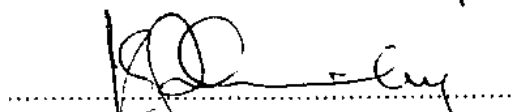
this fourth day of October 2001



The Common Seal of South Australia Geothermal Energy Pty Ltd was hereto affixed by



SECRETARY



DIRECTOR

(GEOTHERMAL) EXPLORATION LICENCE (G)EL 97

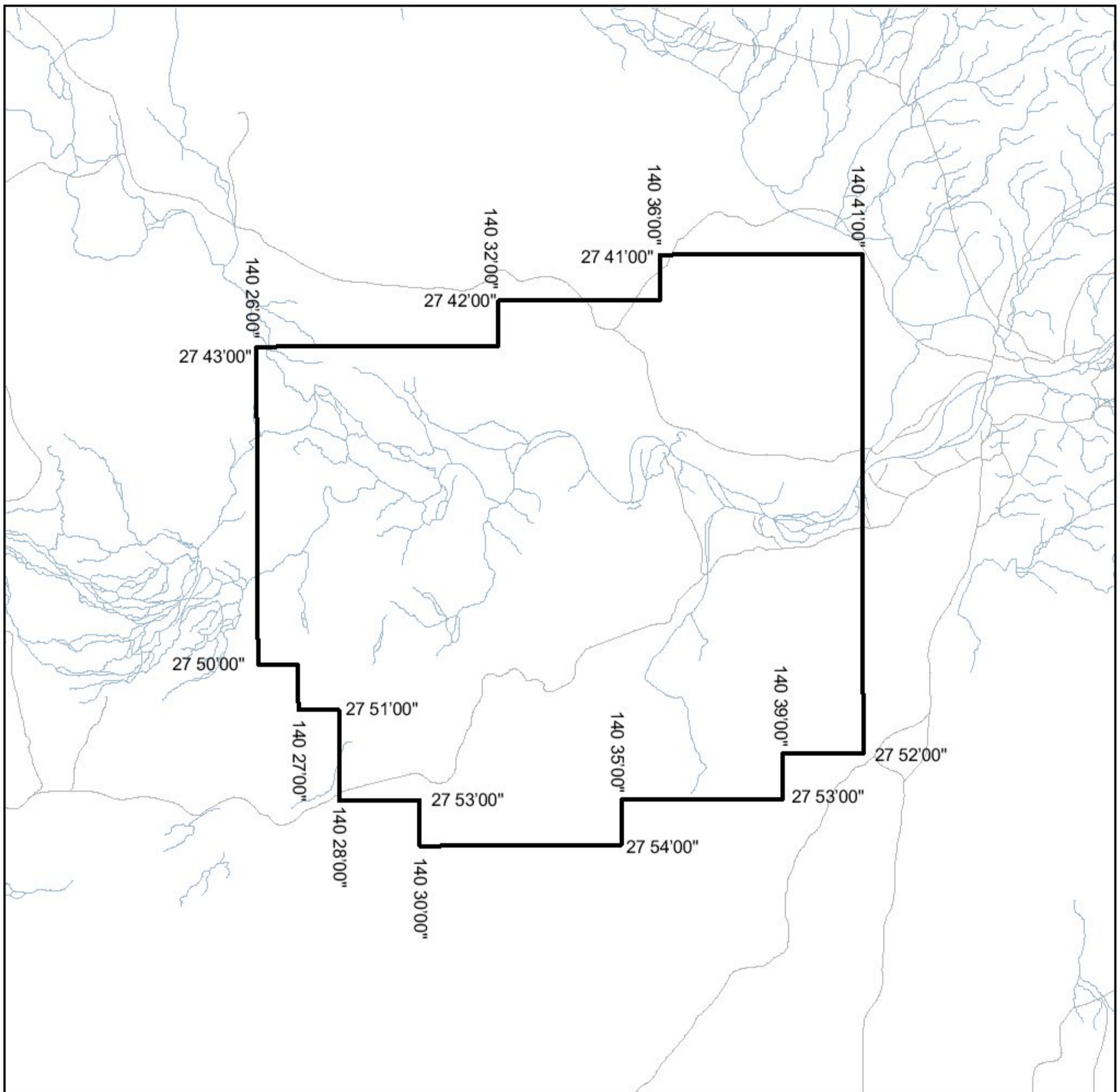
THE SCHEDULE

Description of Area

All that part of the State of South Australia, bounded as follows:-

Commencing at a point being the intersection of latitude 27°41'00"S GDA94 and longitude 140°36'00"E GDA94, thence east to longitude 140°41'00"E GDA94, south to latitude 27°52'00"S GDA94, west to longitude 140°39'00"E GDA94, south to latitude 27°53'00"S GDA94, west to longitude 140°35'00"E GDA94, south to latitude 27°54'00"S GDA94, west to longitude 140°30'00"E GDA94, north to latitude 27°53'00"S GDA94, west to longitude 140°28'00"E GDA94, north to latitude 27°51'00"S GDA94, west to longitude 140°27'00"E GDA94, north to latitude 27°50'00"S GDA94, west to longitude 140°26'00"E GDA94, north to latitude 27°43'00"S GDA94, east to longitude 140°32'00"E GDA94, north to latitude 27°42'00"S GDA94, east to longitude 140°36'00"E GDA94, and north to point of commencement.

AREA: **497** square kilometres approximately.



Note: There is no warranty that the boundary of this licence is correct in relation to other features of the map. The boundary is to be ascertained by reference to the Geocentric Datum of Australia (GDA94) and the schedule.

THE PLAN HEREINBEFORE REFERRED TO
 SOUTH AUSTRALIA GEOTHERMAL ENERGY PTY LTD
 (GEOTHERMAL) EXPLORATION LICENCE No. 97