

**INDEX OF DOCUMENTS HELD ON THE PUBLIC REGISTER FOR
GEOTHERMAL EXPLORATION LICENCE GEL 158**

1. 21 January 2004 Memorandum entering GEL 158 on the public register.
2. 21 January 2004 Geothermal Exploration Licence GEL 158
Interests: MNGI Pty Ltd 100%
3. 30 January 2004 Gazettal of Grant of GEL 158
4. 25 January 2005 Memorandum entering receipt of security in the public register.
5. 27 March 2008 Variation of Work Program
6. 27 March 2008 Memorandum entering Variation on public register
7. 27 March 2008 Gazettal of Variation
8. 17 November 2008 Surrender of licence effective 3 November 2008
9. 17 November 2008 Memorandum entering surrender of licence on the public register
10. 20 November 2008 Gazettal of surrender of licence

PETROLEUM ACT 2000

Surrender of Geothermal Exploration Licence—GEL 158

NOTICE is hereby given that I have accepted surrender of the abovementioned Geothermal Exploration Licence under the provisions of the Petroleum Act 2000, pursuant to delegated powers dated 28 March 2002, *Gazetted* 11 April 2002, page 1573.

No. of Licence	Licensee	Locality	Date of Surrender	Area in km ²	Reference
158	MNGI Pty Ltd	Arrowie East	3 November 2008	499	27/2/267

Description of Area

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

Commencing at a point being the intersection of latitude 29°45'00"S GDA94 and longitude 136°38'00"E GDA94, thence east to longitude 136°45'00"E GDA94, south to latitude 29°46'00"S GDA94, east to longitude 136°48'00"E GDA94, south to latitude 29°47'00"S GDA94, east to longitude 136°49'00"E GDA94, south to latitude 29°48'00"S GDA94, east to longitude 136°51'00"E GDA94, south to latitude 29°49'00"S GDA94, east to longitude 136°52'00"E GDA94, south to latitude 29°52'00"S GDA94, west to longitude 136°51'00"E GDA94, south to latitude 29°53'00"S GDA94, west to longitude 136°49'00"E GDA94, south to latitude 30°00'00"S GDA94, west to the eastern boundary of the Woomera Prohibited Area, thence northerly, westerly and northerly along the boundary of the said Prohibited Area to latitude 29°56'00"S GDA94, east to longitude 136°40'00"E GDA94, north to latitude 29°53'00"S GDA94, west to the eastern boundary of the Woomera Prohibited Area, thence generally northerly along the boundary of the said Prohibited Area to latitude 29°46'00"S GDA94, east to longitude 136°38'00"E GDA94 and north to point of commencement.

Area: 499 km² approximately.

Dated 17 November 2008.

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

Petroleum Act 2000
S.115

MEMORANDUM

GEOHERMAL EXPLORATION LICENCE
GEL 158

1. Surrender of the abovementioned Geothermal Exploration Licence, with effect from 3 November 2008 is hereby entered on the public register.



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

Date: 17 November 2008

Ref: 27/2/267

Petroleum Act 2000

**SURRENDER OF
GEOTHERMAL EXPLORATION LICENCE**

GEL 158

I, BARRY ALAN GOLDSTEIN, Director Petroleum and Geothermal, Minerals and Energy Resources, Department of Primary Industries and Resources, in the State of South Australia, pursuant to the provisions of section 89(2) 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 –

- a) hereby accept surrender of Geothermal Exploration Licence – GEL 158 in the name of MNGI Pty Ltd with effect from 3 November 2008.

Dated: 17 November 2008



**BARRY A. GOLSTEIN
Director Petroleum and Geothermal
Minerals and Energy Resources
Primary Industries and Resources SA
Delegate of the Minister for Mineral Resources
Development**

PETROLEUM ACT 2000

SECTION 25 (5) (b)

Variation of Petroleum Exploration Licence—GEL 158

NOTICE is hereby given that under the provisions of the Petroleum Act 2000, pursuant to delegated powers dated 28 March 2002, *Gazetted* 11 April 2002, page 1573, the conditions of the abovementioned Exploration Licence has been varied as follows:

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

‘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. Years one to four exploratory operations are guaranteed and any subsequent licence year work program becomes guaranteed upon entry into any such licence year. These exploratory operations shall include but not necessarily be limited to:

Year of Term of Licence	Minimum Work Requirements
One	<ul style="list-style-type: none"> • Geological and geophysical review. • Modelling and interpretation of geophysical data. • Historical bore hole thermal data collection (where possible) and analysis. • Historical bore hole petrographic study. • Theoretical modelling of thermal and stress regimes.
Two	<ul style="list-style-type: none"> • Geological and geophysical review.
Three	<ul style="list-style-type: none"> • Geological and geophysical review.
Four	<ul style="list-style-type: none"> • Magneto-telluric survey. • Commercial negotiations, feasibility and development study.
Five	<ul style="list-style-type: none"> • Drill one test well or re-enter existing well. • Down hole thermal analysis. • Drill injection well/convert test well. • Down hole stress analysis. • Reservoir development and modelling. • Drill trial production well. • Fracture, circulation and recovery tests.

Dated 27 March 2008.

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

**Petroleum Act 2000
S.115**

MEMORANDUM

**GEOHERMAL EXPLORATION LICENCE
GEL 158**

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



**BARRY A. GOLDSTEIN
Director Petroleum and Geothermal
Minerals and Energy Resources
Primary Industries and Resources SA
Delegate of the Minister for Mineral Resources Development**

Date: 27 March 2008

Ref: 27/2/267

Petroleum Act 2000

VARIATION OF GEOTHERMAL EXPLORATION LICENCE GEL 158

I, BARRY ALAN GOLDSTEIN, Director Petroleum and Geothermal, Minerals and Energy Resources, 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 vary the conditions of the above-mentioned geothermal exploration licence, held by -

MNGI Pty Ltd

Condition 1 of the licence is 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. Years one to four exploratory operations are guaranteed, and any subsequent licence year work program becomes guaranteed upon entry into any such licence year. These exploratory operations shall include but not necessarily be limited to:-

Year of Term of Licence	Minimum Work Requirements
One	<ul style="list-style-type: none">• Geological and Geophysical review• Modelling and interpretation of geophysical data• Historical bore hole thermal data collection (where possible) and analysis• Historical bore hole petrographic study• Theoretical modelling of thermal and stress regimes
Two	<ul style="list-style-type: none">• Geological and Geophysical review
Three	<ul style="list-style-type: none">• Geological and Geophysical review
Four	<ul style="list-style-type: none">• Magneto-telluric survey• Commercial negotiations, feasibility and development study

Five	<ul style="list-style-type: none">• Drill one test well or re-enter existing well• Down hole thermal analysis• Drill injection well/convert test well• Down hole stress analysis• Reservoir development and modelling• Drill trial production well• Fracture, circulation and recovery tests
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Dated: 27 March 2008

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

Petroleum Act 2000
S.115

MEMORANDUM

GEOHERMAL EXPLORATION LICENCES
GELs 156, 157, 158, 178, 180

1. Notation of receipt of Security on 24 January 2005 is entered on the public register.



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

Date: 25 January 2005

File: 27/2/261
27/2/262
27/2/267
27/2/301
27/2/305

PETROLEUM ACT 2000

Grant of Geothermal Exploration Licences GEL 156, GEL 157 and GEL 158

NOTICE is hereby given that the undermentioned Geothermal Exploration Licences have been granted under the provisions of the Petroleum Act 2000, pursuant to delegated powers dated 28 March 2002, *Gazetted* 11 April 2002, page 1573.

No. of Licence	Licensee	Locality	Area in km ²	Reference
GEL 156	MNGI Pty Ltd	Arrowie Basin of South Australia	498	27/02/261
GEL 157	MNGI Pty Ltd	Arrowie Basin of South Australia	496	27/02/262
GEL 158	MNGI Pty Ltd	Arckaringa Basin of South Australia	499	27/02/267

Description of Area—GEL 156

All that part of the State of South Australia, bounded as follows: Commencing at a point being the intersection of latitude 30°03'00"S GDA94 and longitude 139°29'00"E GDA94, thence east to longitude 139°41'00"E GDA94, south to latitude 30°07'00"S GDA94, west to longitude 139°40'00"E GDA94, south to latitude 30°10'00"S GDA94, west to longitude 139°37'00"E GDA94, south to latitude 30°12'00"S GDA94, west to longitude 139°34'00"E GDA94, south to latitude 30°13'00"S GDA94, west to longitude 139°32'00"E GDA94, south to latitude 30°15'00"S GDA94, west to longitude 139°29'00"E GDA94, south to latitude 30°17'00"S GDA94, west to the eastern boundary of the Arkaroola Gorge (National Estate Register), thence northerly and westerly along the boundary of the said Arkaroola Gorge to longitude 139°22'00"E GDA94, north to latitude 30°10'00"S GDA94, east to longitude 139°25'00"E GDA94, north to the southern boundary of the Freeling Heights Mythological Site (National Estate Register), thence easterly northerly and westerly along the boundary of the said Mythological Site to longitude 139°25'00"E GDA94, north to latitude 30°08'00"S GDA94, east to longitude 139°27'00"E GDA94, north to latitude 30°05'00"S GDA94, east to longitude 139°29'00"E GDA94 and north to the point of commencement, but excluding Yudnamutana Gorge and Paralana Hot Springs areas (National Estate Register).

Area: 498 km² approximately.

Description of Area—GEL 157

All that part of the State of South Australia, bounded as follows: Commencing at a point being the intersection on latitude 29°36'00"S GDA94 and longitude 139°41'00"E GDA94, thence east to longitude 139°43'00"E GDA94, north to latitude 29°34'00"S GDA94, east to longitude 139°47'00"E GDA94, north to latitude 29°33'00"S GDA94, east to longitude 139°52'00"E GDA94, north to latitude 29°32'00"S GDA94, east to the western boundary of Strzelecki Regional Reserve, thence generally southerly along the boundary of the said Regional Reserve and the western boundary of Lake Callabonna Fossil Reserve (G.G. 5.12.1901) to latitude 29°42'00"S GDA94, west to longitude 139°42'00"E GDA94, north to latitude 29°41'00"S GDA94, west to longitude 139°41'00"E GDA94 and north to the point of commencement.

Area: 496 km² approximately.

Description of Area—GEL 158

All that part of the State of South Australia, bounded as follows: Commencing at a point being the intersection of latitude 29°45'00"S GDA94 and longitude 136°38'00"E GDA94, thence east to longitude 136°45'00"E GDA94, south to latitude 29°46'00"S GDA94, east to longitude 136°48'00"E GDA94, south to latitude 29°47'00"S GDA94, east to longitude 136°49'00"E GDA94, south to latitude 29°48'00"S GDA94, east to longitude 136°51'00"E GDA94, south to latitude 29°49'00"S GDA94, east to longitude 136°52'00"E GDA94, south to latitude 29°52'00"S GDA94, west to longitude 136°51'00"E GDA94, south to latitude 29°53'00"S GDA94, west to longitude 136°49'00"E GDA94, south to latitude 30°00'00"S GDA94, west to the eastern boundary of the Woomera Prohibited Area, thence northerly, westerly and northerly along the boundary of the said Prohibited Area to latitude 29°56'00"S GDA94, east to longitude 136°40'00"E GDA94, north to latitude 29°53'00"S GDA94, west to the eastern boundary of the Woomera Prohibited Area, thence generally northerly along the boundary of the said Prohibited Area to latitude 29°46'00"S GDA94, east to longitude 136°38'00"E GDA94, and north to the point of commencement.

Area: 499 km² approximately.

Dated 21 January 2004.

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

Petroleum Act 2000

MEMORANDUM

GEOTHERMAL EXPLORATION LICENCE GEL 158

1. This Licence granted on 21 January 2004 is hereby entered on the public register.
2. Interests in the licence are:-

MNGI Pty Ltd

100%.



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

Date: 21 January 2004

SR 27/2/267

PETROLEUM ACT 2000

GEOHERMAL EXPLORATION LICENCE

GEL 158

I, BARRY ALAN GOLDSTEIN, Director Petroleum, Minerals and Energy Division, Primary Industries and 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 Paul Holloway, Minister for Mineral Resources Development (Minister), pursuant to delegation dated 28 March 2002, (refer Government Gazette dated 11 April 2002 page 1573), HEREBY GRANT to:

MNGI Pty Ltd
ACN 091 525 361

(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 *20 January* 2009 but carrying the right of renewal under the *Petroleum Act 2000*. *BA*

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:-

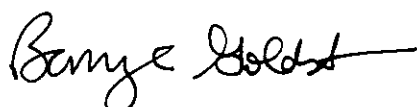
Year of Term of Licence	Minimum Work Requirements
One	<ul style="list-style-type: none">• Geological and Geophysical review• Modelling and interpretation of geophysical data• Historical bore hole thermal data collection (where possible) and analysis• Historical bore hole petrographic study• Theoretical modelling of thermal and stress regimes
Two	<ul style="list-style-type: none">• Commercial negotiations for funding• Magneto-tellurics trial survey• Final target selection
Three	<ul style="list-style-type: none">• Drill and complete one test hole• Down hole thermal analysis• Down hole stress analysis• Reservoir modelling
Four	<ul style="list-style-type: none">• Commercial feasibility and development study• Commercial negotiations for further funding

Five	<ul style="list-style-type: none"> • Convert test well to injection well • Hydraulic stimulation of granite • Drilling of trial production well • Fracture, circulation and recovery tests • Model theoretical power production using the well data
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2. 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.
3. 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).
4. 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.
5. 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.
6. 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.
7. 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.

8. 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.
9. The Licensee shall during periods determined by the Minister, lodge and maintain with the Minister, for the satisfaction of obligations arising under the Act or this licence, a security of \$50,000 (fifty thousand dollars) or such greater sum as specified by the Minister from time to time.
- ("the Security").
- 9.1 The Security shall be lodged in the form of either;
- (a) cash; or
- (b) an unconditional, irrevocable bank guarantee or letter of credit in a form, and from a financial institution, approved by the Minister,
- 9.2 Interest will not be payable by the Minister to the Licensee on any cash Security.
- 9.3 All charges incurred by the Licensee in obtaining and maintaining the Security shall be met by the Licensee.
- 9.4 If upon expiry, this Licence is not renewed and the Minister is satisfied that there are no further obligations under this Licence or the Act, the Minister will return the Security to the Licensee.

Date: 21 January.....2004



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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

Signed by the said LICENSEE

Date: 18 Decembe 2003

[Signature]

Authorised Representative

DEREK CARTER

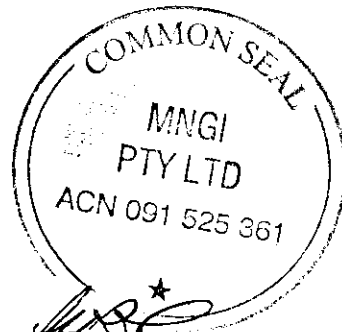
Name

DIRECTOR

Position

MNGI PTY LTD

Company



[Signature]

Authorised Representative

ARNOLD M BENTON

Name

DIRECTOR

Position

MNGI PTY LTD

Company

GEOTHERMAL EXPLORATION LICENCE

GEL 158

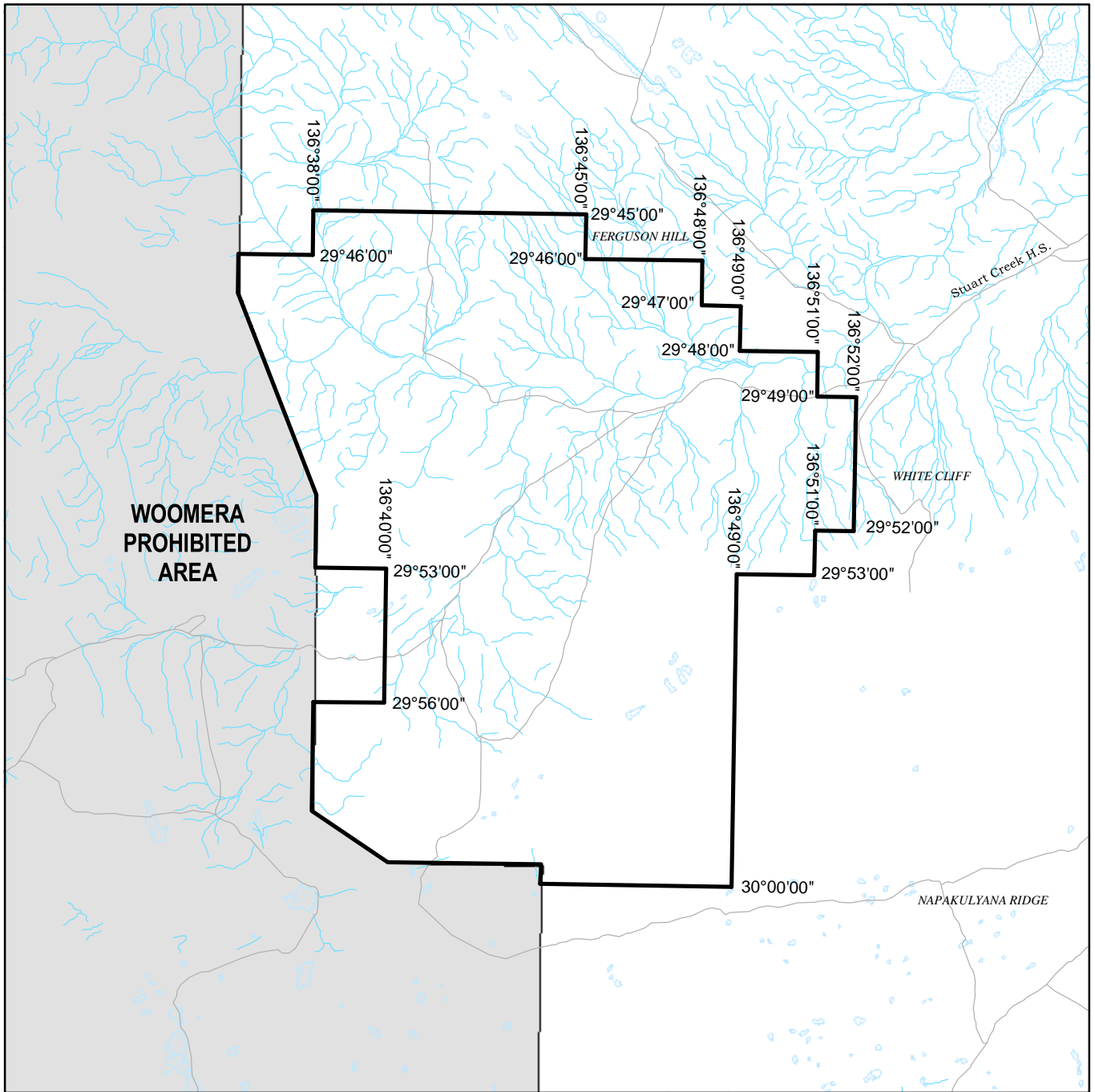
THE SCHEDULE

Description of Area

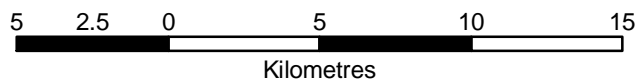
All that part of the State of South Australia, bounded as follows:-

Commencing at a point being the intersection of latitude 29°45'00"S GDA94 and longitude 136°38'00"E GDA94, thence east to longitude 136°45'00"E GDA94, south to latitude 29°46'00"S GDA94, east to longitude 136°48'00"E GDA94, south to latitude 29°47'00"S GDA94, east to longitude 136°49'00"E GDA94, south to latitude 29°48'00"S GDA94, east to longitude 136°51'00"E GDA94, south to latitude 29°49'00"S GDA94, east to longitude 136°52'00"E GDA94, south to latitude 29°52'00"S GDA94, west to longitude 136°51'00"E GDA94, south to latitude 29°53'00"S GDA94, west to longitude 136°49'00"E GDA94, south to latitude 30°00'00"S GDA94, west to the eastern boundary of the Woomera Prohibited Area, thence northerly, westerly and northerly along the boundary of the said Prohibited Area to latitude 29°56'00"S GDA94, east to longitude 136°40'00"E GDA94, north to latitude 29°53'00"S GDA94, west to the eastern boundary of the Woomera Prohibited Area, thence generally northerly along the boundary of the said Prohibited Area to latitude 29°46'00"S GDA94, east to longitude 136°38'00"E GDA94, and north to point of commencement.

AREA: **499** square kilometres approximately.



SCALE 1:250 000



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

GEOHERMAL EXPLORATION LICENCE NO: 158