

**Petroleum and Geothermal Energy Act 2000
S.115**

MEMORANDUM

**GEOHERMAL EXPLORATION LICENCES
GELs 226, 230, 278, 285, 407, 425 and 293**

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



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

Date: 18 April 2011

Ref: 27/2/383
27/2/387
27/2/442
27/2/451
27/2/460
27/2/535
F2010/688

Petroleum and Geothermal Energy Act 2000

VARIATION OF GEOTHERMAL EXPLORATION LICENCE GEL 407

I, BARRY ALAN GOLDSTEIN, Executive 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 and Geothermal Energy Act 2000* and all other enabling powers, for and on behalf of Tom Koutsantonis, Minister for Mineral Resources Development (Minister), pursuant to delegated powers dated 1 October 2009 vary the conditions of the above-mentioned licences, held by -

Torrens Energy Limited
ACN 118 065 704

Condition 1 of the licences 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. Year one 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">• Complete and case up to 5 fully cored heat flow holes to a depth of 400 to 500 metres for a total depth of 2000 to 2500 metres.• Geological and geophysical review. <i>(to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235, 278, 285, 407, 408, 409 & 410)</i>
Two	<ul style="list-style-type: none">• Geological and geophysical review. <i>(to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235, 278, 285, 407, 408, 409 & 410)</i>
Three	<ul style="list-style-type: none">• Geological and geophysical review. <i>(to be conducted anywhere in the area covered by GELs 230, 278, 285 & 407)</i>
Four	<ul style="list-style-type: none">• Geological and geophysical review. <i>(to be conducted anywhere in the area covered by GELs 278, 285 & 407)</i>
Five	<ul style="list-style-type: none">• Geological and geophysical review. <i>(to be conducted anywhere in the area covered by GEL 407)</i>

Dated: 18 April 2011



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

Petroleum and Geothermal Energy Act 2000
S.115

MEMORANDUM

GEOHERMAL EXPLORATION LICENCES
GELs 226, 230, 278, 285, 407 and 425

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



C. D. COCKSHELL
Acting Director Petroleum and Geothermal
Minerals and Energy Resources
Primary Industries and Resources SA
Delegate of the Minister for Mineral Resources Development

Date: 5 November 2010

Ref: 27/2/383
27/2/387
27/2/442
27/2/451
27/2/535
F2010/688

Petroleum and Geothermal Energy Act 2000

VARIATION OF GEOTHERMAL EXPLORATION LICENCE GEL 407

I, CYRIL DAVID COCKSHELL, Acting 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 and Geothermal Energy 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 1 October 2009 vary the conditions of the above-mentioned licence, held by -

Torrens Energy Limited
ACN 118 065 704

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. Year one 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">• Complete and case up to 5 fully cored heat flow holes to a depth of 400 to 500 metres for a total depth of 2000 to 2500 metres.• Geological and geophysical review. <i>(to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235, 278, 285, 407, 408, 409 & 410)</i>
Two	<ul style="list-style-type: none">• Geological and geophysical review. <i>(to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235, 278, 285, 407, 408, 409 & 410)</i>
Three	<ul style="list-style-type: none">• Drill 1 deep well. <i>(to be conducted anywhere in the area covered by GELs 230, 278, 285 & 407)</i>
Four	<ul style="list-style-type: none">• Geological and geophysical review. <i>(to be conducted anywhere in the area covered by GELs 278, 285 and 407)</i>
Five	<ul style="list-style-type: none">• Geological and geophysical review.

Dated: 5 November 2010



C. D. COCKSHELL
Acting Director Petroleum and Geothermal
Minerals and Energy Resources
Primary Industries and Resources SA
Delegate of the Minister for Mineral Resources Development

**Petroleum and Geothermal Energy Act 2000
S.115**

MEMORANDUM

**GEOHERMAL EXPLORATION LICENCES
GELs 407, 408, 409 and 410**

1. Consolidation of the adjacent licence areas of GELs 407, 408, 409 and 410, whereby the consolidated licence area is now designated as GEL 407 is hereby entered on the public register.

The total area of GEL 407 is now 1,944 square kilometres approximately.

2. Revocation of GELs 408, 409 and 410 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: 7 July 2010

Ref: 27/2/526

Petroleum and Geothermal Energy Act 2000

Consolidation of licence areas Geothermal Exploration Licences GELs 407, 408, 409 and 410

Revocation of licences Geothermal Exploration Licences GELs 408, 409 and 410

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 82 of the *Petroleum and Geothermal Energy 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 1 October 2009, hereby;

1. consolidate with effect from 7 July 2010, the adjacent areas of Geothermal Exploration Licences GELs 407, 408, 409 and 410 held by –

Torrens Energy Limited
ACN 118 065 704

The consolidated licence area shall be designated as:

Geothermal Exploration Licence GEL 407

DESCRIPTION OF CONSOLIDATED AREA

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

Commencing at a point being the intersection of longitude 138°19'36"E GDA94 and latitude 30°37'32"S GDA94, thence south to latitude 30°38'33"S GDA94, east to longitude 138°21'27"E GDA94, south to latitude 30°39'46"S GDA94, east to longitude 138°23'10"E GDA94, south to latitude 30°44'04"S GDA94, west to longitude 138°22'07"E GDA94, south to latitude 30°44'51"S GDA94, west to longitude 138°21'11"E GDA94, south to latitude 30°45'29"S GDA94, west to longitude 138°20'06"E GDA94, south to latitude 30°46'21"S GDA94, west to longitude 138°19'09"E GDA94, south to latitude 30°47'11"S GDA94, west to longitude 138°18'13"E GDA94, south to latitude 30°50'54"S GDA94, east to longitude 138°30'25"E GDA94, south to latitude 30°54'18"S GDA94, west to longitude 138°26'40"E GDA94, south to latitude 30°57'46"S GDA94, west to longitude 138°23'45"E GDA94, south to latitude 31°02'31"S GDA94, east to longitude 138°27'22"E GDA94, south to latitude 31°07'25"S GDA94, west to longitude 138°13'55"E GDA94, north to latitude 31°05'15"S GDA94, west to longitude 138°10'50"E GDA94, north to latitude 31°01'40"S GDA94, west to longitude 138°08'20"E GDA94, north to latitude 30°57'30"S GDA94, west to the eastern boundary of Lake Torrens National Park, thence generally northerly along the boundary of the said National Park to latitude 30°37'32"S GDA94, and east to the point of commencement.

AREA: **1944** square kilometres approximately.

2. consequently revoke Geothermal Exploration Licences GELs 408, 409 and 410 with effect from 7 July 2010

As a consequence of the consolidation, the work program forming 'condition 1' of the consolidated GEL 407 comprises:

Year of Term of Licence	Minimum Work Requirements
One	<ul style="list-style-type: none"> • Complete and case 5 fully cored heat flow holes to a depth of 400 to 500 metres for a total depth of 2000 to 2500 metres; and • Geological and geophysical review. <p><i>(to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235, 278, 285, 407, 408, 409 and 41.)</i></p>
Two	<ul style="list-style-type: none"> • Geological and geophysical review. <p><i>(to be conducted anywhere in the area covered by GELs 230, 278, 285 and 407.)</i></p>
Three	<ul style="list-style-type: none"> • Drill 1 test well to a depth of 4000 to 5000 metres. <p><i>(to be conducted anywhere in the area covered by GELs 230, 278, 285 and 407.)</i></p>
Four	<ul style="list-style-type: none"> • Geological and geophysical review. <p><i>(to be conducted anywhere in the area covered by GELs 278, 285 and 407.)</i></p>
Five	<ul style="list-style-type: none"> • Geological and geophysical review.

Dated: 7 July 2010

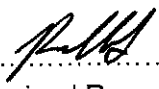


BARRY A. GOLDSTEIN
Director Petroleum and Geothermal
Minerals and Energy Resources
Primary Industries and Resources SA
Delegate of the Minister for Mineral Resources
Development

The following signature evidences the consent of the licensee to the consolidation of GELs 407, 408, 409 and 410 as set out in this document and made pursuant to Section 82 of the *Petroleum and Geothermal Energy Act 2000*.

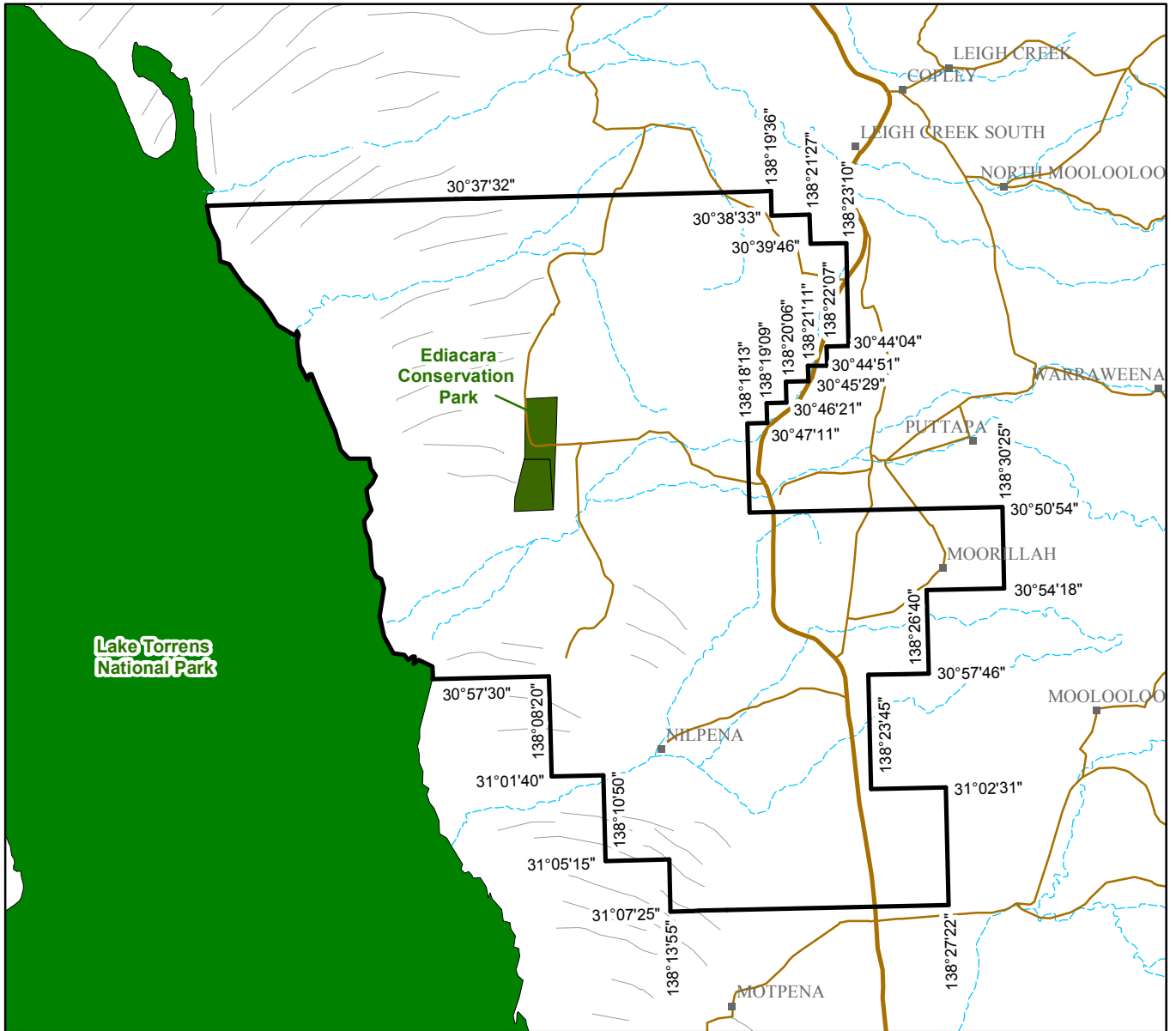
Signed for and on behalf of **Torrens Energy Limited** by its authorised representative:

..... 23/6/2010
Date

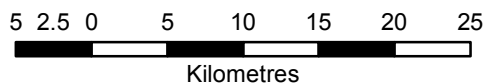
..... 
Authorised Representative

JEROME RANDABEL
Name

EXPLORATION MANAGER
Position



SCALE 1:500 000



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 Australian Geodetic Datum (AGD66), the Geocentric Datum of Australia (GDA94) and the schedule.

THE PLAN HEREINBEFORE REFERRED TO

GEOHERMAL EXPLORATION LICENCE NO: 407



Government of South Australia
Primary Industries and Resources SA

SR 27/2/526a

AREA: 1944 sq km (approx)

PETROLEUM ACT 2000

Grant of Geothermal Exploration Licences—GEL 407 408 409 and 410

NOTICE is hereby given that the undermentioned Geothermal Exploration Licences have been granted with effect from and including 5 July 2008 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 Expiry	Reference
GEL 407 GEL 408 GEL 409 GEL 410	Torrens Energy Ltd	Lake Torrens area South Australia	4 July 2013	27/2/526

Description of Area—GEL 407

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

Commencing at a point being the intersection of latitude 30°50'54"S GDA94 and longitude 138°16'39"E GDA94, thence east to longitude 138°30'25"E GDA94, south to latitude 30°54'18"S GDA94, west to longitude 138°26'40"E GDA94, south to latitude 30°57'46"S GDA94, west to longitude 138°23'45"E GDA94, south to latitude 31°02'31"S GDA94, east to longitude 138°27'22"E GDA94, south to latitude 31°07'25"S GDA94 west to longitude 138°16'39"E GDA94 and north to the point of commencement

Area: 494 km² approximately

Description of Area—GEL 408

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

Commencing at a point being the intersection of longitude 138°16'39"E GDA94 and latitude 30°50'54"S GDA94, thence south to latitude 31°07'25"S GDA94, west to longitude 138°13'55"E GDA94, north to latitude 31°05'15"S GDA94, west to longitude 138°10'50"E GDA94, north to latitude 31°01'40"S GDA94, west to longitude 138°08'20"E GDA94, north to latitude 30°57'30"S GDA94, west to the eastern boundary of Lake Torrens National Park, thence generally northerly along the boundary of the said National Park to latitude 30°50'54"S GDA94 and east to the point of commencement

Area: 494 km² approximately

Description of Area—GEL 409

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

Commencing at a point being the intersection of longitude 138°08'30"E GDA94 and latitude 30°37'32"S GDA94, thence south to latitude 30°50'54"S GDA94, west to the eastern boundary of Lake Torrens National Park, thence generally north-westerly along the boundary of the said National Park to latitude 30°37'32"S GDA94 and east to the point of commencement

Area: 472 km² approximately

Description of Area—GEL 410

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

Commencing at a point being the intersection of latitude 30°37'32"S GDA94 and longitude 138°08'30"E GDA94, thence east to longitude 138°19'36"E GDA94, south to latitude 30°38'33"S GDA94, east to longitude 138°21'27"E GDA94, south to latitude 30°39'46"S GDA94, east to longitude 138°23'10"E GDA94, south to latitude 30°44'04"S GDA94, west to longitude 138°22'07"E GDA94, south to latitude 30°44'51"S GDA94, west to longitude 138°21'11"E GDA94, south to latitude 30°45'29"S GDA94, west to longitude 138°20'06"E GDA94, south to latitude 30°46'21"S GDA94, west to longitude 138°19'09"E GDA94, south to latitude 30°47'11"S GDA94, west to longitude 138°18'13"E GDA94, south to latitude 30°50'54"S GDA94 west to longitude 138°08'30"E GDA94 and north to the point of commencement

Area: 484 km² approximately

Dated 17 July 2008

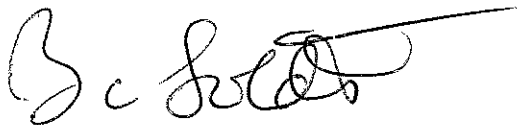
B. A. GOLDSTEIN, Director Petroleum and Geothermal
Minerals and Energy Resources
Primary Industries and Resources SA
Delegate of the Minister for Mineral Resources Development

Petroleum Act 2000
S.115

MEMORANDUM

GEOHERMAL EXPLORATION LICENCES
GELs 407, 408, 409 and 410

1. Notation of receipt of security 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 July 2008

File: 27/2/526

**Petroleum Act 2000
S.115**

MEMORANDUM

**GEOHERMAL EXPLORATION LICENCES
GEL 407, GEL 408, GEL 409 and GEL 410**

1. These Licences granted with effect from and including 5 July 2008 are hereby entered on the public register.
2. Interests in the licence are:-

Torrens Energy Limited 100%



**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 July 2008

Ref: 27/2/526

PETROLEUM ACT 2000

GEOHERMAL EXPLORATION LICENCE

GEL 407

I, BARRY ALAN GOLDSTEIN, Director Petroleum and Geothermal, Minerals and Energy Resources, 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:

Torrens Energy Limited ACN 118 065 704

(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 commencing on 5 July 2008 and to expire on 4 July 2013 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, 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">• Complete and case 5 fully cored heat flow holes to a depth of 400 to 500 metres for a total depth of 2000 to 2500 metres; and• Geological and geophysical review. <i>(to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235, 278, 285, 407, 408, 409 and 410)</i>
Two	<ul style="list-style-type: none">• Geological and geophysical studies. <i>(to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235, 278, 285, 407, 408, 409 and 410)</i>

Three	<ul style="list-style-type: none"> • Drill 1 test well to a depth of 4000 to 5000 metres. <i>(to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235, 278, 285, 407, 408, 409 and 410)</i>
Four	<ul style="list-style-type: none"> • Geological and geophysical review <i>(to be conducted anywhere in the area covered by GELs 278, 285, 407, 408, 409 and 410)</i>
Five	<ul style="list-style-type: none"> • Geological and geophysical review. <i>(to be conducted anywhere in the area covered by GELs 407, 408, 409 and 410)</i>

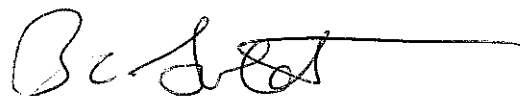
- 2 The Licensee must take all reasonable precautions to minimise the risks of its activities resulting in a significant loss of petroleum reserves or a significant reduction in the recovery of petroleum reserves
- 3 The Licensee must:
 - (a) upon commencement of regulated activities under this licence, 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: 12/7/08 2008



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

Signed by the said LICENSEE

Date: 18th June 2008

Chris Matthews
.....
Authorised Representative

Chris Matthews
.....
Name

CEO
.....
Position

Torreno Energy Limited
.....
Company

GEOTHERMAL EXPLORATION LICENCE

GEL 407

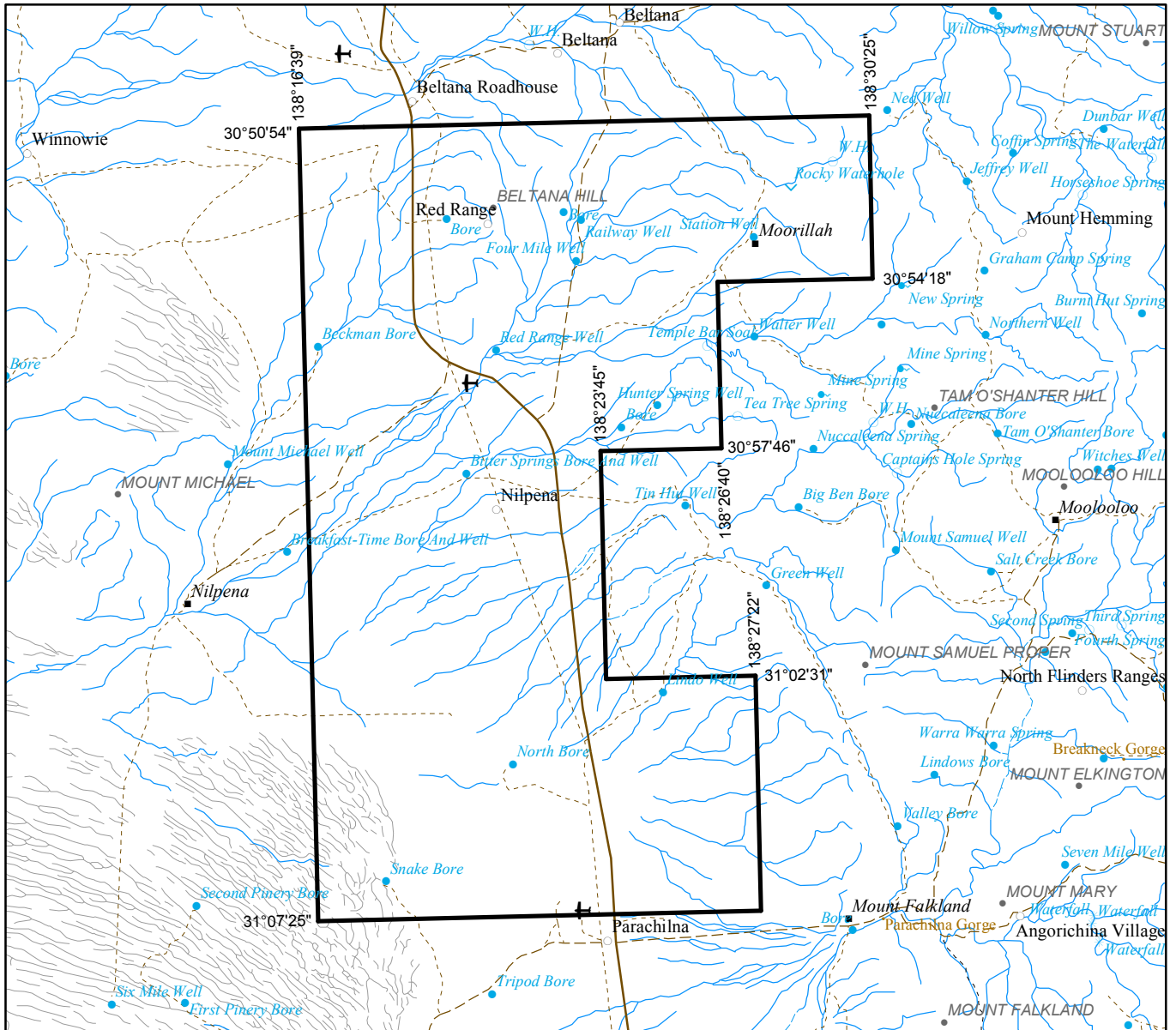
THE SCHEDULE

Description of Area

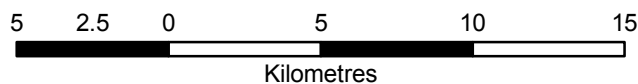
All that part of the State of South Australia, bounded as follows:-

Commencing at a point being the intersection of latitude $30^{\circ}50'54''\text{S}$ GDA94 and longitude $138^{\circ}16'39''\text{E}$ GDA94, thence east to longitude $138^{\circ}30'25''\text{E}$ GDA94, south to latitude $30^{\circ}54'18''\text{S}$ GDA94, west to longitude $138^{\circ}26'40''\text{E}$ GDA94, south to latitude $30^{\circ}57'46''\text{S}$ GDA94, west to longitude $138^{\circ}23'45''\text{E}$ GDA94, south to latitude $31^{\circ}02'31''\text{S}$ GDA94, east to longitude $138^{\circ}27'22''\text{E}$ GDA94, south to latitude $31^{\circ}07'25''\text{S}$ GDA94, west to longitude $138^{\circ}16'39''\text{E}$ GDA94, and north to the point of commencement.

AREA: **494** 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: 407