

**INDEX OF DOCUMENTS HELD ON THE PUBLIC REGISTER FOR  
GEOTHERMAL EXPLORATION LICENCE GEL 419**

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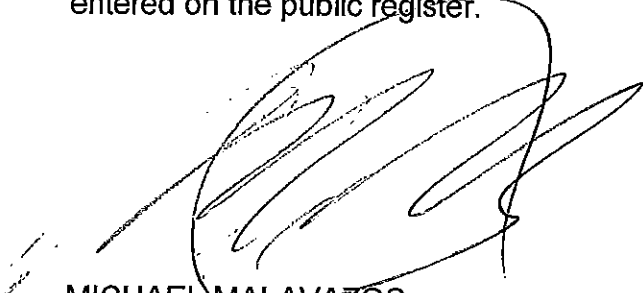
1. 18 August 2008      Geothermal Exploration Licence GEL 419 granted  
  
   Interests:      Terratherma                      100%  
  
   Expiry Date: 17 August 2013
2. 18 August 2008      Memorandum entering GEL 419 on the public register.
3. 4 September 2008      Gazettal of grant of licence.
4. 26 June 2009      Suspension of licence for the period from and including 7  
   April 2009 to 31 December 2009.  
  
   The expiry date of GEL 419 is now 13 May 2014.
5. 26 June 2009      Memorandum entering suspension of licence on the public  
   register.
6. 2 July 2009      Gazettal of suspension of licence.
7. 7 May 2010      Memorandum entering notation of receipt of security on the  
   public register.
8. 13 August 2010      Suspension of licence for the period from and including 12  
   August 2010 to 31 July 2011.  
  
   The expiry date of GEL 419 is now 2 May 2015.
9. 13 August 2010      Memorandum entering suspension of licence on the public  
   register.
10. 19 August 2010      Gazettal of suspension of licence.
11. 22 March 2012      Variation of licence conditions
12. 22 March 2012      Memorandum entering variation of licence conditions on  
   the public register.
13. 22 March 2012      Surrender of licence with effect from 4 November  
   2011.
14. 22 March 2012      Memorandum entering surrender of licence on the  
   public register.
15. 29 March 2012      Gazettal of surrender on the public register.
16. 24 May 2012      Memorandum entering notation of discharge of security  
   obligations on the public register.

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

**MEMORANDUM**

**GEOHERMAL EXPLORATION LICENCES**  
**GELs 169, 329, 330, 411, 412, 413, 414, 415,**  
**416, 417, 418, 419, 420, 421 and 422**

1. Notation of discharge of security in relation to the above licences is hereby entered on the public register.



**MICHAEL MALAVAZOS**  
**A/Executive Director**  
**Energy Resources Division**  
**Department for Manufacturing, Innovation, Trade, Resources and Energy**  
**Delegate of the Minister for Mineral Resources and Energy**

Date: 24 May 2012

Ref: 27/2/292  
27/2/495  
27/2/496  
27/2/528

## PETROLEUM AND GEOTHERMAL ENERGY ACT 2000

*Surrender of Geothermal Exploration Licences—**GELs 169, 329, 330, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421 and 422*

NOTICE is hereby given that I have accepted surrender of the abovementioned Geothermal Exploration Licences under the provisions of the Petroleum and Geothermal Energy Act 2000, pursuant to delegated powers dated 1 October 2009.

No. of Licence	Licensee	Locality	Date of Surrender	Reference
GEL 169	Eden Energy Limited	Cooper Basin	4.November 2011	27/2/292
GEL 329	Teratherma Limited	Arrowie Basin	4.November 2011	27/2/495
GEL 330	Teratherma Limited	Arrowie Basin	4.November 2011	27/2/496
GELs 411-422	Teratherma Limited	Adjacent Spencer Gulf	4.November 2011	27/2/528

Dated 22 March 2012.

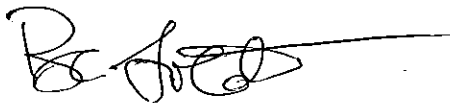
B. A. GOLDSTEIN,  
Executive Director  
Energy Resources Division  
Department for Manufacturing, Innovation, Trade, Resources and Energy  
Delegate of the Minister for Mineral Resources and Energy

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

**MEMORANDUM**

**GEOHERMAL EXPLORATION LICENCES  
GELs 169, 329, 330, 411, 412, 413, 414, 415,  
416, 417, 418, 419, 420, 421 and 422**

Surrender of the abovementioned Geothermal Exploration Licences with effect from 4 November 2011 is hereby entered on the public registers.



**BARRY A. GOLDSTEIN**  
**Executive Director**  
**Energy Resources Division**  
**Department for Manufacturing, Innovation, Trade, Resources and Energy**  
**Delegate of the Minister for Mineral Resources and Energy**

Date: 22 March 2012

Ref: 27/2/292  
27/2/495  
27/2/496  
27/2/528

## ***Petroleum and Geothermal Energy Act 2000***

### **SURRENDER OF GEOTHERMAL EXPLORATION LICENCES GELs 169, 329, 330, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421 and 422**

I, BARRY ALAN GOLDSTEIN, Executive Director, Energy Resources Division, Department for Manufacturing, Innovation, Trade, Resources and Energy, in the State of South Australia, pursuant to the provisions of section 89(2) of the *Petroleum and Geothermal Energy Act 2000* and all other enabling powers, for and on behalf of Tom Koutsantonis, Minister for Mineral Resources and Energy (Minister), pursuant to delegated powers dated 1 October 2009 hereby accept with effect from 4 November 2011 surrender of the following Geothermal Exploration Licences:

1. GEL169 in the name of Eden Energy Limited
2. GELs 329 and 330 in the name of Terratherma Limited
3. GELs 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421 and 422 in the name of Terratherma Limited

Dated: 22 March 2012



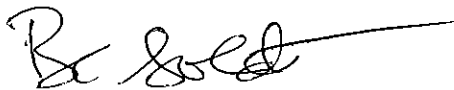
**BARRY A. GOLDSTEIN  
Executive Director  
Energy Resources Division  
Department for Manufacturing, Innovation, Trade, Resources and Energy  
Delegate of the Minister for Mineral Resources and Energy**

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

**MEMORANDUM**

**GEOHERMAL EXPLORATION LICENCES**  
**GELs 411, 412, 413, 414, 415, 416,**  
**417, 418, 419, 420, 421 and 422**

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



**BARRY A. GOLDSTEIN**  
**Executive Director**  
**Energy Resources Division**  
**Department for Manufacturing, Innovation, Trade, Resources and Energy**  
**Delegate of the Minister for Mineral Resources and Energy**

Date: 22 March 2012

Ref: 27/2/528

# ***Petroleum and Geothermal Energy Act 2000***

## **VARIATION OF GEOTHERMAL EXPLORATION LICENCES GELs 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421 and 422**

I, BARRY ALAN GOLDSTEIN, Executive Director, Energy Resources Division, Department for Manufacturing, Innovation, Trade, Resources and Energy, in the State of South Australia, pursuant to the provisions of the *Petroleum and Geothermal Energy Act 2000* and all other enabling powers, for and on behalf of Tom Koutsantonis, Minister for Mineral Resources and Energy (Minister), pursuant to delegated powers dated 1 October 2009 vary the conditions of the above-mentioned licences, held by -

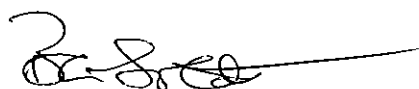
**Terratherma Limited**  
ACN 126 933 140

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:-

<b>Year of Term of Licence</b>	<b>Minimum Work Requirements</b> <i>(Years one to five work requirements to be carried out within the area covered by GELs 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421 and 422).</i>
<b>One</b>	<ul style="list-style-type: none"><li>• Geological, geophysical and feasibility studies.</li></ul>
<b>Two</b>	<ul style="list-style-type: none"><li>• Geological, geophysical and feasibility studies.</li></ul>
<b>Three</b>	<ul style="list-style-type: none"><li>• Geological and geophysical studies.</li><li>• Drill six geothermal prospecting holes to depths of 450m;</li><li>• Acquire 100 km 2D seismic; and</li><li>• Collect temperature gradient and thermal conductivity data;</li></ul>
<b>Four</b>	<ul style="list-style-type: none"><li>• Geological and geophysical studies.</li></ul>
<b>Five</b>	<ul style="list-style-type: none"><li>• Drill 1 deep test well to reservoir depth;</li><li>• Evaluate water flow potential and fracture stimulation potential;</li><li>• Conduct hydraulic stimulation (if required); and</li><li>• Geological and geophysical studies.</li></ul>

Dated: 22 March 2012



**BARRY A. GOLDSTEIN**  
**Executive Director**  
**Energy Resources Division**  
**Department for Manufacturing, Innovation, Trade, Resources and Energy**  
**Delegate of the Minister for Mineral Resources and Energy**

## PETROLEUM AND GEOTHERMAL ENERGY ACT 2000

*Suspension of Geothermal Exploration Licences—  
GELs 169, 329, 330, 411, 412, 413, 414, 415, 416,  
417, 418, 419, 420, 421 and 422*

PURSUANT to section 90 of the Petroleum and Geothermal Energy Act 2000, notice is hereby given that the abovementioned Geothermal Exploration Licences have been suspended under the provisions of the Petroleum and Geothermal Energy Act 2000, from and including 12 August 2010 until 31 July 2011, pursuant to delegated powers dated 1 October 2009.

The expiry date of GEL 169 is now determined to be 20 April 2012.

The expiry date of GELs 329 and 330 is now determined to be 22 September 2014.

The expiry date of GELs 411—422 is now determined to be 2 May 2015.

Dated 13 August 2010.

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

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

**MEMORANDUM**

**GEOHERMAL EXPLORATION LICENCES**  
**GELs 169, 329, 330, 411, 412, 413, 414, 415, 416, 417,**  
**418, 419, 420, 421 and 422**

1. Suspension of licences from and including 12 August 2010 to 31 July 2011 is hereby entered on the public register.
2. The expiry date of GEL 169 is now 20 April 2012.
3. The expiry date of GELs 329 and 330 is now 22 September 2014.
4. The expiry date of GELs 411 – 422 is now 2 May 2015.



**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: 13 August 2010

Ref: 27/2/292  
27/2/495  
27/2/496  
27/2/528

***Petroleum and Geothermal Energy Act 2000***  
**S.90**

**SUSPENSION OF  
GEOTHERMAL EXPLORATION LICENCES  
GELs 169, 329, 330, 411, 412, 413, 414, 415, 416, 417,  
418, 419, 420, 421 and 422**

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 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 –

- (a) suspend geothermal exploration licences GELs 169, 329, 330, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421 and 422 for the period from and including 12 August 2010 to 31 July 2011.
1. No regulated activities are permitted to be carried out during the period of the suspension.
  2. The expiry date of GEL 169 is now 20 April 2012.
  3. The expiry date of GELs 329 and 330 is now 22 September 2014.
  4. The expiry date of GELs 411 – 422 is now 2 May 2015.

Dated: 13 August 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**

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

**MEMORANDUM**

**GEOHERMAL EXPLORATION LICENCES**  
**GELs 329, 330, 411, 412, 413, 414, 415,**  
**416, 417, 418, 419, 420, 421 and 422**

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: 7 May 2010

Ref: 27/2/495  
27/2/496  
27/2/528

## PETROLEUM ACT 2000

*Suspension of Geothermal Exploration Licences—  
GELs 169, 185, 329, 330, 411, 412, 413, 414, 415, 416, 417,  
418, 419, 420, 421 and 422*

PURSUANT to section 90 of the Petroleum Act 2000, notice is hereby given that the abovementioned Geothermal Exploration Licences have been suspended under the provisions of the Petroleum Act 2000, from and including 7 April 2009 until 31 December 2009, pursuant to delegated powers dated 28 March 2002, *Gazetted* 11 April 2002, page 1573.

The expiry date of GEL 169 is now determined to be 1 February 2011.

The expiry date of GEL 185 is now determined to be 7 January 2011.

The expiry date of GELs 329 and 330 is now determined to be 3 October 2013.

The expiry date of GELs 411-422 is now determined to be 13 May 2014.

Dated 26 June 2009.

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

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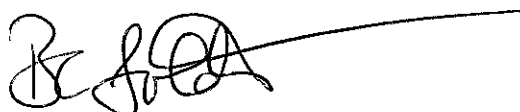
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**Petroleum Act 2000**  
**S.115**

**MEMORANDUM**

**GEOHERMAL EXPLORATION LICENCES**  
**GELs 169, 185, 329, 330, 411, 412, 413, 414,**  
**415, 416, 417, 418, 419, 420, 421 & 422**

1. Suspension of licences from and including 7 April 2009 to 31 December 2009 is hereby entered on the public register.
2. The expiry date of GEL 169 is now 1 February 2011.
3. The expiry date of GEL 185 is now 7 January 2011.
4. The expiry date of GELs 329 and 330 is now 3 October 2013.
5. The expiry date of GELs 411 – 422 is now 13 May 2014.



**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: 26 June 2009

Ref: 27/2/292  
27/2/313  
27/2/495  
27/2/496  
27/2/528

***Petroleum Act 2000***  
**S.90**

**SUSPENSION OF  
GEOTHERMAL EXPLORATION LICENCES  
GELs 169, 185, 329, 330, 411, 412, 413, 414,  
415, 416, 417, 418, 419, 420, 421 & 422**

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 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) suspend geothermal exploration licences GELs 169, 185, 329, 330, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421 and 422 for the period from and including 7 April 2009 to 31 December 2009.

1. No regulated activities are permitted to be carried out during the period of the suspension.
2. The expiry date of GEL 169 is now 1 February 2011.
3. The expiry date of GEL 185 is now 7 January 2011.
4. The expiry date of GELs 329 and 330 is now 3 October 2013.
5. The expiry date of GELs 411 – 422 is now 13 May 2014.

Dated: 26 June 2009



**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

*Grant of Geothermal Exploration Licences*

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	Date of Expiry	Reference
GEL 411 GEL 412 GEL 413 GEL 414 GEL 415 GEL 416 GEL 417 GEL 418 GEL 419 GEL 420 GEL 421 GEL 422	Terratherma Ltd	Adjacent Spencer Gulf, South Australia	17 August 2013	27/2/528

*Description of Area—GEL 411*

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

Commencing at a point being the intersection of latitude 33°55'00"S GDA94 and longitude 138°26'00"E GDA94, thence east to longitude 138°35'00"E GDA94, south to latitude 33°56'00"S GDA94, east to longitude 138°37'00"E GDA94, north to latitude 33°55'00"S GDA94, east to longitude 138°39'00"E GDA94, south to latitude 34°00'00"S GDA94, east to longitude 138°43'00"E GDA94, south to latitude 34°02'00"S GDA94, east to longitude 138°45'00"E GDA94, south to latitude 34°06'00"S GDA94, west to longitude 138°37'00"E GDA94, south to latitude 34°07'00"S GDA94, west to longitude 138°27'00"E GDA94, north to latitude 33°58'00"S GDA94, west to longitude 138°26'00"E GDA94 and north to the point of commencement.

Area: 498 km<sup>2</sup> approximately.

*Description of Area—GEL 412*

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

Commencing at a point being the intersection of latitude 33°42'00"S GDA94 and longitude 138°22'00"E GDA94, thence east to longitude 138°34'00"E GDA94, south to latitude 33°43'00"S GDA94, east to longitude 138°35'00"E GDA94, south to latitude 33°44'00"S GDA94, east to longitude 138°37'00"E GDA94, south to latitude 33°54'00"S GDA94, west to longitude 138°34'00"E GDA94, south to latitude 33°55'00"S GDA94, west to longitude 138°25'00"E GDA94, north to latitude 33°52'00"S GDA94, west to longitude 138°24'00"E GDA94, north to latitude 33°51'00"S GDA94, west to longitude 138°23'00"E GDA94, north to latitude 33°50'00"S GDA94, west to longitude 138°22'00"E GDA94 and north to the point of commencement.

Area: 500 km<sup>2</sup> approximately.

*Description of Area—GEL 413*

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

Commencing at a point being the intersection of latitude 33°28'00"S GDA94 and longitude 138°15'00"E GDA94, thence east to longitude 138°29'00"E GDA94, south to latitude 33°30'00"S GDA94, east to longitude 138°30'00"E GDA94, south to latitude 33°42'00"S GDA94, west to longitude 138°20'00"E GDA94, north to latitude 33°35'00"S GDA94, west to longitude 138°15'00"E GDA94 and north to the point of commencement.

Area: 495 km<sup>2</sup> approximately.

*Description of Area—GEL 414*

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

Commencing at a point being the intersection of latitude 33°13'00"S GDA94 and longitude 138°07'00"E GDA94, thence east to longitude 138°20'00"E GDA94, south to latitude 33°28'00"S GDA94, west to longitude 138°10'00"E GDA94, north to latitude 33°27'00"S GDA94, west to longitude 138°09'00"E GDA94, north to latitude 33°20'00"S GDA94, west to longitude 138°08'00"E GDA94, north to latitude 33°16'00"S GDA94, west to longitude 138°07'00"E GDA94 and north to the point of commencement.

Area: 499 km<sup>2</sup> approximately.

*Description of Area—GEL 415*

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

Commencing at a point being the intersection of latitude 32°52'00"S GDA94 and longitude 138°03'00"E GDA94, thence east to longitude 138°12'00"E GDA94, south to latitude 32°53'00"S GDA94, east to longitude 138°13'00"E GDA94, south to latitude 32°58'00"S GDA94, east to longitude 138°15'00"E GDA94, south to latitude 33°06'00"S GDA94, east to longitude 138°16'00"E GDA94, south to latitude 33°10'00"S GDA94, east to longitude 138°20'00"E GDA94, south to latitude 33°13'00"S GDA94, west to longitude 138°07'00"E GDA94, north to latitude 33°11'00"S GDA94, east to longitude 138°09'00"E GDA94, north to latitude 33°10'00"S GDA94, east to longitude 138°10'30"E GDA94, north to latitude 33°03'00"S GDA94, west to longitude 138°09'00"E GDA94, north to latitude 33°01'00"S GDA94, west to longitude 138°08'00"E GDA94, north to latitude 33°00'00"S GDA94, west to longitude 138°06'00"E GDA94, north to latitude 32°58'00"S GDA94, west to longitude 138°03'00"E GDA94 and north to the point of commencement.

Area: 485 km<sup>2</sup> approximately.

*Description of Area—GEL 416*

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

Commencing at a point being the intersection of latitude 32°54'00"S GDA94 and longitude 138°13'00"E GDA94, thence east to longitude 138°23'00"E GDA94, south to latitude 32°55'00"S GDA94, east to longitude 138°25'00"E GDA94, south to latitude 33°09'00"S GDA94, west to longitude 138°24'00"E GDA94, south to latitude 33°13'00"S GDA94, west to longitude 138°20'00"E GDA94, north to latitude 33°10'00"S GDA94, west to longitude 138°16'00"E GDA94, north to latitude 33°06'00"S GDA94, west to longitude 138°15'00"E GDA94, north to latitude 32°58'00"S GDA94, west to longitude 138°13'00"E GDA94 and north to the point of commencement.

Area: 498 km<sup>2</sup> approximately.

*Description of Area—GEL 417*

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

Commencing at a point being the intersection of latitude 32°39'00"S GDA94 and longitude 138°09'00"E GDA94, thence east to longitude 138°11'00"E GDA94, south to latitude 32°40'00"S GDA94, east to longitude 138°20'00"E GDA94, north to latitude 32°39'00"S GDA94, east to longitude 138°23'00"E GDA94, south to latitude 32°54'00"S GDA94, west to longitude 138°13'00"E GDA94, north to latitude 32°53'00"S GDA94, west to longitude 138°12'00"E GDA94, north to latitude 32°46'00"S GDA94, west to longitude 138°11'00"E GDA94, north to latitude 32°45'00"S GDA94, west to longitude 138°10'00"E GDA94, north to latitude 32°44'00"S GDA94, west to longitude 138°09'00"E GDA94 and north to the point of commencement.

Area: 500 km<sup>2</sup> approximately.

*Description of Area—GEL 418*

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

Commencing at a point being the intersection of latitude 32°27'00"S GDA94 and longitude 138°06'00"E GDA94, thence east to longitude 138°17'00"E GDA94, south to latitude 32°28'00"S GDA94, east to longitude 138°19'00"E GDA94, south to latitude 32°29'00"S GDA94, east to longitude 138°20'00"E GDA94, south to latitude 32°31'00"S GDA94, east to longitude 138°21'00"E GDA94, south to latitude 32°34'00"S GDA94, east to longitude 138°22'00"E GDA94, south to latitude 32°35'00"S GDA94, east to longitude 138°23'00"E GDA94, south to latitude 32°39'00"S GDA94, west to longitude 138°20'00"E GDA94, north to latitude 32°40'00"S GDA94, west to longitude 138°11'00"E GDA94, north to latitude 32°39'00"S GDA94, west to longitude 138°08'00"E GDA94, north to latitude 32°30'00"S GDA94, west to longitude 138°06'00"E GDA94 and north to the point of commencement.

Area: 498 km<sup>2</sup> approximately.

*Description of Area—GEL 419*

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

Commencing at a point being the intersection of latitude 32°26'00"S GDA94 and longitude 137°53'00"E GDA94, thence east to longitude 138°00'00"E GDA94, south to latitude 32°31'00"S GDA94, east to longitude 138°03'00"E GDA94, north to latitude 32°29'00"S GDA94, east to longitude 138°05'00"E GDA94, north to latitude 32°27'00"S GDA94, east to longitude 138°06'00"E GDA94, south to latitude 32°30'00"S GDA94, east to longitude 138°08'00"E GDA94, south to latitude 32°39'00"S GDA94, east to longitude 138°09'00"E GDA94, south to latitude 32°43'00"S GDA94, west to longitude 138°08'00"E GDA94, north to latitude 32°42'00"S GDA94, west to longitude 138°06'00"E GDA94, north to latitude 32°41'00"S GDA94, west to longitude 138°04'00"E GDA94, south to latitude 32°42'00"S GDA94, west to longitude 137°59'00"E GDA94, north to latitude 32°40'00"S GDA94, west to longitude 137°57'00"E GDA94, north to latitude 32°33'00"S GDA94, west to longitude 137°53'00"E GDA94 and north to the point of commencement.

Area: 498 km<sup>2</sup> approximately.

*Description of Area—GEL 420*

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

Commencing at a point being the intersection of latitude 32°11'00"S GDA94 and longitude 137°57'50"E GDA94, thence east to longitude 138°06'00"E GDA94, south to latitude 32°27'00"S GDA94, west to longitude 138°03'00"E GDA94, north to latitude 32°26'00"S GDA94, west to longitude 137°53'00"E GDA94, north to latitude 32°13'05"S GDA94, east to longitude 137°57'50"E GDA94 and north to the point of commencement but excluding the area bounded as follows:

Commencing at a point being the intersection of latitude 32°17'00"S GDA94 and longitude 137°55'00"E GDA94, thence east to longitude 138°00'00"E GDA94, south to latitude 32°21'00"S GDA94, west to longitude 137°57'00"E GDA94, south to latitude 32°22'00"S GDA94, west to longitude 137°54'00"E GDA94, north to latitude 32°18'00"S GDA94, east to longitude 137°55'00"E GDA94 and north to the point of commencement.

Area: 470 km<sup>2</sup> approximately.

*Description of Area—GEL 421*

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

Commencing at a point being the intersection of latitude 32°11'00"S GDA94 and longitude 138°06'00"E GDA94, thence east to longitude 138°10'00"E GDA94, south to latitude 32°15'00"S GDA94, east to longitude 138°18'00"E GDA94, south to latitude 32°17'00"S GDA94, east to longitude 138°19'00"E GDA94, south to latitude 32°28'00"S GDA94, west to longitude 138°17'00"E GDA94, north to latitude 32°27'00"S GDA94, west to longitude 138°06'00"E GDA94 and north to the point of commencement.

Area: 499 km<sup>2</sup> approximately.

*Description of Area—GEL 422*

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

Commencing at a point being the intersection of latitude 32°00'00"S GDA94 and longitude 138°05'00"E GDA94, thence east to longitude 138°17'00"E GDA94, south to latitude 32°04'00"S GDA94, east to longitude 138°18'00"E GDA94, south to latitude 32°15'00"S GDA94, west to longitude 138°10'00"E GDA94, north to latitude 32°11'00"S GDA94, west to longitude 138°05'00"E GDA94 and north to the point of commencement.

Area: 498 km<sup>2</sup> approximately.

Dated 18 August 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  
GEL 411, GEL 412, GEL 413, GEL 414, GEL 415, GEL 416,  
GEL 417, GEL 418, GEL 419, GEL 420, GEL 421 and GEL 422**

1. These Licences granted with effect from and including 18 August 2008 are hereby entered on the public register.

2. Interests in the licence are:-

Terratherma Ltd                      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: 18 August 2008

Ref: 27/2/528

# PETROLEUM ACT 2000

## GEOHERMAL EXPLORATION LICENCE

### GEL 419

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:

**Terratherma Ltd ACN 126 993 140**

(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 *17 August* 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 <i>(Years one to five work requirements may be conducted anywhere within the combined areas of GELs 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421 and 422).</i>
One	<ul style="list-style-type: none"><li>• Geological and geophysical studies.</li></ul>
Two	<ul style="list-style-type: none"><li>• Geological and geophysical studies; and</li><li>• Temperature logging of existing boreholes (where accessible);</li></ul>
Three	<ul style="list-style-type: none"><li>• Geological and geophysical studies</li><li>• Drill six geothermal prospecting holes to depths of 450m;</li><li>• Acquire 100 km 2D seismic; and</li><li>• Collect temperature gradient and thermal conductivity data;</li></ul>

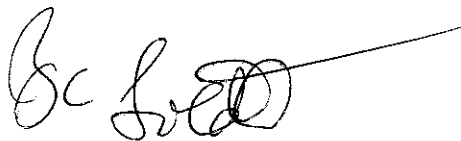
<b>Four</b>	<ul style="list-style-type: none"> <li>• Geological and geophysical studies.</li> </ul>
<b>Five</b>	<ul style="list-style-type: none"> <li>• Drill 1 deep test well to reservoir depth;</li> <li>• Evaluate water flow potential and fracture stimulation potential;</li> <li>• Conduct hydraulic stimulation (if required); and</li> <li>• Geological and geophysical studies.</li> </ul>

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: 18 August 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: 12 August ..... 2008

*M Krzus*  
.....  
Authorised Representative

*Michael Krzus*  
.....  
Name

*Executive Director*  
.....  
Position

*Terratherma Ltd*  
.....  
Company

# GEOTHERMAL EXPLORATION LICENCE

GEL 419

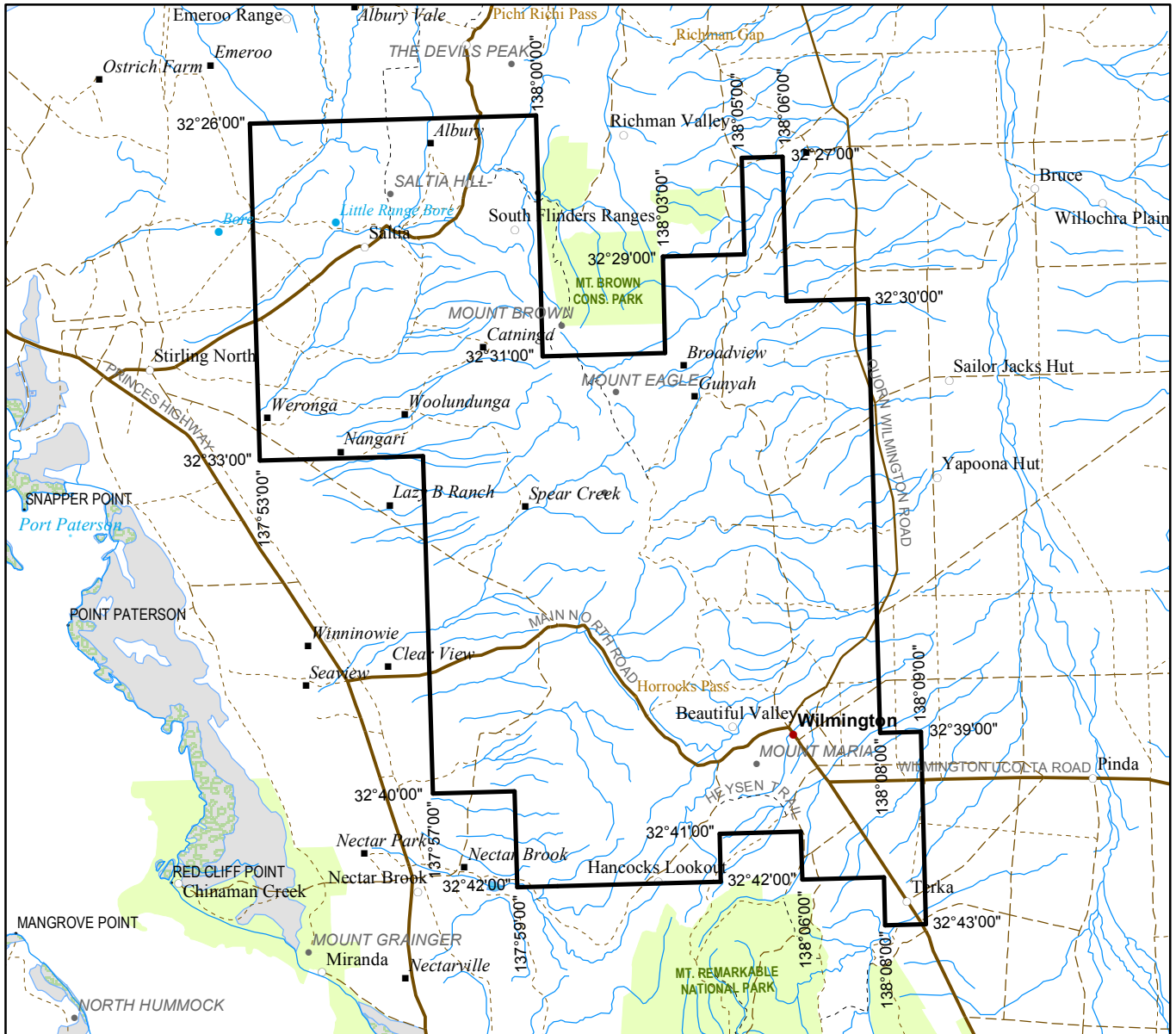
## THE SCHEDULE

### Description of Area

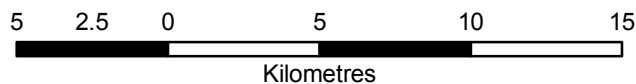
All that part of the State of South Australia, bounded as follows:-

Commencing at a point being the intersection of latitude 32°26'00"S GDA94 and longitude 137°53'00"E GDA94, thence east to longitude 138°00'00"E GDA94, south to latitude 32°31'00"S GDA94, east to longitude 138°03'00"E GDA94, north to latitude 32°29'00"S GDA94, east to longitude 138°05'00"E GDA94, north to latitude 32°27'00"S GDA94, east to longitude 138°06'00"E GDA94, south to latitude 32°30'00"S GDA94, east to longitude 138°08'00"E GDA94, south to latitude 32°39'00"S GDA94, east to longitude 138°09'00"E GDA94, south to latitude 32°43'00"S GDA94, west to longitude 138°08'00"E GDA94, north to latitude 32°42'00"S GDA94, west to longitude 138°06'00"E GDA94, north to latitude 32°41'00"S GDA94, west to longitude 138°04'00"E GDA94, south to latitude 32°42'00"S GDA94, west to longitude 137°59'00"E GDA94, north to latitude 32°40'00"S GDA94, west to longitude 137°57'00"E GDA94, north to latitude 32°33'00"S GDA94, west to longitude 137°53'00"E GDA94, and north to the point of commencement

AREA: **498** 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: 419



Government of South Australia  
Primary Industries and Resources SA

SR 27/2/528i

AREA: 498 sq km (approx)