# TORRENS ENERGY LIMITED

Annual Report

Licence Year 2

**Geothermal Exploration Licences**
**226, 260, 261, 262**

24th January 2008 to 23rd January 2009

Due Date for Submission: 23rd March 2009

Author: Bruce Godsmark

## 1. Introduction

Geothermal Exploration Licence (GEL) 226 was granted on 05 July 2006, for an initial period of 5 years. Torrens Energy Limited was then granted an additional three licences (GELs 260, 261, 262) adjacent to the previous GEL on 24 January 2007. A subsequent variation to the anniversary and work program GEL 226 was requested and authorised, enabling the grouping of GELs 226, 260-262 to form the 1713 $km^2$ Adelaide Plains project. These licences are located in the northern Adelaide Plains, South Australia.

This report details the work conducted during Year 2 of the Adelaide Plains project, in accordance with Regulation 33 of the Petroleum Act 2000.

## 2. Permit Summary

For the duration of the licence year, licensees for Geothermal Exploration License (GELs) 260-262 & 226 were:

- *Torrens Energy* *100%*

The current work commitments (including all variations) associated with GELs 260-262 & 226 can be seen in Table 1.

| Licence Year | Licence dates | Minimum Work Program |
|---|---|---|
| Year 1 | 24/01/07 – 23/01/08 | • Geological and geophysical review<br>• Infill measurement of up to 3 existing water bores. |
| Year 2 | 24/01/08 – 23/01/09 | • Geological and geophysical review |
| Year 3 | 24/01/09 – 23/01/10 | • Complete and case 1 fully cored hole to a depth of 400-500 metres.<br>• Geological and geophysical review |
| Year 4 | 24/01/10 – 23/01/11 | • Geological and geophysical review |
| Year 5 | 24/01/11– 23/01/12 | • Drill one deep well to a depth of 3-4 kilometres. |

**Table 1 Current work commitments by licence year**

Licence Year 2 concluded on 23 January 2009. The following table displays the minimum work program (after all variations) and the actual work completed up until the end of the current licence period.

| Licence Year | Minimum Work Program | Actual Work |
|---|---|---|
| Year 2 | • Geological and geophysical review | • *Data and information gathering (geological)*<br>• *Interpretation of existing data*<br>• *Drilling of one shallow heat flow well*<br>• *Down hole temperature measurements and thermal conductivity analysis.* |

**Table 2 Final work program and work completed (as of end of current reporting period) by licence year**

License suspensions during the reporting year:

- Nil

## 3. Regulated Activities

Pursuant to Regulation 33(2)(a) under the Act, an annual report must include:

*"a summary of the regulated activities conducted under the licence during the [current reporting] year."*

### a. Drilling and related activities

One mineral exploration well was extended during the reporting period. Syngas (formerly GulfX Limited) drilled an exploration well with the aim of defining a coal seem north east of Port Wakefield, figure 1. Torrens Energy extended this exploration hole when Syngas passed their target interval.

The hole was named Raitaro-1. Syngas drilled the hole to a depth of 82.4m. Torrens Energy extended the hole from 82.4m to 402.7m.

The Torrens energy drilled occurred between the dates of 9-September 2008 and 20-September 2008.

### b. Seismic Data acquisition

None undertaken

### c. Seismic Data Processing and Reprocessing

None undertaken

### d. Geochemical, gravity, Magnetic and other surveys

None undertaken

### e. Preliminary survey activities

None undertaken

## 4. Compliance Issues

Pursuant to Regulations 33(2) (b) & (c), an annual report must include:

*"a report for the year on compliance with the Act, these regulations, the licence and any relevant statement of environmental objectives;"* and

*"a statement concerning any action to rectify non compliance with obligations imposed by the Act, these regulations or the licence, and to minimise the likelihood of recurrence of any such non-compliances."*

### a. Licence and Regulatory Compliance

Torrens Energy has complied with the Act and the license agreement during Year two.

Torrens energy was non compliant with the submission date for a "miscellaneous technical report". This report has now been submitted to PIRSA.

### b. Compliance with Statement of Environmental objectives

The activities reported in this Annual Report were conducted under the statement of environmental objectives titled "STATEMENT OF ENVIRONMENTAL OBJECTIVES, Drilling, Completion and Initial Production Testing, PEL 73, STANSBURY BASIN, YORKE PENINSULA, SOUTH AUSTRALIA"

| Environmental Objectives | Assessment Criteria | Compliant / Non-compliant | Comments |
|---|---|---|---|
| 1. Avoid disturbance to sites of Aboriginal and non-indigenous heritage significance. | No disturbance to Aboriginal and non-indigenous heritage sites. | Compliant | The drill site was held under freehold property title, extinguishing native title.<br>The aboriginal affairs and reconciliation division heritage sites database was checked and no sites were identified that may be impacted y the operations.<br>The drill site was in a working wheat paddock that had been operated for many years. |

| Environmental Objectives | Assessment Criteria | Compliant / Non-compliant | Comments |
|---|---|---|---|
| 2. Avoid disturbance to rare, vulnerable and endangered flora and fauna species. | Wellsite and Access Track Construction<br>Any sites of rare, vulnerable and endangered flora and fauna have been identified, flagged and subsequently avoided.<br>The attainment of 0, +1 or +2 GAS criteria (refer to PIRSA Field Guide 2002) for the re-vegetation of indigenous species.<br>Drilling and Production Testing Activities<br>No fires during drilling and production testing activities. | Compliant | The drill site was in a working wheat paddock that had been operated for many years. |
| 3. Prevent the introduction and establishment of exotic weed species. | No introduced exotic weed species as a consequence of activities. | Compliant | The vehicles being used for the operation had been used in adjacent paddocks for some months.<br>Visual inspection did not identify any exotic weeds.<br>The drill site was in a working wheat paddock that had been operated for many years.<br>Annual Checks will be conducted to ensure that no exotic weed species are located. |
| 4. Minimise impacts to soil. | Wellsite and Access Track Construction<br>No disturbance to soil profiles as a result of construction activities.<br>No significant increase of surface limestone on surface following restoration.<br>Drilling and Production Testing<br>No soil contamination as a result of drilling and production testing activities.<br>Fuel and Chemical Storage and Handling<br>No spills/leaks outside areas designed to contain them.<br>All oil spill bio-remediation meets end point assessment criteria of 0.1% total petroleum hydrocarbons 12 months after the spill (unless a more specific end point is prepared for this region).<br>Waste Management<br>No soil contamination as a result of waste storage and disposal. | Compliant | One access track was used on the edge of a fence line.<br>All soil removed from the site for sump construction was put back into the sump upon completion of the hole.<br>Drill rig and generators were located in polyethylene lined bunded areas. No chemical spills were recorded.<br>No soil contamination occurred as a result of waste disposal activities.<br>NOTE: The well still has a gate valve attached to the well head. Upon completion of temperature measurements the well site may undergo further rehabilitation. |
| 5. Minimise loss of reservoir and aquifer pressures and avoid aquifer contamination. | No aquifer contamination as a result of drilling, completion or production testing activities.<br>Drilling and Completion Activities<br>No uncontrolled flow to surface (i.e. blow out).<br>Sufficient barriers exist in casing annulus to prevent cross flow between separate aquifers or hydrocarbon reservoirs.<br>Production Testing and Well Abandonment Activities<br>No cross-flow behind casing between aquifers, and between aquifers and hydrocarbon reservoirs unless approved by the Department of Water, Land and Biodiversity Conservation. | Compliant | Casing was pressure cemented to surface to ensure there was no potential for aquifer contamination..<br>No blow outs occurred during drilling. |

| Environmental Objectives | Assessment Criteria | Compliant / Non-compliant | Comments |
|---|---|---|---|
| 6. Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow groundwater resources. | Wellsite and Access Track Construction and Restoration<br>No disturbance to drainage patterns as a result of construction activities.<br>Drilling and Production Testing Activities<br>No contamination of surface waters and shallow groundwater resources as a result of drilling or production testing activities.<br>Fuel and Chemical Storage and Handling<br>No spills/leaks outside areas designed to contain them. | Compliant | There were no drainage patters to disturb. The drilling occurred in a flat wheat paddock. |
| 7. Minimise risks to the safety of the public, employees and other third parties. | No injuries to the public or third parties as a result of drilling, completion and production testing activities. | Compliant | No injuries to any party occurred during the drilling of Torrens Energies Well. |
| 8. Minimise disturbance to the local community and other land users. | No adverse impact on livestock as a result of activities.<br>No complaints from the local community or other land users | Compliant | There were no adverse impact on livestock as a result of activities.<br>There were no adverse impact on the community or other land users |
| 9. Minimise visual impact. | The attainment of 0, +1 or +2 GAS criteria (refer to PIRSA Field Guide 2002) for minimising visual impact. | Compliant | |

## c. Management systems Audit

No management system were audited.

## d. Report and data submissions

### Table 3 List of report and data submissions during current licence reporting year

| Description of Report/Data | Date Due | Date Submitted | Compliant / Non-Compliant |
|---|---|---|---|
| Wireline log report –<br>Temperature log for Raitaro-1 | 10th of December 2008 | 13th November 2008 | Compliant |
| Well completion Report:<br>Raitaro-1 | 20th March 2008 | 27th January 2008 | Compliant |
| Other technical Report:<br>AGT – letter report<br>*Re: Torrens Energy Geothermal Test Holes* | 1st September 2008 | 27th March 2009 | Non-compliant |

## e. Incidents

No incidents were reported during the reporting period.

### f. Threat Prevention

No new threats were identified during the reporting period.

### g. Future Work Program

The future work program will involve the drilling of a number of shallow heat flow wells to enable temperature profiles to be collected and thermal conductivity measurements to be analysed from core samples. These two data sets will enable heat flow to be calculated.

## 5. Expenditure statement

Pursuant to Regulation 33(3) under the Act, an annual report must contain:

*"An annual report must be accompanied by a statement of expenditure on regulated activities conducted under the licence for the relevant licence year, showing expenditure under each of the following headings:*

*a) drilling activities;*

*b) seismic activities;*

*c) technical evaluation and analysis;*

*d) other surveys;*

*e) facility construction and modification;*

*f) operating and administration expenses (not already covered under another heading)".*

| | |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |