



TORRENS ENERGY LIMITED

Annual Report

Licence Year 2

**Geothermal Exploration Licences
230 – 235, 278, 285**

05 July 2007 to 04 July 2008

Due Date for Submission: 12th September 2008

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1. INTRODUCTION

Geothermal Exploration Licences (GEL's) 230 - 235 were granted on 05 July 2006, for an initial period of 5 years. This group of licences is located to the east of Lake Torrens in South Australia and has a total area of approximately 2,951km².

Torrens Energy Limited was granted an additional two licences (GEL 278 & 285) that have been grouped with the Torrens Project GELs. GEL 278 is approximately 489 km² in area and lies adjacent to the existing GELs. GEL 285 is approximately 417 km² in area and covers the region from Port Augusta (excluding the built up areas of Port August city and Stirling North) and northwards.

The addition of GELs 278 & 285 resulted in a variation to Year 2 – Year 5 of the work programs for GELs 230 – 235, to match Year 1 – Year 4 of GELs 278 & 285 work program.

These GELs are, as a group, termed the **Torrens Project Area** in this Annual Report.

This report details the work conducted during Year 2 of licences 230 - 235, and year 1 of GELs 278 & 285 in accordance with Regulation 33 of the Petroleum Act 2000.

2. PERMIT SUMMARY

Licence Year	Minimum Work Program
Year 1 (5/07/2006 to 4/07/2007)	<ul style="list-style-type: none"> Geological & Geophysical review (to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235)
Year 2 (5/07/2007 to 4/07/2008)	<ul style="list-style-type: none"> Geological & Geophysical review (to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235, 278 & 285)
Year 3 (5/07/2008 to 4/07/2009)	<ul style="list-style-type: none"> Complete & 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 & Geophysical review (to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235, 278 and 285)
Year 4 (5/07/2009 to 4/07/2010)	<ul style="list-style-type: none"> Geological & Geophysical review (to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235, 278 & 285)
Year 5 (5/07/2010 to 4/07/2011)	<ul style="list-style-type: none"> Drill test 1 well to a depth of 4000 to 5000 metres (to be conducted anywhere in the area covered by GELs 230, 231, 232, 233, 234, 235, 278 & 285)

3. EXPLORATION ACTIVITY

The following works were carried out during the year in order to fulfil the Year's Minimum Work Programme.

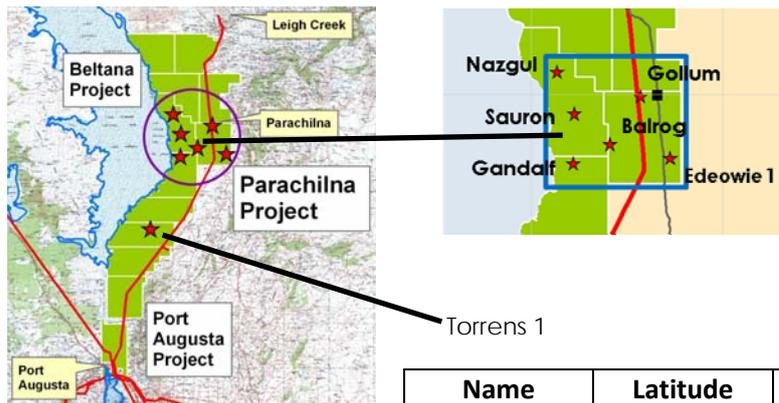
- *Geological & Geophysical Review*
- *Complete & case up to 5 fully cored heat flow holes to a depth of 400 to 500 metres for a total depth of 2000 to 2500 metres*

This year saw the acceleration of the scheduled work programme for the Torrens Project Area. Five fully cored heat flow holes were drilled, and two additional holes re-entered, giving the Company seven heat flow data points.

Drilling commenced in October 2007, with five diamond holes have been completed for approximately 2500m, and two existing holes re-entered and measured. Exploration activity covered approximately 2000km² in GELs 230, 231 and 278.

Continuous temperature logging was conducted at 1m intervals from surface to bottom of hole, using a thermistor probe mounted on a motorised cable winch. Resistance was measured downhole and then converted to temperature using a standard calibration. Each hole contains at least 200m of continuous core section, with conductivity samples taken every 7m on average. Temperature recordings were taken from holes that had been allowed to equilibrate (5–8 weeks) after drilling.

A location map and summary of the drilling is below.



Name	Latitude	Longitude	Easting	Northing
Nazgul 1	-31 04.478	138 09.059	228175	6558636
Sauron 1	-31 10.867	138 10.678	231051	6546894
Gollum 1	-31 08.797	138 20.854	247129	6551120
Gandalf 1	-31 18.274	138 10.983	231885	6533218
Balrog 1	-31 15.902	138 16.212	240075	6537810
Edeowie 1	-31 17.756	138 25.882	255505	6534753
Torrens 1	-31 42.118	138 03.747	221583	6488846

4. COMPLIANCE ISSUES

4.1. Licence and Regulatory Compliance

Three well completion reports were submitted late and were thus not compliant with the obligations imposed by the Act.

The Nazgul1 well completion report was due on 20-6-08 but was submitted approximately 1 month late.

The Gollum1 well completion report was due on 9-6-2008 but submitted approximately 1 month late.

The Sauron1 well completion report was due on 12-7-2008 but was submitted approximately 1 month late.

4.2. Management System Audits

No Management System Audits were undertaken during Year One.

4.3. Data Submissions

Reports generated by Torrens Energy Limited under the Act and submitted to PIRSA are shown below:

Author	Title	Date
Christine Sealing	Wireline data (resistance, temperature, gamma) for Gollum 1, Nazgul 1, Sauron 1, Gandalf 1, Balrog 1, Edeowie 1, Torrens 1	31 March 2008
Christine Sealing	Wireline data Gollum 1, Balrog 1	23 May 2008
Christine Sealing	Quarterly Cased-hole Well Activity Report	31 July 2008
Christine Sealing	Nazgul 1 Well Completion Report	June 2008
Christine Sealing	Balrog 1 Well Completion Report	July 2008
Christine Sealing	Edeowie 1 Well Completion Report (Re-entry)	April 2008
Christine Sealing	Gandalf 1 Well Completion Report	July 2008
Christine Sealing	Gollum 1 Well Completion Report	June 2008
Christine Sealing	Sauron 1 Well Completion Report	July 2008

4.4. Incidents

No reportable incidents occurred during Year One.

4.5. Threat Prevention

No threats to activities under the licences have been identified.

4.6. Future Work Program

Torrens Energy expects the following work to be undertaken during Year Two of the term of the licence:

Geological & Geophysical Review

Shallow Heat Flow Drilling on GELs 234, 235, 285

Torrens Energy has four shallow heat flow exploration holes planned for the Port Augusta area in 2008-9. These holes are set to be drilled in the same manner as the holes described above. Compliance procedures are in progress.

5. REGULATED ACTIVITIES

Drilling

Well data summaries for each well

Well name:	Edeowie 1	Company:	Torrens Energy
Well category:	stratigraphic well	Project:	Torrens Project
	re-entry for geothermal exploration	GEL:	278
Well status:	unplugged, cased and capped	Location (GDA 94):	-31° 17.756 S
Spud date:	31 July 1981		138° 25.882 E
Re-entry date:	25 October 2007	Elevation (AHD):	135.2m
Rig release:	28 October 2007	Drilling Company:	Underdale Drillers
Depth:	983.7m (SADME); 635m (re-entry)	Rig type:	Edson 6000
Stratigraphic and Lithological Summary: No new metres cut, no core drilled during re-entry. See original Edeowie 1 Well Completion Report, 1983 (South Australia Department of Mines and Energy, Report Book Number 83/56) for full description of lithologies and stratigraphies encountered.			

Well name:	Nazgul 1	Company:	Torrens Energy Ltd.
Well category:	Geothermal exploration well	Project:	Torrens Project
Well status:	open, capped	GEL:	230
Depth:	600.0	Location (GDA 94):	-31° 04.478'
Spud date:	28 November 2007		138° 09.059'
Rig release:	20 December 2007	Drilling Company:	Underdale Drillers
Artesian (y/n):	Yes. Head 0-2 metres.	Rig type:	Mayhew 1500 / Edson 6000

Well name:	Sauron 1	Company:	Torrens Energy Ltd.
Well category:	Geothermal exploration well	Project:	Torrens Project
Well status:	open, capped	GEL:	230
Depth:	375.0	Location (GDA 94):	-31° 10.867'
Spud date:	5 December 2007		138° 10.678'
Rig release:	12 January 2008	Drilling Company:	Underdale Drillers
Artesian (y/n):	Yes. Head 0-2 metres	Rig type:	Mayhew 1500 / Edson 6000

Well name:	Gollum 1	Company:	Torrens Energy Ltd.
Well category:	Geothermal exploration well	Project:	Torrens Project
Well status:	open, capped	GEL:	278
Depth:	501.0	Location (GDA 94):	-31° 08.797'
Spud date:	7 November 2007		138° 20.854'
Rig release:	9 December 2007	Drilling Company:	Underdale Drillers
Artesian (y/n):	Yes; head <1 metre	Rig type:	Mayhew 1500 / Edson 6000

Well name:	Gandalf 1	Company:	Torrens Energy Ltd.
Well category:	Geothermal exploration well	Project:	Torrens Project
Well status:	open, capped	GEL:	231
Depth:	585.3	Location (GDA 94):	-31° 18.274'
Spud date:	13 December 2007		138° 10.983'
Rig release:	2 February 2007	Drilling Company:	Underdale Drillers
Artesian (y/n):	Yes. Head 0-2 metres	Rig type:	Mayhew 1500 / Edson 6000

Well name:	Balrog 1	Company:	Torrens Energy Ltd.
Well category:	Geothermal exploration well	Project:	Torrens Project
Well status:	open, capped	GEL:	278
Depth:	502.5	Location (GDA 94):	-31° 15.902'
Spud date:	14 January 2008		138° 16.212'
Rig release:	15 February 2008	Drilling Company:	Underdale Drillers
Artesian (y/n):	Yes; head 0-2 metres	Rig type:	Mayhew 1500 / Edson 6000

6. EXPENDITURE STATEMENT

The table below shows expenditure for The Previous year in the Torrens Project Area.

Commercial in Confidence

OBJECTIVE	ASSESSMENT CRITERIA	COMPLIANCE / NON COMPLIANCE	COMMENTS
1. Minimise the risk to public and other third parties.	Reasonable measures implemented to ensure no injuries to the public or third parties. Fires only permitted as per the Fires and Emergency Services Act 2005.	Compliant	<p>All employees and contractors undertook a safety induction prior to commencing work in the field and will undertake a refresher course if/when required.</p> <p>The access tracks for each well was along existing station tracks with no public access.</p> <p>Signage was erected along the tracks to advise that only authorised personnel were permitted on to the well site, and bunting and other barriers were erected around drill sites to maximize safety.</p> <p>Accident / incident reporting systems were in place.</p> <p>Appropriate PPE was issued to all personnel involved in the drilling operations.</p> <p>Torrens maintained regular contact with landholders and associated stakeholders during the drilling operations at each site.</p>
2. Minimise disturbance and avoid contamination to soil.	<p>Ground water and associated drilling mud/fluids contained within designated sumps</p> <p>Well Site and Access Track Construction</p> <p>0, +1 or +2 GAS criteria are attained for “Minimise impacts on soil” objective as listed in Appendix 1 for well site location and construction and “Minimise visual impacts of abandoned well sites and access tracks” objectives as listed in Appendix 3 for well site and access track restoration.</p> <p>No unauthorised off-road driving or creation of shortcuts.</p> <p>No construction activities are carried out on salt lakes, steep tableland land systems or wetlands land systems (as defined in Cooper Basin Drilling EIR).</p> <p>Borrow pit construction and restoration</p> <p>0, +1 or +2 GAS criteria are attained for “Minimise Visual Impacts for constructing borrow pits” objective as listed in Appendix 2, and “Minimise visual impacts” and “Minimise impact on soil” objectives as listed in Appendix 4.</p>	Compliant	<p>Topsoil was stockpiled for subsequent respreading when restoration activities were conducted.</p> <p>Vehicle movements were strictly limited to the defined access tracks and well pad areas which had been given cultural heritage clearance for the drilling operations.</p> <p>The well sites were rehabilitated and restored.</p> <p>Sumps were rehabilitated and restored</p> <p>All fuel, oil and chemicals were stored in accordance with relevant standards.</p> <p>There were no spills during the drilling operations that required reporting or corrective action to be taken</p>

	<p>Fuel and Chemical Storage and Handling No spills/leaks outside of areas designed to contain them.</p> <p>Waste Management All domestic wastes are disposed of in accordance with EPA licensing requirements. Attainment of GAS criteria for “Site left in clean, tidy and safe condition after final clean-up” objective during well site restoration (refer Appendix 3) <i>No spills or leaks from sewage treatment process and sludge pits.</i></p>		
3. Avoid the introduction or spread of pest plants and animals and implement control measures as necessary.	<i>No weeds or feral animals are introduced to operational areas.</i>	Compliant	The drill rigs and vehicles used for this operation had been washed and cleaned prior to arriving at the site, and were cleaned prior to moving off site.
4. Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources.	<p>Well Lease and Access Track Construction Well leases and access tracks are located and constructed to maintain pre-existing water flows (i.e. channel contours are maintained on floodplains and at creek crossings).</p> <p>Drilling Mud Sumps No overflow of drill cuttings, muds and drilling fluids from mud sumps. No waste material disposal to sumps.</p> <p>Fuel/Chemical Storage and Handling <i>No leaks/spills outside of areas designed to contain them.</i></p>	Compliant	<p>None of the well sites were located in areas where flooding from local watercourses was likely to occur.</p> <p>All drill cuttings, muds, and non toxic drill fluids were contained within designated mud sumps with adequate freeboard at the completion of operations to allow for a cover of clean fill at remediation.</p> <p>All fuel, oil and chemicals were stored in accordance with relevant standards</p>
5. Avoid disturbance to sites of cultural and <i>heritage significance.</i>	Proposed well sites and access tracks have been surveyed and any sites of Aboriginal and non-Aboriginal heritage identified. <i>Any identified cultural and heritage sites have been avoided.</i>	Compliant	<p>A Joint site visit was carried out with the Native Title Claimant groups.</p> <p>Propose drilling locations and access routes were agreed and give heritage clearance. Areas of significance were recorded and marked as exclusion zones.</p>
6. Minimise loss of aquifer pressures and avoid aquifer contamination.	<p>Drilling & Completion Activities There is no uncontrolled flow to surface (Blow out). Sufficient barriers exist in casing annulus to prevent crossflow between separate aquifers or hydrocarbon reservoirs. Relevant government approval obtained for abandonment of any radioactive tool left downhole.</p> <p>Producing, Injection, Inactive and Abandoned Wells</p>	Compliant	<p>All wells were completed with gate valves to ensure no artesian water flowed to the surface uncontrolled.</p> <p>All aquifers in the unconfined Tertiary sections were pressure cemented and steel cased to ensure no cross contamination between aquifers or the</p>

	No cross-flow behind casing between aquifers, and between aquifers and hydrocarbon reservoirs unless approved by DWLBC.		surface.
7. Minimise disturbance to native vegetation and native fauna.	No unnecessary disturbance of native species. No unnecessary disturbance of dead plant material. Well Lease and Access Track Construction and Restoration Any sites with rare, vulnerable and endangered flora and fauna have been identified and avoided. 0, +1 or +2 GAS criteria are attained for “Minimise impacts on vegetation” objective as listed in Appendix 1, during well lease and access track site selection and construction and for “Re-establish natural vegetation on abandoned well sites and access track” objective in Appendix 3. Borrow Pits Construction and Restoration 0, +1 or +2 GAS criteria are attained for “Minimise impacts on vegetation” objective as listed in Appendix 2 during borrow pit site selection and construction, and “Minimise Impact on Vegetation” objective in Appendix 4 for borrow pit restoration. Waste Management Refer to assessment criteria for Objective 11. Fuel and Chemical Storage and Management Refer to assessment criteria for Objectives 2 and 4.	Compliant	None of the wells were located in or near areas of high biological or wilderness values and hence the drilling operations presented no long term impacts to any such areas. National Parks and Wildlife flora/fauna databases contain no records of vulnerable or endangered species within several kilometres of any of these well sites. The well sites contained only sparse vegetation, and clearance was minimised. Trees that were present on or adjacent to the site were not cleared. All rubbish was disposed of at a licensed waste facility.
8. Minimise air pollution and greenhouse gas emissions.	Compliance with EPA requirements.	Compliant	No well tests or well blow -downs were undertaken during drilling operations at any of the wells.
9. Maintain and enhance partnerships with the regional community.	No unresolved reasonable complaints from the community.	Compliant	Torrens maintained regular contact with landholders and associated stakeholders prior to and while undertaking drilling operations at <i>The Torrens Project</i> .
10. Avoid or minimise disturbance to stakeholders and/or associated infrastructure	No reasonable stakeholder complaints left unresolved.	Compliant	Torrens maintained regular contact with landholders and associated stakeholders prior to and while undertaking drilling operations at each of the well sites. The access tracks and well sites were located away from tourist routes.

			None of the well sites were located near stock watering points and stock was not present in significant numbers due to prevailing drought conditions.
11. Optimise waste reduction and recovery	<p>With the exception of drilling fluids, drill cuttings and other fluids disposed during well clean-up, and sewage wastes, all wastes to be disposed of at an EPA licensed facility in accordance with EPA Licence conditions.</p> <p>Attainment of GAS criteria for “Site left in clean, tidy and safe condition after final clean-up” objective during well site restoration (refer Appendix 3).</p> <p>Attainment of GAS criteria for “Site left in clean, tidy and safe condition” objective during borrow pit restoration (refer Appendix 4).</p>	Compliant	<p>Waste was removed from the well site</p> <p>All well sites were left in a clean tidy and safe condition after drilling and rehabilitation.</p>
12. Remediate and rehabilitate operational areas to agreed standards.	<p>No unresolved reasonable stakeholder complaints.</p> <p>Contaminated Site Remediation</p> <p>Contaminated sites are remediated in accordance with criteria developed with the principles of the National Environment Protection Measure for Contaminated sites and in consultation with the EPA.</p> <p>Well Site and Access Track Restoration</p> <p>The attainment of 0, +1 or +2 GAS criteria for (refer Appendix 3): “minimise visual impact of abandoned well sites”, “minimise visual impact of abandoned access tracks” and “re-establish natural vegetation on abandoned well sites and access tracks”</p> <p>Abandoned wells are secured flush to the surface.</p> <p>Borrow Pit Restoration</p> <p>The attainment of 0, +1 or +2 GAS criteria for (refer Appendix 5): “minimise impact on vegetation”, “minimise impact on soil” and “minimise visual impacts”.</p> <p><i>Note:</i> Well abandonment issues addressed under objective 6.</p>	Compliant	<p>The well sites have been restored in accordance with the standards and procedures detailed in the Lake Torrens Drilling SEO.</p> <p>Any contaminated sites are remediated in accordance with company guidelines and to the satisfaction of the landowners themselves.</p>
13. Minimise the impact to the values of the Lake Torrens	<p>No significant adverse impact on environmental values of the Lake Torrens National Park.</p> <p>Compliance with the <i>National Parks and Wildlife Act 1972</i> and</p>	Compliant	All operations were carried out in areas nowhere near the Lake Torrens National Park.

National Park	<p>Regulations pertaining to correct conduct in a reserve. Induction of personnel includes familiarisation with the <i>National Parks and Wildlife Act 1972</i> and Regulations. The District Ranger is notified of the commencement date of activities at least ten days prior to work commencing (Mr Ken Anderson, District Ranger, Wilpena Pound, telephone 8648 0049, facsimile 8648 0031, email anderson.ken@saugov.sa.gov.au).</p> <p>No firewood or kindling collected from within Lake Torrens National Park.</p> <p>No pets or firearms brought into Lake Torrens National Park.</p>		There was no impact on the environmental values of the park in any way.
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