

*Adelaide Energy Limited*

Annual Report

Licence Year 2

*01 March 2008 – 28 February 2010*

*PEL 255*

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## **1 Introduction**

Petroleum Exploration Licence (PEL) 255 was granted on 01 March 2007. The licence is located in the onshore Otway Basin, South Australia. This report details the work conducted during Licence Year 2 of the licence period 01 March 2007 – 28 February 2013 (inclusive) in accordance with Regulation 33 of the *Petroleum and Geothermal Energy Act 2000*.

Adelaide Energy acquired the Jacaranda Ridge 3D Seismic Survey in PEL 255 following the successful drilling of Jacaranda Ridge-2. Jacaranda Ridge-2 flowed GTS @ 2.5 mmcf/d with 235 bbl condensate per day from the Sawpit Sandstone. Well tests were conducted to further evaluate the Jacaranda Ridge-2 discovery and engineering data showed that the thick sand overlying the Sawpit Sandstone was not contributing to flow. A programme to perforate the Jacaranda Ridge Sandstone was instigated in June 2008 and both increased pressure and evidence of oil were noted following successful perforation. HIP estimates based on the additional pressure data have been revised upward and the Jacaranda Ridge Sandstone has been formally elevated to Formation status following external academic studies.

Adelaide Energy commenced engineering studies for the construction of a pipeline to connect the Jacaranda Ridge Field to the Katnook Gas Plant and seismic attribute studies were undertaken to evaluate additional drilling targets. Attribute modelling based on well parameters from Jacaranda Ridge-1 and 2 has enabled Adelaide Energy to mature the Hollick and Brand leads to prospect status for drilling in 2010.

PEL 255 was placed in suspension for the period from and including 1 October 2008 to 31 March 2009 with concomitant change in Permit expiry date to 29 August 2012. An additional 6 month period of suspension was approved from 1 April 2009 to 30 September 2009 and the expiry date of PEL 255 is now 28 February 2013.

Activity resumed in the permit following lifting of suspension and construction of the Jacaranda Ridge pipeline commenced. The Jacaranda Ridge well site was expanded to enable the Hollick and Brand exploration wells to be directionally drilled to the respective sub-surface targets from the same location. Hollick-1 will spud in early March and Brand will be drilled immediately afterwards – pipeline tie-in to the wells will be completed after the drilling rig has departed the site.

### **Permit Summary**

For the duration of the licence year, licensees for Petroleum Exploration/Production Licence PEL 255 were:

- Adelaide Energy Limited                      100%

The current work commitments (including all variations) associated with PEL 255 can be seen in Table 1.

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

<b>Licence Year</b>	<b>Licence dates</b>	<b>Minimum Work Program</b>
Year 1	01 March 2007 – 29 February	1 Well

	2008	30 km <sup>2</sup> 3-D seismic Aeromagnetic survey Geological and Geophysical studies
Year 2	01 March 2008 – 28 February 2010	1 Well Geological and Geophysical studies
Year 3	01 March 2010 – 28 February 2011	1 Well Geological and Geophysical studies
Year 4	01 March 2011 – 28 February 2012	1 Well
Year 5	01 March 2012 – 29 February 2013	Geological and Geophysical studies

Licence Year 2 concluded on 28 February 2010. 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. An extension to programme commitment of 3 months was approved by PIRSA and the Year 2 well was to be completed by 28 May 2010 for compliance with the terms of licence.

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

Licence Year	Minimum Work Program	Actual Work
Year 2	1 Well  Geological and Geophysical studies	1 Well  (a work programme extension was approved due to lack of available rigs and Hollick-1 is a compliant Year 2 exploration well)  Geological and Geophysical studies.

## **2 Regulated Activities**

Pursuant to Regulation 33(2)(a) under the Act, the following regulated activities were conducted by Adelaide Energy Limited in PEL 255.

### ***Drilling and Related Activities***

Engineering studies including static and dynamic gradient surveys were conducted on the Jacaranda Ridge-2 discovery well. Jacaranda Ridge-2 was completed as a barefoot completion over the Sawpit Sandstone primary objective and poor reservoir performance was overcome using perforating charges in open hole. Well activities were conducted in accordance with the Adelaide Energy Limited SEO, PEL 255, Otway Basin May 2007.

### ***Seismic Data Acquisition***

No seismic data were recorded during the term of Year 2. The Jacaranda Ridge 3D seismic survey was recorded by Terrex Seismic during Permit Year 1 between 24 January and 2 February 2008. The survey covered an area of 48.6 sq km and 153.44 source line km were acquired. A final Operations report was prepared and submitted to PIRSA during Year 2.

### ***Seismic Data Processing and Reprocessing***

No seismic reprocessing was conducted during the reporting period. The Jacaranda Ridge 3D seismic data (48.6 sq km) was interpreted and mapped by ADE with emphasis on attribute modelling and sand development prediction.

### ***Geochemical, Gravity, Magnetic and other surveys***

No additional surveys were recorded in PEL 255.

### ***Production and Processing***

Jacaranda Ridge-2 will not be in production until completion of the tie-in to Redman Field and the Katnook Gas Plant. A production test in Jacaranda Ridge-2 recovered GTS at rates up to 2.46 MMcfd and 184 BCPD over the total open-hole section but a spinner survey confirmed that the Jacaranda Ridge Sandstone was not contributing to flow. Following pressure studies in June 2008 a slickline-conveyed gun of perforating charges was used to perforate the upper sand section of the reservoir in July; subsequent pressure and flow tests during July, 2008 confirmed increased contribution from the perforated zone in addition to oil.

### ***Pipeline Construction and Operation***

Construction of a pipeline to connect Jacaranda Ridge-2 to the Katnook Gas Plant commenced during the permit year following completion of the necessary compliance documentation and notification to PIRSA and stakeholders along the pipeline route. Final connection to the Jacaranda Ridge-2 well-head will take place following completion of Hollick-1 and Brand-1 exploration wells.

### ***Preliminary Survey Activities***

No geological or geophysical studies took place during the permit year. Survey activities conducted during the reporting period in relation to the pipeline included

environmental and cultural heritage studies in addition to planning of the pipeline route.

### **3 Compliance Issues**

#### ***Licence and Regulatory Compliance***

Adelaide Energy Limited complied with Regulations 33(2) (b) & (c) in relation to its licence and Statement of Environmental Objectives for activities in Jacaranda Ridge-2.

Detailed information on the individual instance of non-compliance is provided below in designated sections.

#### **Licence Non-Compliance**

**Table 3 List of licence non-compliances for current reporting year**

<b>No.</b>	<b>Stated Commitment</b>	<b>Reason for Non-Compliance</b>	<b>Rectification of Non-Compliance</b>
	Adelaide Energy Limited complied with all conditions of licence.	ADE complied with the terms of the licence.	

#### **Regulatory Non-Compliance**

**Table 4 List of regulatory non-compliances for current reporting year**

<b>No.</b>	<b>Date</b>	<b>Activity</b>	<b>Details of Non-Compliance</b>	<b>Rectification of Non-Compliance</b>
4	01 March 2010	Quarterly reports	Quarterly cased hole reports were not submitted during the period of suspension	Year 2009 Quarterly Cased Hole reports were submitted retrospectively on 01 March 2010. The Operator has confirmed that QCH reports are required during periods of suspension.

Compliance with Statement of Environmental Objectives

Adelaide Energy Limited will drill Hollick-1 as the Year 2 commitment well using the Jacaranda Ridge-2 well-site. The area of the drilling pad was increased to accommodate two additional wells and earthworks were carried out in accordance with the relevant SEO after lifting of the period of suspension.

Adelaide Energy Limited complied with the terms and intent of the Statement of Environmental Objectives for Drilling, Completion and Initial Production Testing, PEL 255, Otway Basin, South East South Australia. The pipeline from Redman Field (PPL 168) to Jacaranda Ridge-2 was halted at the drilling pad pending the drilling of Hollick-1 and Brand-1; the pipeline was constructed according to a pipeline-specific SEO (see following section).

**Table 5. Compliance with the Adelaide Energy SEO Drilling, Completion and Initial Production Testing, PEL 255.**

<b>Objective</b>	<b>Assessment Criteria</b>	<b>Compliant/Non-Compliant</b> (inc. Compliance statement)	<b>Comments</b>
<b>1)</b> Avoid disturbance to sites of Aboriginal and non-indigenous heritage significance.	<ul style="list-style-type: none"> <li>No sites of Aboriginal and European heritage significance are identified for protection in the areas affected by ADE's operations.</li> <li>No requirement to interfere with recognised areas of significance – pipelines planned to avoid sensitive areas and existing well pad extended for additional drilling</li> </ul>	Compliant	<ul style="list-style-type: none"> <li>No disturbance to Aboriginal and non-indigenous heritage sites.</li> <li>Existing well pad utilised.</li> <li>Hollick and Brand located close to JR-2.</li> <li>Slick-line operations confined to the prepared lease.</li> </ul>
<b>2)</b> Avoid disturbance to rare, vulnerable and endangered flora and fauna species.	<ul style="list-style-type: none"> <li>This area has been cleared of any native vegetation, and is continually exposed to cropping, burning, fertilizing, spraying and grazing.</li> <li>Well site will be rehabilitated in accordance with land owner's requirements</li> <li>All activities planned in order to avoid sensitive areas</li> </ul>	Compliant	<p>Wellsite</p> <ul style="list-style-type: none"> <li>Area already cleared, drill pad has been extended on heavily worked agricultural land.</li> </ul> <p>Testing</p> <ul style="list-style-type: none"> <li>No fires during production testing activities.</li> </ul>
<b>3)</b> Prevent the introduction and establishment of exotic weed species.	<ul style="list-style-type: none"> <li>The major potential source of weed introduction is from vehicles and equipment brought in from other regions of the state or interstate for the various well activities.</li> <li>Vehicles cleaned or mobilised from safe regions</li> </ul>	Compliant	<ul style="list-style-type: none"> <li>No introduced exotic weed species as a consequence of activities.</li> <li>Local vehicles used so no exposure to noxious flora.</li> <li>Slickline vehicle cleaned and had pre-existing use in SA.</li> </ul>

<p><b>4) Minimise impacts to soil.</b></p>	<ul style="list-style-type: none"> <li>The main impact to soil is caused by the stripping off of topsoil, the importation of foreign material for the construction of the site, and the compaction of this material and the remaining soil below this fill.</li> </ul>	<p>Compliant</p>	<ul style="list-style-type: none"> <li>No disturbance to soil profiles as a result of slick-line activities.</li> <li>Local fill used to expand pad.</li> <li>Drainage plan to control run-off and sumps, turkey nest lined with high density plastic sheet.</li> </ul>
<p><b>5) Minimise loss of reservoir and aquifer pressures and avoid aquifer contamination.</b></p>	<ul style="list-style-type: none"> <li>This objective seeks to protect the water quality and pressure of any aquifers and to maintain pressure in potential petroleum aquifers.</li> <li>Casing strings and drilling fluid programmes planned in accordance with best industry practice.</li> <li>Shallow water bore for rig use to be drilled with minimal impact.</li> </ul>	<p>Compliant</p>	<ul style="list-style-type: none"> <li>No aquifer contamination as a result of drilling water bore and conductors or production testing activities.</li> <li>No cross-flow behind casing between aquifers, and between aquifers and hydrocarbon reservoirs detected during slick-line operations.</li> </ul>
<p><b>6) Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow groundwater resources.</b></p>	<ul style="list-style-type: none"> <li>Well drilled with casing and drilling fluid programme designed to minimise possible damage to the environment</li> <li>No cut/ fill over shallow water sources or to permanently expose limestone substrate</li> <li>Rig and general operations conducted to ensure no spills of toxic chemicals and/ or fuel, storage areas bunded as required</li> </ul>	<p>Compliant</p>	<ul style="list-style-type: none"> <li>No disruption to drainage patterns as a result of activities.</li> <li>No contamination of surface waters and shallow groundwater resources due to slick-line operations.</li> <li>Hollick and Brand located on expanded Jacaranda Ridge-2 well pad using local fill.</li> </ul>
<p><b>7) Minimise risks to the safety of the public, employees and other third parties.</b></p>	<ul style="list-style-type: none"> <li>Rig practices monitored and training / induction programs maintained and upgraded as necessary.</li> <li>The wellsite was under the control of the Drilling Supervisor.</li> <li>All reasonable steps were taken to prevent unauthorised access to the site and warning signs appropriately located.</li> <li>Dust resulting from drilling activities and supply truck movements minimised .</li> </ul>	<p>Compliant</p>	<ul style="list-style-type: none"> <li>No injuries to the public or third parties during slick-line operations.</li> <li>No injuries to the public or third parties during earth works for the Hollick and Brand wells.</li> <li>No fires were initiated by well-pad preparation and slick-line activities.</li> <li>Vehicle ingress/ egress monitored during well pad construction</li> </ul>

<p><b>8) Minimise disturbance to the local community and other land users.</b></p>	<ul style="list-style-type: none"> <li>• Slow heavy vehicles associated with operations</li> <li>• The cleared open nature of the region minimized natural attenuation and made noise moderation difficult.</li> <li>• Risk to livestock injury from vehicle movements and open sumps and cellars minimised.</li> <li>• Spills controlled/ minimised by rapid response by drilling personnel to minimise impact on the environment and any stock.</li> <li>• No wildfires caused by construction/drilling/rehabilitation activities</li> </ul>	<p>Compliant</p>	<ul style="list-style-type: none"> <li>• No adverse impact on livestock, cropping and pasture as a result of activities.</li> <li>• No complaints from the local community or other land users.</li> <li>• No spills.</li> </ul>
<p><b>9) Minimise visual impact.</b></p>	<ul style="list-style-type: none"> <li>• Visual impact of wellsite and access track construction minimised. Assessment criteria used to determine rehabilitation of abandoned and restored well-sites and access tracks (PIRSA Field Guide 2002).</li> <li>• GAS scoring <math>2 &lt; x &lt; 0</math></li> </ul>	<p>Compliant</p>	<ul style="list-style-type: none"> <li>• All well pad construction activities confined to the well-site in a region of disturbed soil.</li> <li>• Winter rain will germinate indigenous seed stock.</li> </ul>
<p><b>10) Minimise impact of domestic and industrial waste.</b></p>	<ul style="list-style-type: none"> <li>• Waste refers to all wastes with the exception of the Listed Wastes in Schedule 1 Part B of the Environment Protection Act 1993.</li> <li>• Liquid and solid waste was treated as discussed in the Environmental Impact Report.</li> <li>• All waste removal contractors were licensed and operated within EPA guidelines.</li> </ul>	<p>Compliant</p>	<ul style="list-style-type: none"> <li>• No soil or groundwater contamination as a result of slick-line work.</li> <li>• All waste resulting from well pad earthworks was removed.</li> <li>• No impact on landowner as a result of activity.</li> <li>• No uncontained domestic waste on site.</li> </ul>
<p><b>11) Remediate and rehabilitate operational areas to agreed standards.</b></p>	<ul style="list-style-type: none"> <li>• Rehabilitation/ abandonment plans for surface activities will be developed in consultation with relevant stakeholders Well Site and Access Track Restoration</li> <li>• Compacted soil areas will be ripped and soil profile and contours are reinstated following completion of operations.</li> </ul>	<p>Compliant</p>	<ul style="list-style-type: none"> <li>• Jacaranda Ridge well pad will not be rehabilitated until Hollick and Brand are drilled.</li> <li>• Drill pad will be reduced in size and rehabilitated based on results of drilling.</li> <li>• Site will be restored according to satisfaction of landowners.</li> </ul>

## ***Management System Audits***

Adelaide Energy Limited complied with Regulation 33(2) (d) under the Act by conducting internal reviews of all operations and procedures. No significant issues were raised.

A post-operations review determined that no reportable incidents occurred during implementation of the Jacaranda Ridge-2 perforation programme. During the review of HSE planning the participants discussed how short mid-year daylight hours could extend the duration of a project if visibility was to be maximised for safety. Cold temperatures during mid-year were noted as an additional factor – adiabatic ice slowed retrieval of pressure gauges because insufficient sunlight in cloudy skies allowed methane hydrates to freeze slick-line in the lubricator; time was lost while the ice melted and retrieval operations were timed to prevent excessive tension on the line.

### **Report and Data Submissions**

Pursuant to Regulation 33(2) (e) under the Act, Adelaide Energy submitted the following reports

**Table 6 List of report and data submissions during current licence reporting year**

<b>Description of Report/Data</b>	<b>Date Due</b>	<b>Date Submitted</b>	<b>Compliant / Non-Compliant</b>
Jacaranda Ridge-2 Well Testing MPLT Report	24/04/2008	11/04/2008	Compliant
Jacaranda Ridge 2D Well Testing SGS Report	24/04/2008	11/04/2008	Compliant
Jacaranda Ridge-2 SGS data	23/12/2008	22/04/2008	Non compliant
Jacaranda Ridge-2 Down-hole diagram	23/12/2008	22/04/2008	Compliant
PEL 255 Annual Report Permit Year 1	28/04/2008	23/04/2008	Compliant
Jacaranda Ridge-2 core analysis	24/09/2008	23/04/08	compliant
Jacaranda Ridge 3D Seismic Survey Field Operations Report January-February 2008.	14/07/2008	14/05/2008	compliant
Jacaranda Ridge Routine Core Analysis report - final	30/07/2008	28/05/2008	compliant
2008 Jacaranda Ridge 3D Seismic Survey Operations and Processing Report.	07/01/2009	09/10/2008	compliant
Jacaranda Ridge-2 Report on the June perforation and testing results	02/12/2008	27/06/2008	compliant
Jacaranda Ridge-2 Testing in mid-July 2008	02/12/2008	17/09/2008	compliant
Cased hole Quarterly Report 2 <sup>nd</sup> , 3 <sup>rd</sup> and 4 <sup>th</sup> Quarter, Year 2, 2008-2009	Quarterly intervals	31/01/2009	compliant
Cased hole Quarterly Report 1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> and 4 <sup>th</sup> Quarter, Year 2, 2009-2010	Quarterly intervals	01/03/2010	Non-compliant

## ***Incidents***

No Lost Time Injuries occurred during field and office work conducted by Adelaide Energy Limited.

There were no reportable environmental incidents during the Jacaranda Ridge slick-line survey and pipeline construction.

Pursuant to Regulation 33(2) (f) Adelaide Energy Limited includes the following data.

**Table 7 List of incidents during current licence reporting year**

<b>Date of Incident</b>	<b>Activity</b>	<b>Incident Description</b>	<b>Type of Loss</b>	<b>Action to Rectify &amp; Effectiveness of Action</b>	<b>Date Reported / Reported to Whom</b>
Nil					

### ***Threat Prevention***

Pursuant to Regulation 33(2) (g) under the Act, Adelaide Energy Limited reports that no reasonably foreseeable threats or hazards are recognised.

### ***Future Work Program***

Pursuant to Regulation 33(2) (h) under the Act, Adelaide Energy Limited plans the following activities in permit year 3 (01 March 2010 – 28 February 2011).

- ADE will complete tie-in and commissioning of the Jacaranda Ridge-2 pipeline to the Katnook gas plant via Redman-1
- The Jacaranda Ridge 3D seismic data has been used to identify the Hollick prospect for drilling in 2010. The results from this well (porosity trends, fluid contacts) will be used to locate additional prospects and appraisal drilling locations.
- Drill the Brand-1 exploration well based on the 3D seismic interpretation.

## ***4 Expenditure Statement***

Pursuant to Regulation 33(3) under the Act, Adelaide Energy Limited lists the expenditure in Permit Year 2 in Appendix I.

## **5 Additional Information for Production Licence Reports**

Adelaide Energy Limited acquired the Katnook gas plant at Penola under terms and conditions of the *Onshore Otway Basin Assets Sale and Purchase Agreement (SPA)*. ADE now operates these production facilities and complies with the necessary reporting procedures. The gas plant lies outside PEL255 but the Jacaranda Ridge-2 well and pipeline will supply gas and condensate to the plant.

## **6 Additional Information for Pipeline Licence Reports**

Adelaide Energy Limited did not operate any pipelines in PEL255 during the period embraced by this Permit Year 2 report. ADE commenced construction of a tie-in to the Redman Field and final tie-in the Jacaranda Ridge-2 will take place following completion of Hollick-1 and Brand-1 exploration wells. ADE will commission the pipeline during 2010 in Permit Year 3.