

PEL 57

Onshore Otway Basin

South Australia

Year 5 Annual Report

For the Period

18 November 2000 To 17 November 2001

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CONTENTS

- 1 Introduction**
- 2 Administration**
- 3 Regulated Activities**
 - 3.1 Drilling**
 - 3.2 Seismic Data Acquisition**
 - 3.3 Seismic Data Processing/Reprocessing**
 - 3.4 Geological & Geophysical Studies**
- 4 Compliance Issues**
 - 4.1 Regulatory Compliance**
 - 4.2 Rectification of Non-Compliance**
 - 4.3 Management System Audits**
 - 4.4 Data submissions**
 - 4.5 Safety**
 - 4.6 Threat Prevention**
 - 4.7 Licence Conditions and Future Work Program**
- 5 Expenditure Statement**
- 6 References**

1 Introduction

Petroleum Exploration Licence No. 57 ("PEL 57") is located in the onshore portion of the Otway Basin, South Australia. This report covers the work performed by Origin Energy Resources Ltd as Operator of PEL 57 *in accordance with requirements of Section 33 of the Petroleum Regulations 2000*, for the period 18 November 2000 to 17 November 2001, being the fifth year of the second permit term.

2 Administration

The working interests in the permit are as follows:

Origin Energy Resources Ltd	50%
Lakes Oil NL	30%
Victoria Petroleum NL	10%
Mirboo Ridge Pty Ltd	10%

Mirboo Ridge Pty Ltd is an affiliate company of Lakes Oil NL.

On 24 March 2000 the permit Year 4 commitment was varied to either 50 kilometres of seismic acquisition, or the contribution of one-third of the cost of drilling a 2000 metre well on the McNamara Park prospect, in either PEL 57 or PEL 72. The Year 5 conditions were varied such that surrender in good standing could be advised by 25 March 2001.

On 7 March 2001, the licence conditions were further varied to allow for the delay in the spudding of the McNamara Park well. Provided the well commenced drilling by 31 July 2001, then the permit could be surrendered in good standing within 30 days of rig release.

Late in May 2001, Lakes Oil NL and Victoria Petroleum NL advised that they no longer wished to proceed with the option to part fund the McNamara Park 1 well in the permit adjacent to PEL 57, but would prefer to farm directly to PEL 72. Consequently, the already planned 2D Summer Hill Seismic Survey of 45 kilometres was undertaken to fulfil the PEL 57 Year 4 commitment.

3 Regulated Activities

Section 33.(2) (a) a summary of the regulated activities conducted under the licence during the year:

3.1 Drilling

The McNamara Park structure was drilled by the McNamara Park 1 well in the adjacent permit PEL 72. This structure straddles the border between PEL 57 and PEL 72, with the structural crest located within PEL 72, and all costs were borne by the PEL 72 Joint Venture. The well drilled to 2062 metres KB. Two drill stem tests were run over sands within the Flaxmans and Waarre Formations with no hydrocarbon flows to surface. The well was plugged and abandoned on 4 June 2001.

3.2 Seismic Data Acquisition

A total of 44.76 kilometres of 2D seismic was recorded by Trace Energy Services Pty Ltd. This survey targeted the Summer Hill structural trend and was

acquired between 15 and 20 May 2001, as part of the Summer Hill Seismic Survey. Full details of the seismic acquisition operations can be found in the Origin Energy Resources Ltd acquisition report¹.

3.3 Seismic Data Processing/Reprocessing

The Summer Hill Seismic Survey data were processed by WesternGeco in Adelaide. Final migrated SEGY data were received on 15 October 2001. Extensive testing was undertaken in an attempt to improve the poor signal quality at the Waarre Formation reservoir level. It is thought that this poor quality is the result of deep surface weathering which reduces the signal strength from the Waarre horizon. Full details of the testing program are provided in the WesternGeco seismic processing report².

3.4 Geological and Geophysical Studies

G&G studies for the permit year included a review of the prospectivity of the southern and isolated portion of the permit located immediately south of the Caroline CO₂ Field. This review led to the acquisition of the Summer Hill Seismic Survey.

Primary focus of the G&G effort has subsequently been the planning, preparation and monitoring of the Summer Hill 2D seismic acquisition and processing.

Initial results of the Summer Hill seismic survey indicate the presence of a potentially large Waarre Sandstone structure. However the data quality is generally very poor and the structure requires further confirmation and definition. The possibility of using high-resolution gravity data to delineate the structure will be evaluated during the coming term.

4 Compliance Issues

4.1 Regulatory Compliance

Section 33.(2) (b) a report for the year on compliance with the Act, these regulations, the licence and any relevant statement of environmental objectives.

The Permit is operated as per the requirements of the "Statement of Environmental Objectives for Seismic Operations in the Otway Basin, South Australia"³, and a report issued by PIRSA entitled "The Environmental Management of Seismic Operations in the South East of South Australia"⁴.

No environmental incidents were reported during the Permit year.

The seismic operations report for the Summer Hill Seismic Survey was submitted approximately 2 months after the due date. The CD for this report was submitted approximately 11 months after the due date.

The field tapes and support data for the Summer Hill Seismic Survey were submitted approximately 2 months after the due date.

The processed data for the Summer Hill Seismic Survey were submitted approximately 2 months after the due date.

Less than the required 21 day notice period was provided to landholders prior to commencement of the Summer Hill Seismic Survey. Verbal approval was received from PIRSA to waive the 21 day requirement in this instance.

4.2 Rectification of Non-Compliance

Section 33.(2) (c) a statement concerning any action to rectify non-compliance with obligations imposed by the Act, these regulations or the licence, and to minimize the likelihood of the recurrence of any such non-compliance.

To ensure future compliance in regard to report and data submission, Origin has developed a computer database called the Permits and Lands Management System designed to track critical dates and provide prompts for impending reports and data submissions. This database was implemented in early 2002 and is continually being refined. It is anticipated that this system will significantly assist with the timeliness of future submissions.

4.3 Management System Audits

Section 33.(2) (d) a summary of any management system audits undertaken during the relevant licence year, including information on any failure or deficiency identified by the audit and any corrective action that has, or will be, taken.

An environmental field audit was undertaken to assess the impact of the Summer Hill Seismic Survey and a detailed report is included in the final Acquisition Report. Table 1 below contains a summary of the Goal Attainment Scaling assessment of the field operations. This assessment procedure is detailed in the "Statement of Environmental Objectives for Seismic Operations in the Otway Basin, South Australia"³. Minimal to zero impact scores were achieved for every measure of the environmental objectives for the seismic operations.

GOAL ATTAINMENT SCALING

MEASURE	OBJECTIVE*	ASSESSMENT CRITERIA*	SCORE**
Impact on infrastructure	1.2 to minimise adverse impacts on other land users	Landholder satisfaction at survey completion	+1, all fences and gates reinstated
Impact on agricultural, horticultural or viticultural activities	1.2 to minimise adverse impacts on other land users	Landholder satisfaction at survey completion	+2, no impact
Visual impact	1.3 to discourage third party use of sites, following the completion of operations	Minimal evidence of seismic operations through the use of doglegs or other visual screens at road intersections	+2, no impact. Only established tracks used
	1.7 to minimise visual impact of operations	Minimal evidence of seismic operations by weaving line through native vegetated areas and reducing line of sight vision	+1, only wheel tracks evident in pasture area
Uphole site restoration	1.4 to minimise adverse impact on soil	Minimal evidence of cuttings around hole, and no site subsidence	+1, cuttings removed, little evidence
Pollution or litter	1.8 to minimise pollution, litter or remnant equipment at survey sites	No litter at campsites. Vehicle oil spills appropriately remedied	+2, no pollution or litter
Impact on native vegetation and wildlife	1.1 to minimise clearing or other impacts on native vegetation and wildlife habitats	Weaving to minimise vegetation slashing. Rootstock left on tracks. Use minimal line width necessary for safe operation	+2, no impact. Only established tracks used
	2.3 to avoid disturbance to rare, vulnerable or endangered fauna and flora	Proposed line locations scouted for rare species. Any identified sites flagged and avoided. Records kept and available	+2, no impact. Only established tracks or open pasture
	2.4 to prevent the introduction and spread of exotic species	Vehicles and equipment cleaned prior to entering Otway Basin. Records kept and available	

MEASURE	OBJECTIVE*	ASSESSMENT CRITERIA*	SCORE**
Disturbance to land surface and water resources	1.4 to minimise adverse impact on soil	Wheeltracks and pad marks only are observable, and less than 100 mm deep	0, wheeltracks and pad marks evident but less than 100 mm deep
	1.5 to minimise adverse impact on surface drainage	Minimise wheeltracks and pad marks to less than 100 mm deep	0, wheeltracks and pad marks evident but less than 100 mm deep
	1.6 to minimise adverse impact on underground water resources	Identify expected depth of Dilwyn Formation aquifer prior to drilling operations. Plug any artesian water flow immediately	+2, Dilwyn aquifer >200m in this area. Upholes 27-50m
	2.1 to avoid disturbance to cultural heritage sites	Proposed line locations scouted for sites of heritage significance. Any identified sites flagged and avoided. Records kept and available	+2, lines scouted by Kungari Aboriginal heritage association. No sites identified
	2.5 to minimise the risk of initiation and/or propagation of wildfire	Procedures in place to minimise the risk of initiating and propagating wildfire.	+2, Forestry SA requirements met and adhered to.

TABLE 1

***Note:** Goal Attainment Scaling (GAS) objectives and assessment criteria taken from the PIRSA report entitled "Statement of Environmental Objectives for Seismic Operations in the Otway Basin, South Australia", by CD Cockshell and KR Langley, November 2001, Report Book 2001/020.

****Note:** GAS scores are further supported by detailed documentation in the Origin Energy Resources Ltd report entitled "PEL 57, Otway Basin South Australia, Summer Hill Seismic Survey 2001, Final report Part A: Acquisition", by WS Thirlwell, December 2001.

4.4 Data Submissions

Section 33.(3). (e) a list of all reports and data relevant to the operation of the Act generated by the licensee during the relevant licence year.

- Summer Hill Seismic Survey Processing report: - submitted 2 January 2002
- Summer Hill Seismic Survey Interpretation report: - in preparation, due 15 April 2002
- Summer Hill Seismic Survey Acquisition report: - submitted 8 January 2002 (due 20 November 2001)
- Summer Hill Seismic Survey field data and final SEGY data: - submitted 4 January 2002
- Annual Report

4.5 Safety

Section 33.(2) f in relation to any incidents reported to the Minister under the Act and these regulations during the relevant licensing year-

Section 33.(2) f (i) an overall assessment and analysis of the incidents, including the identification and analysis of any trends that have emerged.

Section 33.(2) f (ii) an overall assessment of the effectiveness of any action taken to rectify non-compliance with obligations imposed by the Act, these regulations or the licence, or to minimize the risk of recurrence of any such non-compliance.

The Summer Hill Seismic Survey was completed without any lost time injuries. Daily Toolbox meetings were held prior to the commencement of operations, and weekly safety meetings were held involving all the crew and an Origin Energy Resources Ltd representative. The safety meetings were minuted, and full details are contained in the Acquisition report¹.

No reportable incidents occurred during the reporting period.

4.6 Threat Prevention

Section 33.(2) (g) a report on any reasonably foreseeable threats (other than threats previously reported on) that reasonably present, or may present, a hazard to facilities or activities under the licence, and a report on any corrective action that has, or will be, taken.

There were no perceived threats, and no action taken.

4.7 Licence Conditions and Future Work Program

Section 33.(2) (h) unless the relevant licence year is the last year in which the licence is to remain in force a statement outlining operations proposed for the ensuing year.

The permit Years 4 and 5 commitments were varied on the 5th November 2001 to either 50 kilometres of seismic acquisition, or the contribution of one-third of the cost of drilling a 2000 metre well on the McNamara Park prospect. This minimum work commitment is fulfilled with the acquisition of the Summer Hill Seismic program, and so the Permit remains in good standing.

The only other mature prospect within the permit, Mulcrest, has been significantly downgraded by the results of McNamara Park. The drilling of a well on this structure is not currently economically justifiable.

The Summer Hill Seismic was used to confirm the existence of a structure that was defined using gravity data and surface geological mapping. This structure is currently estimated to have the potential to contain greater than 50 BCF of recoverable gas. Due to the poor quality of the data however, further rounds of 2D seismic acquisition or high-resolution gravity will be required to mature a location for drilling.

On the 5th November 2001, the Joint Venture received an offer of renewal from PIRSA, for the PEL 57 licence area for a further five years commencing 18th November 2001, and over an area of not more than 408 square kilometres. Minimum work commitments for the new term are as follows:

Year 1	A high-resolution gravity survey and 50 kilometres of 2D seismic surveying.
Year 2	Geological and geophysical studies
Year 3	15 kilometres of seismic surveying
Year 4	Drill one exploration well
Year 5	Geological and geophysical studies

5 Expenditure Statement

Section 33.(3) An annual report must be accompanied by a statement of expenditure on regulated activities conducted under the licence for the relevant licence year.

An Expenditure Statement for PEL 57 Joint Venture during the period from 18 November 2000 to 17 November 2001 is attached.

PEL 57 ONSHORE OTWAY BASIN, SOUTH AUSTRALIA

18TH NOVEMBER 2000 TO 17TH NOVEMBER 2001 (PERMIT YEAR 5)

STATEMENT OF EXPENDITURE

COMMERCIAL IN CONFIDENCE

6 References

1. WS Thirlwell, 2001. "PEL 57, Otway Basin South Australia, Summer Hill Seismic Survey 2001, Final Report Part A: Acquisition". Origin Energy Resources Ltd .
2. WesternGeco Australia Pty Ltd. 2001. "Data Processing Report, Permit Number PEL 57, 2001 Summer Hill Seismic Survey" .
3. CD Cockshell and KR Langley, 2001. "Statement of Environmental Objectives for Seismic Operations in the Otway Basin, South Australia". Primary Industries and Resources SA, Report Book 2001/020.
4. "The Environmental Management of Seismic Operations in the South East of South Australia", 4th edition 1996. Issued by the Department of Primary Industries and Resources Petroleum Division (formerly MESA).