



**PEL 110
Cooper/Eromanga Basin
South Australia**

**Annual Report
Permit Year 3**

6th February 2005 to 5th February 2006

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1 Introduction

Petroleum Exploration Licence No. 110 is situated on the northern margin of the Cooper/Eromanga Basin, South Australia. The third year of the licence covers the period 6th February 2005 to 5th February 2006.

This report details the work performed by the Joint Venture during this third year of the licence, in accordance with the requirements of Section 33 of the Petroleum Regulations 2002.

2 Permit Summary

The working interests in PEL 110 at the end of this reporting period were:

Beach Petroleum Ltd (Operator)	37.5%
Magellan Petroleum (NT) Pty Ltd	37.5%
Cooper Energy NL	25.0%

The agreed work commitments for PEL 110 are summarised as follows:

Licence Year	Minimum Work Program	Actual Work
Year 1 (5/02/03-4/02/04)	One well; 152km seismic; 75 km reprocessed seismic; surface geochemical survey.	One well ; 164km seismic; 321km reprocess seismic; surface geochemical survey.
Year 2 (5/02/04-4/02/05)	Geological and Geophysical studies	Geological and Geophysical studies
Year 3 (5/02/05-4/02/06)	One well	One well
Year 4 (5/02/06-4/02/07)	Geological and Geophysical studies ⁺	
Year 5 (5/02/07-4/02/08)	One well	

* At the end of Year 3, the JV had exceeded the agreed work commitment by 12 km of new seismic acquisition and 246km of reprocessed seismic.

⁺ Commitment Variation granted 22-Dec-05.

3 Exploration Activity

1.1 Drilling.

One exploration well (Yanergie-1) was drilled during the permit term. The well spudded on 29/06/05 and drilled to a total depth of 2517 metres. Yanergie-1 intersected an Eromanga Basin interval overlying a Cooper Basin Triassic succession. No Permian sediments were intersected. Minor hydrocarbon shows were reported from the drilling mud or cuttings in the Birkhead Formation. This interval was not tested due to poor reservoir. No shows were observed in other formations. No hydrocarbon indications were evident from wireline logs, and the well was plugged and abandoned, and the rig released on 15/07/05. A Well Completion Report for Yanergie-1 has been submitted.

1.2 Seismic Data Acquisition

No new seismic was acquired during the permit term.

1.3 Seismic Data Processing/ Reprocessing

No new processed or re-processed seismic data was obtained during the reporting period.

1.4 Geological and Geophysical Studies.

The Yanergie-1 result was integrated into the regional mapping. The drilling of two wells in permit PEL 100 to the south was also closely monitored. Of most concern to ongoing exploration within PEL-110 is the lack of evident charge into this region. Without charge encouragement, the JV is reluctant to explore further north within the permit.

4 Administration

4.1 Regulatory Compliance

A Compliance Report is attached which details the operator's compliance with the 2000 Petroleum Act, its Regulations, the terms and conditions of the Licence, and the agreed Statements of Environmental Objectives governing field operations undertaken during the permit term.

4.2 Data submissions.

A list of the items submitted during the report period is contained in the table below.

Table 1 **PEL 110**
Annual Report
Licence Year 3
6th February 2005 to 5th February 2006

List of Reports Submitted

Title	Date Submitted to PIRSA
Yanergie-1 Well Completion Report	13-Jan-06
Yanergie-1 Well Proposal and Drilling Program	11-Apr-05
Albus seismic Interpretation Report	3-Mar-05

4.3 Planned Exploration Program for Year 4

No exploration drilling is currently planned for 2006. The primary focus of studies for the permit year will be to assess the implications of Cooper Energy's Fairbridge-1 cased hole testing results in the adjacent permit, PEL 100. This operation is planned for May 2006 and the results will be integrated to assess charge risk along southern margin of permit.

5 Expenditure statement

A licence expenditure summary for the period 6th February 2005 to 5th February 2006 is presented as Table 2.

Table 2

**PEL 110
Annual Report
Licence Year 3
6th February 2005 to 5th February 2006**

Commercial in Confidence

ANNUAL
COMPLIANCE
REPORT

FOR

PEL 110 - YEAR 3

(FEBRUARY 2005 - FEBRUARY 2006)

COOPER BASIN, SOUTH AUSTRALIA



Introduction

Pursuant to Regulation 33 (2) of the 2000 Petroleum Act, Beach Petroleum, as operator of PEL 110 in the Cooper Basin, South Australia, herewith submits its report on compliance with :

- the Petroleum Act,
- its Regulations,
- the PEL License conditions, and
- the various Statements of Environmental Objectives to which Beach Petroleum was committed in conducting its work commitments for Year 1 of the Licence.

A table is attached summarizing the instances during Year 3 of the Permit where Beach Petroleum did not comply with the Regulations or the requirements of the relevant SEO under which it conducted its operations.

Further details of the circumstances surrounding the non-compliances are outlined below.

Petroleum Act and PEL

There were no instances of non-compliance with either the 2000 Petroleum Act or the terms of the Licence during Year 3 of PEL 110.

Regulations of the 2000 Petroleum Act

- **Drilling**

There were no instances of non-compliance with the Regulations in regard to Beach's **drilling operations** in PEL 110.

The Yanerbie-1 well was drilled in July 2005.

The attached table "*Checklist for Notifications of Drilling Operations*", summarises Beach's compliance with regard to the notification to appropriate stakeholders of proposed drilling operations.

The attached table "*Checklist for Submission of Drilling Reports / Data / Samples to PIRSA*", summarises Beach's compliance with regard to submitting required data and information to PIRSA within the time frames designated under the Regulations. Digital wireline logging data and the Well Completion Report were submitted to PIRSA before their respective due dates.

Compliance Report for PEL 110 – Year 3

- **Seismic**

There were no instances of non-compliance with the Regulations in regard to Beach's **seismic operations** in PEL 110 during Year 3 of the Licence.

There were no seismic field operations, and the only Report due for submission, the Interpretation Report for the 2003 Albus Seismic Survey, was submitted on 3rd March 2005, prior to the due date of 30th March, 2005.

- **Annual Report**

The submission of this Annual Report for Year 3 of the Licence was in non-compliance with the Regulations as it was submitted two weeks later than the due date of April 4th, 2006. due to an administrative oversight.



Record of Non - Compliance with Regulations

Permit : PEL 110 Year 3 : 6 February 2005 - 5 February 2006

Licence Reporting			
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Annual Report for Year 3 of the Licence was submitted two weeks late due to an administrative oversight.

Drilling			
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SEO Non Compliance	Date	Incident Date & Description	Resolution
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Report Non Compliance	Date Due	Report Name	Resolution
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Data Submission Non Compliance	Date Due	Data Type	Resolution
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Seismic			
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SEO Non Compliance	Date	Incident Date & Description	Resolution
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Report Non Compliance	Date Due	Report Name	Resolution
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Data Submission Non Compliance	Date Due	Data Type	Resolution
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CHECKLIST FOR **NOTIFICATIONS** OF DRILLING OPERATIONS

Permit : PEL 110 Year 3 : 6 February 2005 - 5 February 2006

Well Name : Yanerbie-1

Commenced Drilling Operations : 29 June 2005

Completed Drilling Operations : 15 July 2005

REQUIREMENT	Format	Person / agency to whom Notification is to be provided	Period required for Notification	DUE DATE for Notification	ACTUAL DATE of Notification	Beach officer responsible for compliance	Comments
Notification of proposed drilling activity including demonstration of the suitability of an existing SEO.		PIRSA / Mike Malavazos	35 days prior to proposed start date	24-May-05	18-Apr-05	Operations Coordinator	
Notification of proposed commencement of earthworks – preparation of access tracks and well leases		PIRSA / Tony Wright	2 days prior to proposed start date	8-Jun-05	4-Mar-05	Operations Coordinator	
Notification to landowner (s)		Pastoral Lessee;	21 days prior to proposed start date	8-Jun-05	4-Mar-05	Operations Coordinator	
		National Parks;	21 days prior to proposed start date	8-Jun-05	4-Mar-05	Operations Coordinator	
		Native Title Claimant(s);	21 days prior to proposed start date	8-Jun-05	4-Mar-05	Operations Coordinator	Yandruwandha / Yawarrawarrka and ALRM
		other PEL or PL licensees as appropriate.	21 days prior to proposed start date				

CHECKLIST FOR SUBMISSION OF DRILLING REPORTS TO PIRSA

Permit : PEL 110 Year 3 : 6 February 2005 - 5 February 2006

Well Name : Yanerbie-1

Commenced Drilling Operations : 29 June 2005

Completed Drilling Operations : 15 July 2005

REPORT / DATA SET	Format	Person / agency to whom information is to be provided.	Period allowed for Submitting data.	Date Due	Date Submitted	Beach officer responsible for compliance	Comments
Daily Drilling Reports		PIRSA	Within 12 hrs of report period.	During Drilling Operations	During Drilling Operations	Exploration Manager	
Wireline logs		PIRSA	Within 2 months of acquisition of data.	13-Sep-05	26-Jul-05	Exploration Manager	
Mud logging data		PIRSA	Included with Daily Drilling Reports, then subsequently with the Well Completion Report.	During Drilling Operations	During Drilling Operations	Exploration Manager	
Well samples		PIRSA	Within 6 months of rig release.	15-Jan-06	25-Oct-05	Exploration Manager	
Well Completion Report		PIRSA	Within 6 months of rig release.	15-Jan-06	13-Jan-06	Exploration Manager	Refer note below
Reportable Incidents.		PIRSA	Serious incidents must be reported immediately (within 24 hrs), with a written report following within 3 months.	No Reportable Incidents		Exploration Manager	
<i>Note : Well Completion Reports contain Borehole Deviation data ; Surveyed Location of well ; and other technical reports associated with the well.</i>							

Statements of Environmental Objectives.

A) Drilling Operations

Government approval for Beach to drill the Yanerbie-1 well in PEL 110 was conditional on Beach committing to achieving the objectives defined in the “Statement of Environmental Objectives for Drilling and Well Operations in the Cooper / Eromanga Basins – South Australia “.

No commercial quantities of hydrocarbons were encountered during the drilling of the Yanerbie-1 well, and it was plugged and abandoned.

Rehabilitation of the well site will commence when the water remaining in the sump pit has fully evaporated, which is anticipated to be early in Year 4 of the Licence. Accordingly, it will not be possible to assess Beach’s performance in achieving the SEO objectives relating to site rehabilitation until that time.

The extent of rehabilitation required for the access track to Yanerbie-1 will be determined after consultation with the relevant landowners.

Beach is satisfied that all the other objectives required by the SEO were met, and the spreadsheet below summarises the strategies that were employed to accomplish this compliance.

**ASSESSMENT OF BEACH PETROLEUM'S PERFORMANCE IN ACHIEVING
THE ENVIRONMENTAL OBJECTIVES DEFINED IN THE COOPER BASIN DRILLING SEO**

WELLNAME : **YANERBIE-1**

PEL No. : **110**

DATE : **JULY 2005**

OBJECTIVE	COMMENT	ASSESSMENT CRITERIA	PERFORMANCE IN ACHIEVING OBJECTIVE
<p>1. Avoid disturbance to known sites of Aboriginal and European heritage significance.</p>	<p>The aim of this objective is to ensure that any sites of Aboriginal and European heritage significance are identified and protected. Sites can be identified during the planning stages of well site and access track construction or can be discovered during construction activities. To ensure the achievement of this objective personnel must be appropriately trained and experienced in identifying and protecting sites of Aboriginal and European heritage significance at both the planning and construction stages.</p>	<ul style="list-style-type: none"> ▪ Proposed well site and access track locations have been scouted by appropriately trained and experienced personnel for sites of Aboriginal and European heritage significance before commencement of construction. ▪ Records of scouting are kept and available for auditing. ▪ The operator has a mechanism in place to appropriately report and respond appropriately to any sites discovered during construction and operation activities. ▪ Any sites identified have been flagged and subsequently avoided. <p><i>Note:</i> Where a negotiated agreement or determination for heritage clearance is in place, compliance to this agreement or determination takes precedence over the above criteria.</p>	<ul style="list-style-type: none"> ▪ Beach have an agreement with the Yandruwandha Yawarrawarka Native Title Claimant group which specifies the requirements for scouting proposed well sites and access tracks to identify and avoid areas of heritage value and archaeological significance. ▪ Joint site visits were carried out with the Native Title Claimant group. Proposed drilling location and access route were approved and given heritage clearance.
<p>2. Avoid disturbances which have long term impact on biological or wilderness values of a particular area.</p>	<p>A number of areas which are considered to have high biological or wilderness values are shown in Figure 1. Also included are any activities that are assessed to be of significant risk to the Cooper Creek system.</p>	<ul style="list-style-type: none"> ▪ No activities that are assessed to be located in the regions described in the scope above are to be carried out without the prior specific approval of the Minister. 	<ul style="list-style-type: none"> ▪ The well is not located in or near the areas of high biological or wilderness values shown in Figure 1 of the SEO. The drilling operations presented no danger of long term impact on the biological or wilderness values of this particular area.

**ASSESSMENT OF BEACH PETROLEUM'S PERFORMANCE IN ACHIEVING
THE ENVIRONMENTAL OBJECTIVES DEFINED IN THE COOPER BASIN DRILLING SEO**

WELLNAME : **YANERBIE-1**

PEL No. : **110**

DATE : **JULY 2005**

OBJECTIVE	COMMENT	ASSESSMENT CRITERIA	PERFORMANCE IN ACHIEVING OBJECTIVE
<p>3. Minimise disturbance to native vegetation and wildlife habitat.</p>	<p>Well site and access track construction has been shown to have an insignificant impact on native vegetation and wildlife habitat by a number of studies¹. This is due to the small and confined area impacted on by the well site and access track. Nevertheless, due to the significance of native vegetation and fauna it is important to monitor the achievement of this objective.</p> <p>The aim of this objective is to also maximise the potential for revegetation success.</p>	<ul style="list-style-type: none"> ▪ Proposed well site and access track locations have been scouted by appropriately trained and experienced personnel for native vegetation and wildlife habitats. ▪ Vegetation clearance has been minimised and has taken into account the conservation needs of particular species. ▪ Records of vegetation clearance are kept and available for auditing. ▪ The attainment of either 0, +1 or +2 GAS criteria for "Re-establish natural vegetation on abandoned wellsites and access tracks" objective listed in Appendix 2. ▪ Hazardous material stored, used and disposed of in accordance with relevant 	<ul style="list-style-type: none"> ▪ Only the final 5 kms of the access track to Yanerbie, required new clearing of vegetation. ▪ The site contained sparse vegetation, and minimal clearance was required. ▪ The well site will be rehabilitated and restored in accordance with the guidelines set down in PIRSA's <i>Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, South Australia</i>, to attain the highest feasible GAS rating. ▪ The level of rehabilitation required for the access track will be determined in consultation with the relevant landowners. ▪ Beach's Drilling Operations Manual sets

¹ Leigh, J.H. and Briggs, J.D (Eds), 1994. *Threatened Australian Plants: Overview and Case Studies*. Australian National Parks and Wildlife Service, Canberra;
 Garnett, S., 1992a. *The Action Plan for Australian Birds of Australia*, Australian National Parks and Wildlife Service. Endangered Species Program, Project 121.
 Garnett, S. (Ed.), 1992b. *Threatened and Extinct Birds of Australia*. Royal Australian Ornithologists Union. Report, 82.
 Wager, R. and Jackson, P., 1993. *The Action Plan for Australian Fresh Water Fishes*. Australian Nature Conservation Agency. Endangered Species Program, Project 147.
 Lee, A.K., 1995. *The Action Plan for Australian Rodents*. Australian Nature Conservation Agency. Endangered Species Program, Project 130.
 Kennedy, M., 1992. *Australian Endangered Marsupials and Monotremes: An Action Plan for their Conservation*. IVCN, Gland, Switzerland.

**ASSESSMENT OF BEACH PETROLEUM'S PERFORMANCE IN ACHIEVING
THE ENVIRONMENTAL OBJECTIVES DEFINED IN THE COOPER BASIN DRILLING SEO**

WELLNAME : **YANERBIE-1**

PEL No. : **110**

DATE : **JULY 2005**

OBJECTIVE	COMMENT	ASSESSMENT CRITERIA	PERFORMANCE IN ACHIEVING OBJECTIVE
		legislation on dangerous substances.	<p>out the company's policy in relation to storage, use and disposal of hazardous material.</p> <ul style="list-style-type: none"> ▪ Topsoil was stockpiled for subsequent respreading when restoration activities are conducted.
4. Avoid disturbance to rare, vulnerable and endangered flora and fauna species.	Rare, vulnerable and endangered flora and fauna species are defined by Schedule 7, 8 and 9 of the <i>National Parks and Wildlife Act, 1972</i>	<ul style="list-style-type: none"> ▪ Proposed well site and access track locations have been scouted for rare, vulnerable and endangered flora and fauna species by appropriately trained and experienced personnel before the commencement of construction. ▪ Any sites of rare, vulnerable and endangered flora and fauna have been identified, flagged and subsequently avoided. ▪ Records of such scouting are kept and available for auditing. 	<ul style="list-style-type: none"> ▪ National Parks and Wildlife flora / fauna databases contain no records of vulnerable or endangered species within 20km of the (database search March 2003).
5. Prevent the introduction and establishment of exotic weed species.	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. The most effective way of preventing weed introduction is by thoroughly cleaning vehicles and equipment prior to entering the Cooper–Eromanga Basins.	<ul style="list-style-type: none"> ▪ All vehicles and equipment appropriately cleaned prior to entering the Cooper–Eromanga Basins. ▪ Cleaning carried out in accordance with specified company procedures and accepted practices. ▪ Records of vehicle and equipment cleaning are kept and available for auditing. ▪ Detection of exotic weed species as a consequence of industry activities. 	<ul style="list-style-type: none"> ▪ All vehicles involved with the drilling operation were already in service in the Cooper Basin prior to commencing work at the Yanerbie-1 well.

**ASSESSMENT OF BEACH PETROLEUM'S PERFORMANCE IN ACHIEVING
THE ENVIRONMENTAL OBJECTIVES DEFINED IN THE COOPER BASIN DRILLING SEO**

WELLNAME : **YANERBIE-1**

PEL No. : **110**

DATE : **JULY 2005**

OBJECTIVE	COMMENT	ASSESSMENT CRITERIA	PERFORMANCE IN ACHIEVING OBJECTIVE
6. Minimise impacts to soil.	<p>The main impact to soil is caused by the removal of existing soil and / or the importation of foreign material for the construction of the well sites and access tracks. This creates a visual impact and can also alter the soil characteristics which can, in turn, impact on the effective re-establishment of native species.</p> <p>Another potential impact to soil is soil contamination from accidental spillages of chemicals or hazardous during construction and operation.</p>	<ul style="list-style-type: none"> ▪ The attainment of 0, +1 or +2 GAS Criteria for "Minimise Visual Impact of Abandoned Wellsites" objective listed in Appendix 2. ▪ The attainment of 0, +1 or +2 GAS Criteria for "Minimise Visual Impact of Abandoned Access Tracks" objective listed in Appendix 2. ▪ The attainment of either 0, +1 or +2 GAS criteria for "Re-establish natural vegetation on abandoned wellsites and access tracks" objective listed in Appendix 2. ▪ Hazardous material stored, used and disposed of in accordance with relevant legislation on dangerous substances. 	<ul style="list-style-type: none"> ▪ Clay topping of the well pad, and the access track to it, minimised disturbance to the soil beneath. The clay material was extracted from borrow pits alongside the access track. ▪ When the standing water in the sump pit has fully evaporated, the well site will be rehabilitated and restored in accordance with the guidelines set down in PIRSA's <i>Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, South Australia</i>, to attain the highest feasible GAS rating. ▪ The pastoral lessee has requested that the station track not be rehabilitated.
7. Avoid initiating erosion on gibber pavements.	<p>It is recognised that the removal of the overlying gibber mantle inevitably leads to severe gully erosion on the gibber plains with a slope greater than 2 degrees in the Cooper Basin². It is therefore important to avoid removal of gibber stones in the construction of well sites and access tracks.</p>	<ul style="list-style-type: none"> ▪ The attainment of 0, +1 or +2 GAS Criteria for "Minimise Visual Impact of Abandoned Wellsites" objective listed in Appendix 2. ▪ The attainment of 0, +1 or +2 GAS Criteria for "Minimise Visual Impact of Abandoned Access Tracks" objective listed in Appendix 2. ▪ Gibber mantle on access tracks has not been removed, only rolled to allow vehicle and equipment access. 	<ul style="list-style-type: none"> ▪ There were no gibber pavements along the proposed access track or at the Yanerbie well site.

² Refer to Fatchen and Woodburn in the references section of this Statement of Environmental Objectives.

**ASSESSMENT OF BEACH PETROLEUM'S PERFORMANCE IN ACHIEVING
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WELLNAME : **YANERBIE-1**

PEL No. : **110**

DATE : **JULY 2005**

OBJECTIVE	COMMENT	ASSESSMENT CRITERIA	PERFORMANCE IN ACHIEVING OBJECTIVE
		<ul style="list-style-type: none"> ▪ Gibber mantle removal on well sites confined to the mud pit, cellar and turkey's nest areas. ▪ Gibber mantle removed from such areas is respread and rolled over the disturbed area during restoration. 	
<p>8. Minimise loss of reservoir and aquifer pressures and contamination of freshwater aquifers.</p>	<p>This objective seeks to protect the water quality and water pressure of aquifers that may potentially be useful as water supplies, and to maintain pressure in sands that may host petroleum accumulations elsewhere.</p> <p>To address this objective, the risks of crossflow between formations known to be permeable and in natural hydraulic isolation from each other, or where there is insufficient information to determine that they are permeable or in hydraulic communication, must be assessed on a case by case basis and procedures implemented to isolate these formations.</p> <p>The following geological formations in the Cooper-Eromanga Basins may contain permeable sands (aquifers) which may be in natural hydraulic isolation from each other (from shallowest to deepest):</p> <ul style="list-style-type: none"> ▪ Eyre formation; ▪ Winton formation; ▪ Mackunda formation; ▪ Coorikiana sandstone; ▪ Cadna-owie formation; ▪ Namur sandstone; 	<p><u>Drilling & Completion Activities</u></p> <ul style="list-style-type: none"> ▪ Casing design (including setting depths) have been carried out in accordance with company defined procedures which satisfy worst case expected loads and environmental conditions determined for the particular well. ▪ Casing set in accord with design parameters and company approved procedures. ▪ Sufficient isolation between any of the formations listed in the adjacent column – where present – is substantiated (eg through well logs, pressure measurements or casing integrity measurements). ▪ For cases where isolation of these formations is not established, sufficient evidence is available to demonstrate that they are in natural hydraulic communication. <p><u>Producing Wells</u></p> <ul style="list-style-type: none"> ▪ Monitoring programs, carried out in accord with company approved procedure(s), demonstrate no crossflow or fluid migration 	<ul style="list-style-type: none"> ▪ Cement plugs were placed downhole to isolate any aquifers penetrated below surface casing, and any zones of pressure differential, to ensure no likelihood of crossflow. • .

**ASSESSMENT OF BEACH PETROLEUM'S PERFORMANCE IN ACHIEVING
THE ENVIRONMENTAL OBJECTIVES DEFINED IN THE COOPER BASIN DRILLING SEO**

WELLNAME : **YANERBIE-1**

PEL No. : **110**

DATE : **JULY 2005**

OBJECTIVE	COMMENT	ASSESSMENT CRITERIA	PERFORMANCE IN ACHIEVING OBJECTIVE
	<ul style="list-style-type: none"> ▪ Adori sandstone; ▪ Hutton sandstone; ▪ Poolowanna formation; ▪ Cuddapan formation; ▪ Nappamerri Group formations, Walkandi and Peera Peera formations (multiple sands); ▪ Toolachee formation (multiple sands); ▪ Daralingie formation (multiple sands); ▪ Epsilon formation (multiple sands); ▪ Patchawarra, Mt Toodna or Purni formations (multiple sands); ▪ Tirrawarra sandstone or Sturat Range formation; ▪ Merrimelia Boorthanna and Crown Point formations (multiple sands); ▪ Basement reservoirs. 	<p>occurring behind casing.</p> <ul style="list-style-type: none"> ▪ Casing integrity and corrosion monitoring programs, carried out in accordance with company approved procedure(s), show adequate casing condition to satisfy the objective. <p><u>Inactive Wells</u> In the case where a well is suspended for a prolonged period of time:</p> <ul style="list-style-type: none"> ▪ Monitoring methods for detecting fluid migration, carried out in accord with company approved procedures for this purpose, are in place and show no fluid migration. <p><u>Well Abandonment Activities</u></p> <ul style="list-style-type: none"> ▪ Plugs set to isolate aquifers through the well bore, designed and set in accord with defined procedures to satisfy worst case expected loads and downhole environmental conditions. ▪ Plugs have been set to isolate all aquifers which are present which are not in natural hydraulic communication nor have been isolated by cement behind casing. 	
<p>9. Minimise Impact on Surface Water and Drainage Patterns.</p>	<p>Due to the small and confined area impacted on well sites, there should be minimal impact to surface water drainage patterns in the region. The only foreseeable threat to drainage patterns could arise from long and wide access</p>	<ul style="list-style-type: none"> ▪ Oil well producing operations shut in during periods of flood inundation. ▪ Upon completion of drilling, mud pits allowed to dry out and then backfilled level 	<ul style="list-style-type: none"> ▪ Yanerbie well site is located in an interdunal corridor. ▪ The access track does not cross any significant watercourses or drainage

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WELLNAME : YANERBIE-1

PEL No. : 110

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OBJECTIVE	COMMENT	ASSESSMENT CRITERIA	PERFORMANCE IN ACHIEVING OBJECTIVE
	tracks which could divert a portion of the natural water flow. The main threat to the surface water is contamination from spills during times of major flooding. Potential spills can originate from the well while the well is producing or from the mud pits during drilling.	with the surrounding landscape. <ul style="list-style-type: none"> ▪ Access tracks have been designed and located to avoid any diversion of water during flood inundation. 	features.
10. Minimise visual impacts on the natural landscape.	The major impact of well sites and access tracks is their visual impact ³ . Location, construction and restoration practices can significantly reduce the visual impact of well sites and access tracks.	<ul style="list-style-type: none"> ▪ The attainment of 0, +1 or +2 GAS criteria for "Minimise Visual Impact of Abandoned Wellsites" objective listed in Appendix 2. ▪ The attainment of 0, +1 or +2 GAS criteria for "Minimise Visual Impact of Abandoned Access Tracks" objective listed in Appendix 2. 	<ul style="list-style-type: none"> ▪ Access to the well was via an existing station track which turns off the 'Cordillo Downs' road (which connects Innamincka to Birdsville) The wellsite was located in an interdunal corridor in flat country, some 25 kms from the main road . ▪ If required by the landowner, the access track will be rehabilitated and restored in accordance with the guidelines set down in PIRSA's <i>Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, South Australia</i>
11. Minimise risks to the safety of the public and other third parties.	<p>The criteria for assessing the achievement of this objective have been developed on the basis of the current understanding of the risks of wells to third party safety.</p> <p>The key to achieving the third party safety objective in relation to both downhole abandonment and surface well site restoration</p>	<p><u>Drilling & Completion Activities</u></p> <ul style="list-style-type: none"> ▪ Casing design (including setting depths) carried out in accordance with company approved procedures to satisfy worst case expected loads and environmental conditions determined for the specific geology intercepted by the well. ▪ Casing set in accord with design 	<ul style="list-style-type: none"> ▪ There were no incidents during the drilling operations where the safety of the public or third parties was in question. ▪ The Yanerbie-1 well has been plugged and abandoned in accordance with the requirements of the Cooper Basin Drilling Operations SEO. Plugs were positioned

³ Refer to Fatchen and Woodburn in the references section of this Statement of Environmental Objectives.

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DATE : **JULY 2005**

OBJECTIVE	COMMENT	ASSESSMENT CRITERIA	PERFORMANCE IN ACHIEVING OBJECTIVE
	<p>is to ensure that the visual prominence of the abandoned well site and its access track(s) is minimised to the extent where it is difficult for third parties to detect and therefore access these sites. Also, in the case where a third party encounters an abandoned well site, adequate signage of the well location needs to be displayed to hinder any third party interference with the abandoned well bore. Similarly, the backfilling of the well cellar and the removal of rubbish from the restored well site needs to be carried out to further facilitate third party safety.</p>	<p>parameters and company approved procedures.</p> <ul style="list-style-type: none"> ▪ Blow out prevention precautions in place and operational in accordance with defined procedures and appropriate to the expected loads and downhole environmental conditions. <p><u>Producing Wells</u></p> <ul style="list-style-type: none"> ▪ Adequate signage and precautions taken for warning third parties of the potential danger and to keep away from producing or suspended wells. ▪ Casing integrity and corrosion monitoring programs, carried out in accord with the company approved procedure(s), show adequate casing condition to satisfy the objective. ▪ Effective emergency response plan and procedures are in place in the event of a blow out. ▪ Hazardous material stored, used and disposed of in accordance with relevant legislation on dangerous substances for occupational, health and safety. <p><u>Well Abandonment Activities</u></p> <ul style="list-style-type: none"> ▪ Downhole abandonment of a well is carried out in accord with company approved procedures to satisfy worst case expected loads and downhole 	<p>so as to isolate potential aquifers penetrated below surface casing as required by the SEO for downhole abandonment.</p> <ul style="list-style-type: none"> ▪ The well site will be rehabilitated and restored in accordance with the guidelines set down in PIRSA's <i>Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, South Australia</i>, to attain the highest feasible GAS rating.

**ASSESSMENT OF BEACH PETROLEUM'S PERFORMANCE IN ACHIEVING
THE ENVIRONMENTAL OBJECTIVES DEFINED IN THE COOPER BASIN DRILLING SEO**

WELLNAME : **YANERBIE-1**

PEL No. : **110**

DATE : **JULY 2005**

OBJECTIVE	COMMENT	ASSESSMENT CRITERIA	PERFORMANCE IN ACHIEVING OBJECTIVE
		<p>environmental conditions.</p> <p><u>Well Site Restoration Activities</u></p> <ul style="list-style-type: none"> ▪ The attainment of 0, +1 or +2 GAS criteria for "Minimise Visual Impact of Abandoned Wellsites" objective listed in Appendix 2. ▪ The attainment of 0, +1 or +2 GAS criteria for "Minimise Visual Impact of Abandoned Access Tracks" objective listed in Appendix 2. ▪ The attainment of 0 GAS criteria for "Site left in a Clean, Tidy and Safe Condition after Final Cleanup" objective listed in Appendix 2. <p>The undertaking of a risk assessment study to assess the threats to third party safety from drilling, well completion, well production, downhole abandonment and from inactive and abandoned wells.</p>	
<p>12. Minimise the impact on the environment of waste handling and disposal.</p>	<p>Waste refers to all wastes with the exception of the Listed Wastes in Schedule 1 Part B of the <i>Environment Protection Act 1993</i>.</p>	<ul style="list-style-type: none"> ▪ The attainment of 0 GAS criteria for "Site left in a Clean, Tidy and Safe Condition after Final Cleanup" objective listed in Appendix 2. ▪ All wastes generated on a well site (except sewage) to be disposed at an EPA licensed facility. ▪ Records show that sewage at drilling camps was stored and disposed of in a manner which posed no risk to the human 	<ul style="list-style-type: none"> ▪ All hard waste was removed from the Yanerbie-1 well site in accordance with Beach's policy set out in the company's Drilling Operations Manual. ▪ Putrescible waste was disposed of in the mud pit prior to backfilling.

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OBJECTIVE	COMMENT	ASSESSMENT CRITERIA	PERFORMANCE IN ACHIEVING OBJECTIVE
13. Avoid adverse impacts on livestock.	The main risk posed to livestock is injury from open drill sumps, open well cellars and moving beam pump oil wells.	<p style="text-align: center;">health and hygiene.</p> <ul style="list-style-type: none"> ▪ In the likely presence of livestock, the mud pits and/or flare pits and moving beam pumps are fenced off. ▪ In the case of a producing well, the well cellar, rat hole and mouse hole are made safe for livestock either through appropriate covering or fencing. ▪ In the case of an abandoned restored well site, the cellar has been backfilled to a level with the surrounding landscape. 	<ul style="list-style-type: none"> ▪ The Yanerbie well site was sufficiently distant from any cattle watering point that any threat to the cattle's safety was insignificant, particularly when combined with the low density of cattle in the area.
14. Avoid spills of oil or hazardous material outside of impermeable sumps or other areas designed to contain such spills.	<p>The main potential for spills to occur is around the well head. Spills that occur around the well head can normally be contained within the cellar and/or confined to the pad area of the well site.</p> <p>As specified under objective 9, any threat to surface waters are avoided as a result of ceasing oil production during periods of inundation. Similarly, it has been found that in the Cooper Basin, threats to ground water as a result of surface spills are avoided as a result of a) the depth of the underground aquifers; and b) the entrapment of any contamination in the first 1 to 2 meters of soil. The major threat of spills is the threat to soil and vegetation directly impacted on by the spill. Therefore, the achievement of this objective also consequently contributes to the achievement of objectives 3 and 6 in relation to minimising the impacts on natural vegetation and soil</p>	<ul style="list-style-type: none"> ▪ Cumulative number and volume of spills at any point in time during the year is less than the cumulative spills for the same period from the previous year and a general declining trend in number and volume of spills over the long term. ▪ No spills which pose a significant threat to the Cooper Creek system. 	<ul style="list-style-type: none"> ▪ There were no periods of flood inundation during the drilling operations. ▪ There were no spills of oil or hazardous materials of any significance during the drilling operations. ▪ Only minor drainage systems are present in the region in which the Yanerbie well is located. These systems do not connect with major watercourses.

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OBJECTIVE	COMMENT	ASSESSMENT CRITERIA	PERFORMANCE IN ACHIEVING OBJECTIVE
	<p>respectively.</p> <p>As spills in the Cooper Basin will tend to be contained by the soil within the area of the spill, any wide scoping environmental threat is considered very unlikely. However, the focus of assessing this objective will primarily be on reducing the number of spills over time. Avoidance of spills will be paramount in areas where the spill can be potentially spread beyond the immediate confines of the spill area into sensitive environments such as creeks and wetlands.</p>		
<p>15. In the event of an oil spill, minimise the impacts on fauna, flora, soil, livestock and surface and ground water.</p>	<p>In the case of an oil spill, it has been shown that in the Cooper Basin active bio-remediation of the contaminated soil is an effective way for remediating the site to an acceptable level which leaves no environmental adverse effect⁴.</p>	<ul style="list-style-type: none"> ▪ In the event of an oil spill, contingency plan implemented after the spill event. ▪ Results of emergency response procedures carried out in accord with Regulation 31 show that oil spill contingency plan in place in the event of a spill is adequate and any necessary remedial action needed to the plan is undertaken promptly by the licensee. ▪ Bio-remediation is undertaken on the affected soil, either on site or offsite. ▪ All oil spill bio-remediation meets end point assessment criteria developed specifically for the relevant environment (eg Santos Oil Spill Remediation End Point Criteria 	<ul style="list-style-type: none"> ▪ There were no spills of oil or hazardous materials of any significance during the drilling operations.

⁴ Megalos, N.P. 1994, *Bioremediation of Oil Contaminated Soil*, South Australian Department of Mines and Energy, Report Book No. 94/4

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		project, to be completed by December 2000).	

Statements of Environmental Objectives.

B) Seismic Operations

No seismic operations were undertaken on PEL 110 during Year 3 of the Licence. Hence there were no instances of non-compliance with any SEOs.