great artesian oil and gas limited

ACN 078 607 682

PEL 106

Cooper/Eromanga Basin
South Australia

ANNUAL REPORT
PERMIT YEAR THREE

April 9th 2005 to April 8th 2006

TABLE OF CONTENTS

1. INTRODUCTION

Petroleum Exploration Licence (PEL) 106 is situated on the southwestern margin of the Patchawarra Trough, one of the major depocentres in the South Australian portion of the Cooper Basin. PEL 106 covers an area of approximately 1000 square kilometres. The permit was granted to the Great Artesian Oil and Gas Limited on 9th April 2003 for an initial term of five years.

This Report covers work undertaken by the Licensee during the Third Permit Year, from 9th April 2005 to 8th April 2006, in accordance with the requirements of Section 33 of the Petroleum Regulations, 2002.

2. PERMIT SUMMARY

The working interests in PEL 106 as at the end of the reporting period were:

Great Artesian Oil and Gas Limited (GAOG) 100%

Beach Petroleum Limited, Traditional Oil Exploration N.L. (a wholly owned subsidiary of Enterprise Energy Limited), Magellan Petroleum Limited, Rawson Resources Limited, Everdue Pty Ltd (a wholly owned subsidiary of Energy Investments Limited) and Kompliment Pty Ltd (a wholly owned subsidiary of Energy Investments Limited) held equitable interests in the following portions of PEL 106.

Beach Petroleum	Under the terms of an agreement between GAOG and Beach dated 10 November 2003, Beach will earn a 50% interest in any exploration and production licences granted subsequent to, and encompassing any commercial discovery, made as a result of farmin wells drilled under the Agreement within the "Farmout Block". A formal Farmin Agreement and JOA, ratifying the details of this Agreement, has been concluded.

Holder	Nature of Equitable Interest Held
Traditional Oil	Under the terms of a Farmin Agreement and JOA signed on 10 March 2004, Traditional will earn a 25% interest in any exploration and production licence granted subsequent to, and encompassing any commercial discovery made as a result of drilling the Smegsy-1 well within the Smegsy Farmout Block
Traditional Oil **Kompliment**	Under the terms of a Farmin Agreement, Traditional will earn a 12.5% interest and Kompliment will earn 37.5% interest in any production licence granted subsequent to, and encompassing any commercial discovery made as a result of drilling the Rossco-1 well.
Magellan Petroleum **Beach Petroleum** **Traditional Oil** **Rawson Resources**	Under terms of various farmout agreements and a unitisation agreement, Magellan Petroleum (30.0%), Beach Petroleum (15.0%), Traditional Oil (12.5%) and Rawson Resources (10.0%) will earn their respective interests in any production licence granted subsequent to, and encompassing any commercial discovery made as a result of drilling the Udacha--1 well
Everdue	Under the terms of a Farmin Agreement and by initially funding the Paranta 3D Seismic Survey, Everdue will earn a 50.0% interest in any production licence granted subsequent to, and encompassing any commercial discovery made as a result of the drilling a well within the Paranta Farmin Block.

The original work commitments for PEL 106 are summarised below:

Licence Year	Minimum Work Programme
Year 1 (9/04/03-8/04/04)	2 wells; 100 km 2D seismic; geological and geophysical review; seismic processing
Year 2 (9/04/04-8/04/05)	2 wells; 100 km 2D seismic or detailed 3D seismic program
Year 3 (9/04/05-8/04/06)	3 wells; 100 km 2D seismic or detailed 3D seismic program
Year 4 (9/04/06-8/04/07)	3 wells
Year 5 (9/04/07-8/04/08)	3 wells

Several variations to the original work programme have been made.

1) A request to offset the Permit Year One deficit of 10 km of new seismic acquisition with Permit Year Two seismic acquisition was submitted to PIRSA on 1 June 2004. The variation in the work programme of PEL 106 was granted on 9 June 2004.
2) A request to combine Years 2 and 3 minimum work programs was made to PIRSA on 22 March 2005 (a variation so that the remaining exploration well to be drilled during Year 2 be deferred until Year 3). The variation in the work programme of PEL 106 was granted 29 March 2005.
3) A request to seek a variation in the PEL106 work programme for Permit Year 3 was submitted to PIRSA on 15 November 2005 (a variation to drill 3 wells, a 3D seismic program and 100 km of 2D seismic). The variation in the work programme was granted on 23 November 2005.

The current work commitments for PEL 106 are summarised below:

Licence Year	**Work Programme**	**Actual Programme**
Year 1	2 wells; 90 km 2D seismic; geological & geophysical review; seismic reprocessing	Nutmeg-1 & Paranta-1; 90 km Paranta 2D seismic; 379 km seismic reprocessing
Year 2	1 well; 110 km 2D seismic or detailed 3D seismic	Smegsy-1; 245 km of 2D seismic (177 km Malleus SS and 68 km Lena SS)
Year 3	3 wells; 100 km 2D seismic or detailed 3D seismic	Rossco-1; Udacha-1 & Middleton-1; Karla 2D SS (136.5 km) & Paranta 3D SS (82.5 km^2)
Year 4	3 wells	
Year 5	3 wells	

3. EXPLORATION ACTIVITY

3.1 Drilling

Three exploration wells, Rossco-1, Udacha-1 and Middleton-1 were drilled during the Permit Year, in December 2005 – March 2006.

Rossco-1 was drilled to test the Patchawarra Formation reservoirs in a faulted anticline. The well is located approximately 6 km north of the Jack Lake Gas Field and 7 km northeast of the Smegsy-1 new field gas discovery. Rossco-1 spudded on 14 December 2005. A number of sands with elevated gas readings were intersected within the Patchawarra section. One of these sandstones intervals (2752.40-2757.75m), displaying significant gas indications, was evaluated by DST#1. No flow to surface was recorded during the two hour main test period. Data subsequently recovered from the test tool has confirmed that the DST failed because the tool plugged immediately after opening. A decision was made to recommence drilling to a total depth and to run wireline logs. The well reached a total depth of 3050 m within the Tirrawarra Formation on 30 December 2005. Independent interpretation of wireline logs, including a comprehensive formation pressure dataset, has confirmed the likely presence of several combined gas and or gas/oil bearing zones. Following the mechanical failure of open-hole DST#1, it was decided that no further open hole DSTs would be attempted, but rather a cased hole production testing program will be conducted to determine the specific nature, quantity and flow rates of hydrocarbons within a number of net pay zones. Cased hole production testing will take place later in the year, once a suitable work-over rig is available. A total of 17 m of net pay has been attributed to the Patchawarra Formation in Rossco-1. The rig was released on 5 January 2006. Rossco-1 was cased and suspended as a potential new field gas discovery. A Well Completion Report for Rossco-1 is in preparation and will be submitted to PIRSA in July 2006.

Udacha-1, operated by Beach Petroleum Ltd, was drilled to test a faulted anticline located on the eastern plunging edge of a prominent structure, the Kuenpinnie Nose. The well is located 3 km to the east of Carrickalinga-1. Udacha-1 spudded on 11 January 2006 and reached a total depth of 2728 m within the Merrimelia Formation on 4 February 2006. Following the penetration of two sandstones with elevated gas readings and fluorescence within the Patchawarra Formation, the decision was made to conduct DST#1 over the interval 2605-2628 m. The DST was aborted due to fill in the bottom of the well not allowing the test tools to reach the targeted test zone. DST#1A, conducted over the same interval, resulted in a flow of gas to surface in 20 minutes. The final rate was 0.44 MMCFD (12.5 thousands m^3/day). There was no oil or formation water produced during the flow or recovered in the pipe. The sand, tested by DST#1A, is interpreted to have 3 m of net gas pay. Between 3 and 10 m of additional gas pay are interpreted in deeper sands. These sands will be evaluated during the cased hole testing program later in the year. Udacha-1 was cased and suspended as potential gas/condensate producer. A Well Completion Report for Udacha-1 is in preparation and will be submitted to PIRSA in August 2006.

Middleton-1 was drilled to test the hydrocarbon potential of a faulted anticlinal closure at the Patchawarra level. The well was operated by Beach Petroleum Ltd and was located within the Beach Farm-in Block portion of PEL 106. Middleton-1 is located 5 km to the northwest of Raven Gas Field and 9 km southwest of the Smegsy Gas Field. The well was spudded on 15 February 2006. Following the penetration of a number of sandstones with elevated gas readings within the Patchawarra Formation, the decision was made to conduct DST#1 over the interval 2653.0 – 2666.6 metres. DST#1 was a misrun due to tool plugging. The well reached a total depth of 2841 m within the Merrimelia Formation on 2 March 2006. DST#2 was conducted over the interval 2653-2663 m and flowed gas at a rate of 11 MMCFD. This represents one of the strongest gas flows ever recorded in the South Australian part of the Cooper Basin. The sand tested by DST#2 is interpreted to have 7 m of net gas pay. Preliminary wireline, mudlog and test evaluation indicates gas saturation of several other sands, with 3 to 9 m of additional gas pay. These sands will be further evaluated in a cased hole testing program at a later date. The rig was released from Middleton-1 on 9 March 2006. The well was cased and suspended as potential gas/condensate producer. A Well Completion Report for Middleton-1 is in preparation and will be submitted to PIRSA in July 2006.

3.2 Seismic Data Acquisition

Two seismic surveys (Paranta 3D and Karla 2D Seismic Surveys) were acquired within the Permit during the Third Permit Year in order to confirm the presence of structural targets. At the conclusion of the Third Permit Year these seismic data were being processed and currently are being interpreted.

Great Artesian Oil and Gas acquired 136 km of 2D seismic data during the Karla Seismic Survey in October 2005. The seismic survey was designed to identify future drilling targets within the PEL 106. These operations greatly rationalise the overall exploration approach to the north-eastern and eastern parts of the permit. 136.46 km of 2D seismic data was recorded on 12 lines, GA05-01 – GA05-11 and GA05-13. The data were recorded using a 37.5 m group interval, vibroseis energy source and symmetrical spread (2793.75 -18.75 - 0 -18.75 -2793.5m). Daily field reports were submitted to PIRSA. Operation and Interpretation Reports will be forwarded to PIRSA in October 2006 and February 2007, respectively.

The Paranta 3D seismic survey was conducted by Great Artesian Oil and Gas during October - November 2005. This was the first 3D seismic survey conducted within PEL 106. The survey comprised 82.5 km of 3D seismic data which was acquired over and around the Paranta-1 and Nutmeg-1 discovery wells as well as the Welcome Lake East and Nephrite Gas Fields. The parameters for the Paranta 3D were the most intense in the Cooper Basin history to date. 1120 live traces with 35 fold coupled with 5 second sweep resulted in a very good quality data set. Daily field reports were submitted to PIRSA. Operation and Interpretation Reports will be forwarded to PIRSA in November 2006 and later in 2007, respectively.

3.3 Smegsy-1 Tie-in Pipeline

Great Artesian Oil and Gas, as operator of the Smegsy Block Joint Venture has negotiated the first in the Cooper Basin third party gas sales agreement and construction agreement with the South Australian Cooper Basin Producers (SACBP). The agreement between two parties was signed in August 2005. On 5 January 2006 GAOG requested an approval to construct a buried gas pipeline within PEL 106, connecting the Smegsy-1 wellhead to the existing Moonanga flowline. The approval to construct, commission and operate the Smegsy flowline was granted on 11 January 2006. Construction of a pipleline, which connected the Smegsy-1 gas discovery well with the SACBP's pipeline system, commenced on 23 January 2006. The tie-in pipeline is approximately 4.0 km in length. Gas and condensates sales commenced on 1 March 2006, following commissioning of the Smegsy-1 pipeline. Initial production of gas was between 4 and 5 MMCFD of raw gas. Associated condensate production was anticipated to be 120-150 bbls per day. Gas and condensate produced at Smegsy-1, are transported to the SACBP processing facilities at Moomba for on-ward sale. Under the terms of the Construction and Maintenance Agreement the SACBP will operate and maintain the pipeline and connection facilities during the life of the Smegsy-1 gas field.

3.4 Geological and Geophysical Studies

Technical studies during the Third Permit Year were chiefly directed towards, firstly, the drilling of three exploration wells, Rossco-1, Udacha-1 and Middleton-1 and their implications to possible hydrocarbons in place. Secondly, geophysical studies were focused on planning the positioning of additional infill seismic coverage of the Karla 2D and Paranta 3D Seismic Surveys, conducting of these surveys and interpretation of data acquired.

4. ADMINISTRATION

4.1 Regulatory Compliance

A Compliance Report is attached which details the Licensee'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 reports and data submitted during the Year Three period is tabulated below:

Document	Date Submitted
Paranta 2D seismic survey – Location/Survey data, Tape summary file, Observser's logs, Line Summary File, Seismic sections, Elevation data, SEGY files, CGM files, Processing Reports (Velseis), Operation report (Trace Energy)	15 May 2005
Work Area Clearance Report for 3D Paranta Seismic Extension, Rossco-1 Well Site and Smegsy-1 Tie-In Gas Pipeline	30 May 2005
Paranta 2D seismic survey – Final Operations, Processing and Interpretation report, Velocity Data (Western Format) and Uphole data	9 June 2005
Information in connection with Karla 2D and Paranta 3D seismic surveys	30 September 2005
Submission for Operator Assessment (Well Drilling) Rossco-1, including Drilling Proposal and Drilling Program	4 October 2005
Support data to conduct Paranta 3D and Karla 2D seismic surveys (Extract from WAC Report on Karla 2D and original Paranta 3D WAC Report)	5 October 2005
Application to conduct Rossco-1 (drilling and completion) and Drilling Program	11 November 2005
Rossco-1 drilling daily reports	Dec 2005-Jan 2006
Application to conduct construction of Smegsy tie-in pipeline	5 January 2006
Rossco-1 wireline logs (DLIS, LAS, META, PDF and TIFF files)	17 January 2006
Rossco-1 mud logging data	23 January 2006
Application to undertake Smegsy-1 extended production test	24 February 2006
1:200 scale Paper Prints of wireline logs for Rossco-1 well	28 February 2006
CD containing the Final Report for 2004 Lena 2D Seismic Survey	3 March 2006
Application to drill and possibly complete Cadenza-1 well	17 March 2006

4.3 Planned Exploration Program for Permit Year Four

It is intended that 3 wells will be drilled in the fulfilment of the Permit Year Four Program. At this stage the main focus of Year 4 exploration will be contingent upon the outcome of the Rossco-1, Udacha-1 and Middleton-1 wells, drilled during December 2005 – February 2006 and interpretation of the Paranta 3D and Karla 2D seismic surveys. A number of prospects, including the Cadenza Prospect, have been delineated following the interpretation of the new 3D seismic data. An application to drill and possibly complete Cadenza-1 well has been already submitted to PIRSA and approval has been granted. Our geological and geophysical studies have led GOAG to concentrate on the more liquids rich portion of PEL 106, in and around the Paranta-1 area and also around the Smegsy-1 area, where reservoir risk appears to be somewhat reduced. Studies are currently underway to appreciate where analogs to the Raven field may be developed, especially along the western corridor of the Permit.

4.4 Associated Facilities Licences (AFL)

In order to conduct seismic surveys in PEL 106 five AFLs were applied for and surrendered during the Permit Year Three (refer to the tables below).

AFLs 30 -32 (adjacent to PEL 106):

Application lodged	18 October 2005
AFLs granted	27 October 2005
Request to surrender lodged	27 February 2006
Offer to surrender granted	2 March 2006

AFLs 33 -34 (adjacent to PEL 106):

Application lodged	3 November 2005
AFLs granted	14 November 2005
Request to surrender lodged	27 February 2006
Offer to surrender granted	2 March 2006

5. EXPENDITURE STATEMENT

A licence expenditure summary for the period from 9 April 2005 to 8 April 2006 is presented in the following Table.

Table: Statement of Expenditure in PEL 106 for Third Permit Year

Commercial in Confidence

great artesian
oil and gas limited

ACN 078 607 682

PEL 106

Cooper/Eromanga Basin
South Australia

ANNUAL COMPLIANCE REPORT
PERMIT YEAR THREE

April 9th 2005 to April 8th 2006

TABLE OF CONTENTS

Internal References to this Section:

Appendix 1
PEL 106 Karla Seismic Survey Environmental Report

Appendix 2
PEL 106 Paranta 3D Seismic Survey Environmental Report

Appendix 3
PEL 106 Smegsy-1 Gas Flow Line and Wellhead Review

Appendix 4
Geophysical Progress Reports for the Karla 2D Seismic Survey

1. INTRODUCTION

Pursuant to Regulation 33(2) of the 2000 Petroleum Act, Great Artesian Oil and Gas Limited, as Licensee and Operator of PEL 106, in the Cooper Basin South Australia, herewith submits its report on compliance with:

- The Petroleum Act
- Regulations of the Petroleum Act
- The PEL Licence Conditions, and
- The various Statements of Environmental Objectives (SEO) to which Great Artesian Oil and Gas was committed in conducting its work commitments for Permit Year Three of the Licence.

A table is attached summarising the instances during the Permit Year Three wherein Great Artesian did not comply either with the Regulations of the Act or with the requirements of the relevant SEO under which it conducted its operations, or conducted operations which if not redressed would have led to non-compliance.

Further details of the circumstances surrounding the non-compliances, or potential non-compliance issues, are outlined below.

Petroleum Act and PEL Licence Conditions

There were no instances of non-compliance with the 2000 Petroleum Act during the Third Permit Year of PEL 106.

Three wells, Rossco-1, Udacha-1 and Middleton-1, were drilled during Permit Year Three to satisfy the combined Years Two and Three work commitments for the Licence. Likewise, seismic work (Paranta 3D and Karla 2D seismic surveys) in the permit was conducted in order to satisfy the combined Year Two and Three work commitments. The excess 2D seismic work over the original work program (amounting to 145 km), was taken into consideration for the contingent Year 2 and Year 3 programs. The seismic commitment for these years has already been met. A letter seeking to combine minimum work programs for Years 2 and 3 was sent to PIRSA on 22 March 2005 to avoid potential non-compliance. A further request, seeking a variation in the PEL106 work programme for Permit Year 3 was submitted to PIRSA on 15 November 2005 (a variation to drill 3 wells, a 3D seismic program and 100 km of 2D seismic). The variation in the work programme was granted on 23 November 2005.

Regulations of the 2000 Petroleum Act

- ***Drilling***

There were no instances of non-compliance with the Regulations during the drilling operations of the Rossco-1, Udacha-1 and Middleton-1 wells (the latter two wells were operated by Beach Petroleum).

- ***Submission of Data and Reports Relating to Drilling***

Data related to the drilling of the Rossco-1, Udacha-1 and Middleton-1 wells has been submitted to as per checklist tabulation provided in this section. Well

completion reports for the Rossco-1, Udacha-1 and Middleton-1 wells which were drilled during December 2005 – February 2006, will be compiled and submitted to PIRSA during Permit Year Four (within 6 months of rig release).

- ***Seismic***

Regulation 35 requires that, for any seismic survey, an Operations Report is to be submitted to PIRSA within 12 months of the completion of recording, and that this Operations Report includes a report on the processing of the data.

The Karla 2D and Paranta 3D Seismic Surveys were conducted in PEL 106 in October-November 2005 by Great Artesian Oil and Gas. Field Operation Reports and Data Processing Reports will be submitted to PIRSA during the Fourth Permit Year. As this is still within the 12 months period, Great Artesian has complied with the Regulations in this regard.

Regulation 36 requires that the Interpretation Report be submitted within 12 months following the completion of the processing of these data. Interpretation Reports for both, Karla 2D and Paranta 3D seismic surveys, will be submitted to PIRSA during the Fourth Permit Year. As this is still within the 12 months period, Great Artesian has complied with the Regulations in this regard.

There were three instances of non-compliance with Regulations:

1) The Environmental Reports for the Karla 2D and Paranta 3D seismic surveys were not submitted on time (at the completion of each survey). The reports are included in this Annual Report as Appendices 1 and 2.
2) The Geophysical Progress Reports for the Karla 2D Seismic Survey were not submitted. The Daily Progress Reports are included in this Annual Report as Appendix 4.
3) Magnetic tapes containing Lena seismic survey field data were not submitted. These tapes were sent to PIRSA on 17 May 2006. The Lena seismic survey was conducted in Permit Year Two.

2. CHECKLIST FOR SUBMITTING DATA

Records of non-compliance with Regulations, submission of notifications of drilling operations, drilling reports and geophysical data reports are presented in the following tables.

TABLE 1: RECORD OF NON-COMPLIANCE WITH REGULATIONS
PERMIT: PEL 106
YEAR THREE: 9 April 2005 – 8 April 2006

Drilling				

SEO Non Compliance

Field Operation				
No incidents of Non-Compliance arising from the drilling operations of Rossco-1. *No incidents of Non-Compliance arising from the drilling operations of Udacha-1.* *No incidents of Non-Compliance arising from the drilling operations of Middleton-1.*				

Report Non Compliance

Name of Report	Date Due	Date Submitted	Cause of Overdue Submission	Resolution
No incidents of Non-Compliance				
Well Completion Report for Rossco-1 will be submitted	5 July 2006			
Well Completion Report for Udacha-1 will be submitted	10 Aug 2006			
Well Completion Report for Middleton-1 will be submitted	9 Sept 2006			

Data Submission Non-Compliance

Data Type				
No incidents of Non-Compliance arising from submitting data *For Rossco-1, Udacha-1 & Middleton-1*				

Seismic				

SEO Non Compliance

Field Operation				
No incidents of non-compliance arising from the field operations of the 2005 Karla Seismic Survey. No incidents of non-compliance arising from the field operations of the 2005 Paranta 3D Seismic Survey. No incidents of non-compliance arising from application for AFLs 30-34				

Report Non Compliance

No incidents of Non-Compliance

Data Submission Non-Compliance

Incident of non-compliance: The Environmental Reports for Karla and Paranta 3D seismic surveys were not submitted after completion of each survey.
Incident of non-compliance: The Geophysical Progress Reports for Karla seismic survey were not submitted.
Incident of non-compliance: The magnetic tapes containing Lena seismic survey field data were not submitted. Lena seismic survey was conducted in Permit Year Two.

TABLE 2: CHECKLIST FOR NOTIFICATIONS OF DRILLING OPERATIONS FOR ROSSCO-1
PERMIT: PEL 106
YEAR THREE: 9 April 2005 to 8 April 2006

Drilling Operations Commenced: 14 December 2005 Drilling Operations Completed: 5 January 2006

Report/Data set	Person/agency to whom information is to be provided	Period allowed for submitting data	Date Due	Date Submitted	Great Artesian 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	9 Nov 2005	4 Oct 2005	Managing Director	Approval granted 10 Oct 2005
Notification of proposed commencement of earthworks – preparation of access tracks and well leases		21 days prior to proposed start date	23 Nov 2005	30 Nov 2005	Managing Director	
Notification to landowner(s)	Pastoral Lessee/ Mr Graham & Sharon Betts	21 days prior to proposed start date	23 Nov 2005	19 Oct 2005	Managing Director	Waukatanna Station
	National Parks	21 days prior to proposed start date	23 Nov 2005	Not Applicable		
	Native Title Claimant(s)/ Mr Parry Agius	21 days prior to proposed start date	23 Nov 2005	6 Oct 2005	Managing Director	Edward Landers Dieri People
	Other PEL or PL licensees/ Mr Jon Young (Santos Ltd)	21 days prior to proposed start date	23 Nov 2005	23 Oct 2005	Managing Director	PPL 127 (Nulla) PPL 148 (Welc. Lake East) PPL 150 (Raven)

TABLE 3: CHECKLIST FOR SUBMISSION OF DRILLING REPORTS FOR ROSSCO-1
PERMIT: PEL 106
YEAR THREE: 9 April 2005 to 8 April 2006

Drilling Operations Commenced: 14 December 2006 Drilling Operations Completed: 5 January 2006

Report/Data Set	Person/agency to whom information is to be provided	Period allowed for submitting data	Date Due	Date Submitted	Great Artesian Officer Responsible	Comments
Daily Drilling Reports	PIRSA	Within 12 hours of report period	During drilling operations	During drilling operations	Chris Carty	Daily reports were submitted from 23/12/2005
Wireline Logs	Alan Sansome PIRSA	Within 1 month of acquisition of data (01/01/2006)	1 Feb 2006	17 Jan 2006	Chris Carty	
Mud Logging Data	PIRSA	Included with Daily Drilling Reports, then subsequently with the Well Completion Report	During drilling operations	During drilling operations	Chris Carty	Mud logging data was submitted from 23/12/2005
Well Samples	PIRSA	Within 6 months of rig release	5 July 2006	31 March 2006	Chris Carty	
Well Completion Report	PIRSA	Within 6 months of rig release	5 July 2006	**To be submitted in Year 4**	Chris Carty	
Reportable Incidents	PIRSA	Serious incidents must be reported immediately (within 24 hours), with a written report following within 3 months	No reportable incidents		Chris Carty	

TABLE 4: CHECKLIST FOR SUBMISSION OF DRILLING REPORTS FOR UDACHA-1
PERMIT: PEL 106
YEAR THREE: 9 April 2005 to 8 April 2006

Drilling Operations Commenced: 11 January 2006 Drilling Operations Completed: 10 February 2006

Report/Data Set	Agency to which information is to be provided	Period allowed for submitting data	Date Due	Date Submitted	Beach Petroleum Officer Responsible	Comments
Daily Drilling Reports	PIRSA	Within 12 hours of report period	During drilling operations	During drilling operations	Exploration Manager	
Wireline Logs	PIRSA	Within 1 month of acquisition of data	10 Apr 2006	20 Feb 2006	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	10 Aug 2006	**To be submitted in Year 4**	Exploration Manager	
Well Completion Report	PIRSA	Within 6 months of rig release	10 Aug 2006	**To be submitted in Year 4**	Exploration Manager	
Reportable Incidents	PIRSA	Serious incidents must be reported immediately (within 24 hours), with a written report following within 3 months	No reportable incidents		Exploration Manager	

TABLE 5: CHECKLIST FOR SUBMISSION OF DRILLING REPORTS FOR MIDDLETON-1
PERMIT: PEL 106
YEAR THREE: 9 April 2005 to 8 April 2006

Drilling Operations Commenced: 15 February 2006 Drilling Operations Completed: 9 March 2006

Report/Data Set	Agency to which information is to be provided	Period allowed for submitting data	Date Due	Date Submitted	Beach Petroleum Officer Responsible	Comments
Daily Drilling Reports	PIRSA	Within 12 hours of report period	During drilling operations	During drilling operations	Exploration Manager	
Wireline Logs	PIRSA	Within 1 month of acquisition of data	9 May 2006	24 March 2006	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	9 Sept 2006	**To be submitted in Year 4**	Exploration Manager	
Well Completion Report	PIRSA	Within 6 months of rig release	9 Sept 2006	**To be submitted in Year 4**	Exploration Manager	
Reportable Incidents	PIRSA	Serious incidents must be reported immediately (within 24 hours), with a written report following within 3 months	No reportable incidents		Exploration Manager	

TABLE 6: CHECKLIST FOR SUBMISSION OF GEOPHYSICAL DATA AND REPORTS TO PIRSA
KARLA 2D SEISMIC SURVEY (conducted 22-27 October 2005)

Geophysical Data	Specifics	Format	Time Period	Due Date	Date Submitted	Comments
Geophysical Progress Reports		Word or PDF	Periodic basis determined by consultation with the Minister	N/A	**June 2006**	Refer to Appendix 4 of this Annual Report
Geophysical Operations Reports – recording and processing		Hardcopy, PDF	Within 12 months of completion of recording data (27/10/2005)	**27/10/2006**		
Geophysical Data - Seismic	Seismic Processed Data	SEGY	Same time as associated Operations Report	**27/10/2006**		
Geophysical Data - Seismic	Seismic Field Data	SEGD				
Geophysical Data - Seismic	Observation Logs	ASCII				
Geophysical Data - Seismic	Navigation data including elevations and bathymetry	GDA 94 UKOOA				
Geophysical Data - Seismic	Field Statistics	EXCEL, PDF				
Geophysical Data - Seismic	Upholes					
Geophysical Data - Seismic	Processed 2D seismic sections	CGM+				
Geophysical Interpretation Report		Hardcopy, PDF	Within 12 months of completion of processing data (28/02/2006)	**28/02/2007**		
Geophysical Data - Seismic	Processed 3D data vols and velocities			N/A		No 3D data recorded
Geophysical Data - Seismic	Processed 3D time slices (if they have been produced)			N/A		No 3D data recorded
Geophysical Data	Any other field acquisition details			N/A		No other field data acquired

TABLE 7: CHECKLIST FOR SUBMISSION OF GEOPHYSICAL DATA AND REPORTS TO PIRSA

Geophysical Data	Specifics	Format	Time Period	Due Date	Date Submitted	Comments
Geophysical Progress Reports		Word or PDF	Periodic basis determined by consultation with the Minister	N/A	Oct-Nov 2005	Daily field reports forwarded by email to PIRSA (Rob Langley) by B. Beer
Geophysical Operations Reports – recording and processing		Hardcopy, PDF	Within 12 months of completion of recording data (10/11/2005)	**10/11/2006**		
Geophysical Data - Seismic	Seismic Processed Data	SEGY	Same time as associated Operations Report	**10/11/2006**		
Geophysical Data - Seismic	Seismic Field Data	SEGD				
Geophysical Data - Seismic	Observation Logs	ASCII				
Geophysical Data - Seismic	Navigation data including elevations and bathymetry	GDA 94, UKOOA				
Geophysical Data - Seismic	Field Statistics	EXCEL, PDF				
Geophysical Data - Seismic	Upholes			N/A	N/A	No upholes recorded
Geophysical Interpretation Report		Hardcopy, PDF	Within 12 months of completion of processing data	**To be submitted in Year 4**		
Geophysical Data - Seismic	Processed 3D data vols and velocities	SEGY, ASCII	Within 12 months of completion of processing data	**To be submitted in Year 4**		
Geophysical Data - Seismic	Processed 3D time slices (if they have been produced)			N/A		No 3D slices produced
Geophysical Data	Any other field acquisition details			N/A		No other field data acquired

PARANTA 3D SEISMIC SURVEY (conducted October-November 2005)

TABLE 8: CHECKLIST FOR SUBMISSION OF GEOPHYSICAL DATA AND REPORTS TO PIRSA
Permit: PEL 106 Permit Year Two: 9 April 2004 to 8 April 2005 PARANTA 2D SEISMIC SURVEY

TABLE 8: CHECKLIST FOR SUBMISSION OF GEOPHYSICAL DATA AND REPORTS TO PIRSA
Permit: PEL 106 PARANTA 2D SEISMIC SURVEY (conducted during Permit Year Two)

Geophysical Data	Specifics	Format	Date Submitted	Sent To	Time Period	Due Date	Comments
Geophysical Progress Reports Paranta 2D Seismic Survey		Word or PDF		Email or fax to cockshell.david@saugov.sa.gov.au	Periodic basis determined by consultation with the Minister		Daily field reports forwarded by email to PIRSA
Geophysical Operations Reports – recording and processing		Hardcopy, PDF	**9 June 2005**	Prelim report provided 7 Apr 2004	Within 12 months of completion of recording data	Feb 2005	
Geophysical Data - Seismic	Seismic Velocity Data		**9 June 2005**	Director Petroleum Group		Same time as associated Operations Report Feb 2005	
Geophysical Data - Seismic	Seismic Field Data		**15 May 2005**	same			
Geophysical Data - Seismic	Obs Logs	GDA 94	**15 May 2005**	same			
Geophysical Data - Seismic	Nav data including elevations and bathymetry	GDA 94	**15 May 2005**	same			
Geophysical Data - Seismic	Field Statics		**15 May 2005**	same			
Geophysical Data - Seismic	Processed 2D seismic sections	CGM+	**15 May 2005**	same			
Geophysical Interpretation Report		Hardcopy, PDF	**9 June 2005**	same	Within 12 months of completion of processing data		
Geophysical Data - Seismic	Processed 3D data vols and velocities		N/A				No 3D surveys recorded during Permit year
Geophysical Data - Seismic	Processed 3D time slices (if they have been produced)		N/A				No 3D surveys recorded during Permit year
Geophysical Data	Any other field acquisition detail		N/A				

TABLE 9: CHECKLIST FOR SUBMISSION OF GEOPHYSICAL DATA AND REPORTS TO PIRSA
Permit: PEL 106 MALLEUS SEISMIC SURVEY (conducted during Permit Year Two)

Geophysical Data	Specifics	Format	Date Submitted	Sent To	Time Period	Due Date	Comments
Geophysical Progress Reports		Word or PDF		Email or fax to cockshell.david@saugov.sa.gov.au	Periodic basis determined by consultation with the Minister		
Geophysical Operations Reports – recording and processing		Hardcopy, PDF	**25 July 2005**		Within 12 months of completion of recording data	**24 June 2005**	The Operations Report for the PEL 106 section of the Malleus Survey was included with the Operations Report for the PEL 91 and PEL 107 sections of this Survey. The single document was submitted on the date that the Operations Report for the PEL 107 section was due – 25 July 2005.
Geophysical Data - Seismic	Seismic Processed Data		**25 July 2005**		Not required until Permit Year 3	Same time as associated Operations Report **24 June 2005**	
Geophysical Data - Seismic	Seismic Field Data		**25 July 2005**		same		
Geophysical Data - Seismic	Obs Logs	CD-ROM	**25 July 2005**		same		
Geophysical Data - Seismic	Nav data including elevations and bathymetry	CD-ROM	**25 July 2005**		same		
Geophysical Data - Seismic	Field Statics	CD-ROM	**25 July 2005**		same		
Geophysical Data - Seismic	Processed 2D seismic sections		**25 July 2005**		same		
Geophysical Interpretation Report		Hardcopy, PDF	**31 Jan 2006**		Within 12 months of completion of processing data	**1 Feb 2006**	Processed data was supplied to Beach on 1 Feb 2005.
Geophysical Data - Seismic	Processed 3D data vols and velocities		N/A				No 3D surveys recorded during Permit year
Geophysical Data - Seismic	Processed 3D time slices (if they have been produced)		N/A				No 3D surveys recorded during Permit year
Geophysical Data	Any other field acquisition detail		N/A				

TABLE 10: CHECKLIST FOR SUBMISSION OF GEOPHYSICAL DATA AND REPORTS TO PIRSA

Geophysical Data	Specifics	Format	Date Submitted	Sent To	Time Period	Due Date	Comments
Geophysical Progress Reports Malleus 2D Seismic Survey		Word or PDF		Email or fax to cockshell.david@saugov.sa.gov.au	Periodic basis determined by consultation with the Minister		Daily field reports forwarded by email to PIRSA
Geophysical Operations Reports – recording and processing		CD-ROM, PDF	**17 May 2006**	Peter Hough	Within 12 months of completion of recording data	Oct 2005	
Geophysical Data - Seismic	Seismic Processed Data	CD-ROM	**17 May 2006**	Peter Hough	Not required until Permit Year 3	Same time as associated Operations Report	
Geophysical Data - Seismic	Seismic Field Data	CD-ROM	**17 May 2006**	Peter Hough	same		
Geophysical Data - Seismic	Obs Logs	CD-ROM	**17 May 2006**	Peter Hough	same		
Geophysical Data - Seismic	Nav data including elevations and bathymetry	CD-ROM	**17 May 2006**	Peter Hough	same		
Geophysical Data - Seismic	Field Statics	CD-ROM	**17 May 2006**	Peter Hough	same		
Geophysical Data - Seismic	Processed 2D seismic sections		**17 May 2006**	Peter Hough	same		
Geophysical Interpretation Report		CD-ROM	**3 March 2006**		Within 12 months of completion of processing data		
Geophysical Data - Seismic	Processed 3D data vols and velocities		N/A			N/A	No 3D surveys recorded during Permit year
Geophysical Data - Seismic	Processed 3D time slices (if they have been produced)		N/A			N/A	No 3D surveys recorded during Permit year
Geophysical Data	Any other field acquisition detail		N/A			N/A	

Permit: PEL 106 **LENA SEISMIC SURVEY (conducted during Permit Year Two)**

3. COMPLIANCE - DRILLING OPERATIONS

STATEMENTS OF ENVIRONMENTAL OBJECTIVES

Government approval for Great Artesian to drill the Rossco-1 well in PEL 106 was conditional upon Great Artesian committing to achieving the objectives defined in the "Statement of Environmental Objectives for Drilling and Well Operations in the Cooper/Eromanga Basins – South Australia (August, 2000)".

Rossco-1 and two other wells, Udacha-1 and Middleton-1, drilled in PEL 106 and operated by Beach Petroleum, did encounter commercial indications of hydrocarbons and were cased and suspended pending extended production testing. The testing will take place later in 2006 year. The wells will remain cased and suspended until all engineering studies have been completed. Due to the requirement for continuing access, no rehabilitation has yet been undertaken of the sites or access roads.

To date Great Artesian is satisfied that all the objectives required by the SEO have been met. Spreadsheets presented herein summarise the strategies that have been, and will be, employed to achieve compliance.

ASSESSMENT OF GREAT ARTESIAN'S PERFORMANCE IN ACHIEVING THE ENVIRONMENTAL OBJECTIVES DEFINED IN THE COOPER BASIN DRILLING SEO WELL NAME: ROSSCO-1				
OBJECTIVE	**COMMENT**	**GUIDE TO HOW OBJECTIVES CAN BE ACHIVED**	**ASSESSMENT CRITERIA**	**PERFORMANCE IN ACHIEVING OBJECTIVE**
Objective 1: ***Minimise the risk to public and other third parties.***	The criteria for assessing the achievement of this objective have been developed on the basis of the current understanding of the risks associated with drilling and well operations. The key to achieving this objective in relation to both downhole abandonment and surface well site restoration 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.	• All employees and contractor personnel complete a safety induction prior to commencement of work in the field. • All employees and contractor personnel undertake a refresher induction every 2 years. • Signage in place to warn third parties of access restrictions to operational areas, with particular warnings when potentially dangerous operations are being undertaken. • Permit to work systems in place for staff and contractors in dangerous situations.	▪ Reasonable measures implemented to ensure no injuries to the public or third parties.	The design and operation of the Rossco-1 well was undertaken in accordance with Great Artesian safety policies, standards and guidelines. All employees undertook a safety induction prior to commencing work in the field and will undertake a refresher course if/when required. Rossco-1 well was cased and suspended. The 1 - kilometre access track to Rossco-1 turns off the Jack Lake to Doublejay-1 road, which is not open for public use. The drilling operations were not visible from the track. Signage was erected along the access track to advise that only authorised personnel were permitted on to the well site. Great Artesian Permit to Work system was in operation during the drilling operations to control potentially dangerous situations.

Objective 1: ***(Continued)*** ***Minimise the risk to public and other third parties.*** .	The backfilling of the well cellar and the removal of rubbish from the restored well site should be carried out Fires or explosions at well sites could result in complications resulting in a spill of production fluids (formation water and hydrocarbon), atmospheric emissions, disturbance of native vegetation and wildlife habitat, loss of reservoir pressure, and risk to employees, contractors and the public.	▪ Reporting systems for recording injuries and accidents in place, and annual; (at minimum) review of records to determine injury trends. Implementation of appropriate corrective actions. ▪ Ensuring safety management plans are updated and reviewed. ▪ All appropriate PPE (personnel protective equipment) is issued and available as required in accordance with company operating requirements and applicable standards.		Accident / incident reporting systems were in place as defined in the Great Artesian Drilling Operation Manual. Records are reviewed regularly to assess trends. Great Artesian safety management plans are updated and reviewed on a regular basis. Appropriate PPE was issued to all personnel involved in the drilling operations.

Objective 1: ***(Continued)*** ***Minimise the risk to public and other third parties.***	The movement of heavy equipment associated with rig moves present a risk to the safety of employees, contractors and third parties (ie tourists).	▪ Effective Emergency Response Plan (ERP) and procedures are in place in the event of a fire or explosion. ▪ Annual exercise of ERP. ▪ Communication of rig moves and other potential hazards to safety associated with drilling and well operations to potentially affected		An Emergency Response Plan (ERP) was prepared for the drilling operations at Rossco-1, and all personnel involved in the operations were aware of the Emergency Response Plan. However, no situation arose that required the implementation of the Plan. Great Artesian undertakes regular ERP exercises at selected drilling operations. Great Artesian maintained regular contact with landholders

		parties prior to commencement of operations.		and associated stakeholders during the drilling operations at the Rossco-1 site.

Objective 2 : ***Minimise disturbance and avoid contamination to soil.***	The impacts associated with soil disturbance can potentially include wind and water erosion and dust generation. The main source of disturbance to soils is associated with lease and access track construction, creation of borrows pits, restoration activity, vehicle movement in off-road locations and sub-surface excavations (i.e. sumps, flare pits and borrow pits).	<u>Well Site and Access Track Construction</u> ▪ Consider alternate routes during planning phase to minimise environmental impacts ▪ Gibber mantle on access tracks and well sites (excluding sumps) has not been removed, only rolled, during construction and restoration on gibber and tableland land systems. ▪ Topsoil stockpiled (including gibber mantle) from sump construction and respread on abandonment. ▪ The need to traverse sensitive land systems and the methods of managing the impacts should be justified in accordance with company procedures, recorded and available for auditing. <u>Production Testing / Well Blowdowns</u> ▪ If appropriate use: - impermeable flare pit - flare tanks.	<u>Well Site and Access Track Construction</u> ▪ 0, +1 or +2 GAS criteria are attained for "Minimise visual impacts of abandoned well sites and access tracks" objective as listed in Appendix 4 for well lease and access track construction. ▪ No unauthorised off-road driving or creation of shortcuts. ▪ No construction activities are carried out on salt lakes, steep tableland land systems or wetlands land systems (as defined in EIR).	• Site construction was in accordance with the guidelines outlined in Guidelines for Lease Construction and Restoration. • There were no gibber pavements along the access track or at the Rossco-1 well site. • Topsoil was stockpiled for subsequent respreading when restoration activities are conducted. • Vehicle movements were strictly limited to the defined access track and well pad area – areas which had been given cultural heritage clearance for the drilling operations. • The Rossco-1 well has been cased and suspended prior to production testing. If this production testing does not prove commercial producible hydrocarbons then the appropriate P/A program will be implemented.

Objective 2: ***(Continued)*** ***(Minimise disturbance and avoid contamination to soil)***			<u>Borrow pit construction and restoration</u> ▪ 0, +1 or +2 GAS criteria are attained for "Minimise Visual Impacts for constructing borrow pits" objective as listed in Appendix 3, and "Minimise visual impacts" and "Minimise impact on soil" objectives as listed in Appendix 5. <u>Production Testing / Well Blowdowns</u> • No soil contamination as a result of production testing or well blowdown operations. <u>Fuel and Chemical Storage and Handling</u> ▪ No spills/leaks outside of areas designed to contain	• Borrow pits will be rehabilitated and restored in accordance with the guidelines set down in PIRSA's Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, South Australia, to attain the highest feasible GAS rating. • No Production testing was undertaken at Rossco-1. Production testing will take place at a later date. • All fuel, oil and chemicals were stored in accordance with relevant standards. • Refuelling was undertaken as per Drilling Contractors' procedures. • There were no spills during the drilling operations that required reporting or corrective action to be taken in accordance with the Great Artesian Incident Reporting system. There were no spills during the drilling operations outside of
		<u>Fuel and Chemical Storage and Handling</u> ▪ All fuel, oil and chemical storages		

		bunded in accordance with the appropriate standards.	them.	areas designed to contain them.
Objective 2: ***(Continued)*** ***(Minimise disturbance and avoid contamination to soil)***		• Records of spill events and corrective actions maintained in accordance with company procedures. • Spills or leaks are immediately reported and clean up actions initiated. • Logged incidents are reviewed annually to determine areas that may require corrective action in order to reduce spill volumes in subsequent years (and drive continual improvement). • Chemical and fuel storage procedures, including signage, are reviewed and monitored in audit process. <u>Spill Response / Contingency Planning</u> 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. • Oil spill contingency plan (reviewed annually) is up to date with specific scenarios relating to spills to creeks and floodplain areas. • Spill response equipment is audited annually. • Annual spill response training exercise is undertaken.	▪ Level of hydrocarbon continually decreasing for in situ remediation of spills. ▪ Soils remediated to a level as determined by the SHI process.	Great Artesian's Oil Spill Contingency Plan is included in the Emergency Response Plan.

Objective 2: ***(Continued)*** ***(Minimise disturbance and avoid contamination to soil)***		<u>Waste Disposal (domestic, sewage and sludges)</u> ▪ Covered bins are provided for the collection and storage of wastes. ▪ All loads of rubbish are covered during transport to the central waste facility. Pits are not established in locations, which pose an unacceptable hazard to stock or wildlife.	▪ All domestic wastes are disposed of in accordance with EPA licensing requirements. ▪ 0, +1 or +2 GAS criteria for 'Waste material' objective is attained. No spills or leaks from sewage treatment process and sludge pits.	• Wastes were managed as described in the Cooper Basin Drilling & Well Operations EIR. • Wastes were collected, stored and transported in covered bins / containers. • All rubbish was disposed of at a licensed waste facility.
Objective 3 : ***Avoid introduction or spread of pest plants and animals and implement control measures as necessary.***	Activity associated with lease and access track construction, such as movement of vehicles and equipment, is a potential source of weed or disease introduction and spread. The most effective technique to prevent the introduction and spreading of weed species is to ensure that vehicles and equipment are appropriately cleaned prior to entry into a construction site.	▪ Where appropriate a weed and feral animal management strategy is in place (avoidance and control strategies). ▪ Rig and vehicle wash downs are initiated in accordance with the management strategy.	▪ No weeds or feral animals are introduced to operational areas.	• Drilling rig, associated equipment and all vehicles have already been working in the Cooper Basin prior to commencing the drilling operations at Rossco-1.

Objective 4 : ***Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources.***	The main threats to drainage patterns and surface waters, and shallow ground waters are considered to be interruption of natural flows as a result of earthworks and contamination. Access track and well site selection should aim to minimise impact to drainage systems, by avoiding sensitive areas and appropriate construction methods to avoid windrows.	<u>Drilling Mud Sumps and Flare Pits</u> ▪ All drill cuttings, muds and non toxic drill fluids are contained within the designated mud sumps with adequate freeboard at the completion of operations to allow for a 1m cover of clean fill at remediation.	<u>Well Lease and Access Track Construction</u> ▪ 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). <u>Drilling Mud Sumps and Flare Pits</u> ▪ No overflow of drill cuttings, muds and other drilling fluids from mud sumps. ▪ No waste material disposal to sumps and flare pits.	• The Rossco-1 well site was not located in an area where flooding from local watercourses is likely to occur. • The drill pad and access track were constructed and situated to ensure that, in the event of local inundation, the flood waters would not be diverted from their natural flow direction. • 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 1m cover of clean fill at remediation.
Objective 4 : ***(Continued)*** ***(Minimise disturbance to drainage patterns and***	There is potential for the contamination of chemical and fuel storage areas, from oil and gas systems at well heads, during transportation of fuel and chemicals and during transportation of wastes. Localised contamination may result from spills or leaks of well operations chemicals (eg. corrosion inhibitors) during	<u>Well Heads (Oil and Gas Systems)</u> ▪ Where appropriate, imperviously lined well cellars are installed on oil wells. ▪ Chemical containment devices are installed on gas well skids. ▪ Well heads shut in and chemicals removed prior to flood events. ▪ Jet pumps are installed within containment device with an adequately sized containment sump.	<u>Well Heads (Oil and Gas Systems)</u> ▪ No leaks/spills outside of areas designed to contain them.	• Rossco-1 well was cased and suspended. There was no requirement for a well head.

avoid contamination of surface waters and shallow ground water resources)	storage and handling.			
		Well Blowdown / Production Testing ▪ Activity is conducted in accordance with accepted industry standards / good oilfield practice. ▪ If appropriate use: - impermeable flare pit - flare tanks - separators - supervision	Well Blowdown/Production Testing ▪ No water (surface or groundwater) contamination as a result of production testing or well blowdown operations.	• No Production testing was undertaken at Rossco-1. The testing will be carried out at a later date.

Objective 4 ***(Continued)*** ***(Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources.)***		Fuel and Chemical Storage and Handling ▪ All fuel, oil and chemical storages bunded in accordance with the appropriate standards ▪ Records of spill events and corrective actions maintained in accordance with company procedures. ▪ Spills or leaks are immediately reported and clean up actions initiated. ▪ Logged incidents are reviewed annually to determine areas that may require corrective action in order to reduce spill volumes in subsequent years (and drive continual improvement). ▪ Chemical and fuel storage procedures, including signage, are reviewed and	Fuel/Chemical Storage and Handling ▪ No leaks/spills outside of areas designed to contain them.	• Specific oil spill containment / cleanup materials were on site at all times. • All fuel, oil and chemicals were in accordance with relevant standards ▪ Refuelling was undertaken as per Drilling Contractors' procedures. ▪ There were no spills during the drilling operations outside of areas designed to contain them.

		monitored in audit process.		
Objective 4 ***(Continued)*** ***(Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources.)***	The major threat of spills is the threat to soil, vegetation and watercourses directly impacted by the spill. Therefore, the achievement of this objective also consequently contributes to the achievement of Objectives 2 and 7 in relation to minimising the impacts on soil and natural habitats. 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.	Spill Response / Contingency Planning ▪ 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. ▪ Oil spill contingency plan (reviewed annually) is up to date with specific scenarios relating to spills to creeks and floodplain areas. ▪ Spill response equipment is audited annually. ▪ Annual spill response training exercise is undertaken.		• Great Artesian's Oil Spill Contingency Plan is included in the Emergency Response Plan.

Objective 5 : ***Avoid disturbance to sites of cultural and heritage significance***.	The aim of the objective is to ensure that any sites of cultural (Aboriginal or non-Aboriginal) heritage significance are identified and protected.	Consultation with stakeholders (i.e. government agencies, landholders etc) in relation to the possible existence of heritage sites, as necessary. Heritage report forms completed for any sites or artefacts identified, and report forms forward to the Department of State Aboriginal Affairs (DOSAA). ▪ Survey records are kept and are available for auditing. ▪ Areas requiring remediation which lie outside previously surveyed sites should be surveyed in accordance with company heritage clearance procedures.	▪ Proposed well sites and access tracks have been surveyed and any sites of Aboriginal and non-Aboriginal heritage identified. ▪ Any identified cultural and heritage sites have been avoided. *Note:* Where a negotiated agreement or determination for heritage clearance is in place, compliance with the negotiated agreement or determination takes precedence over the above criteria.	Great Artesian has an agreement with the Dieri Aboriginal Corporation Native Title Claimant group which specifies the requirements for scouting areas proposed for well sites and access tracks to identify and avoid areas of heritage value and archaeological significance. A site visit was carried out with representatives from the Native Title Claimant group. Proposed drilling locations and access routes were agreed and given heritage clearance. Areas of significance were recorded and marked as exclusion zones.

Objective 6 : ***Minimise loss of aquifer pressures and avoid aquifer contamination***.	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. To address this objective, the risks of cross flow between aquifer cells 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 minimize the fresh water aquifer cells from contamination and isolate potential and producing formations from formations that may deplete the reservoir pressure when not on production. The following geological formations are aquifers in the Cooper-Eromanga Basins. • Eyre, Winton & Mackunda; • Coorikiana & Cadna-owie; • Murta (incl. McKinlay Mbr) • Namur, Adori & Birkhead; • Hutton, Poolowanna;	Drilling & Completion Activities: ▪ A competent cement bond between aquifer and hydrocarbon reservoirs is demonstrated. For cases where isolation of these formations is not established, a risk assessment incorporating the use of pressure / permeability / salinity data is undertaken in consultation with DLWBC & AAWCMB to determine if lack of cement or poor bond will cause or has caused damaging crossflow which needs to be remediated. Producing, Injection and, Inactive Wells ▪ Monitoring programs implemented (eg. Through well logs, pressure measurements, casing integrity measurements and corrosion monitoring programs) to assess condition of casing and cross-flow behind casing. ▪ Casing annulus pressures are monitored every 2 years. ▪ The condition of the primary casing barrier is adequate. ▪ For cases where crossflow is detected, a risk assessment incorporating the use of pressure / permeability / salinity data is undertaken in consultation with DLWBC & AAWCMB to determine if lack of cement or poor bond will cause or has caused damaging crossflow which needs to be remediated.	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. Producing, Injection, Inactive and Abandoned Wells ▪ No cross-flow behind casing between aquifers, and between aquifers and hydrocarbon reservoirs unless approved by DWLBC.	

Objective 6 : ***(Continued)*** ***(Minimise loss of aquifer pressures and avoid aquifer contamination)***	• Cuddapan; Nappamerri Group, Walkandi and Peera Peera formations; Toolachee; Daralingie; • Epsilon, Patchawarra or Mt Toodna or Purni. • Tirrawarra sandstone or Stuart Range; Merrimelia; Boorthanna; Crown Point formations and Basement reservoirs. **Note**: Crossflow (if it occurs), should not compromise the long term sustainability of a particular resource.	Well Abandonment Activities: ▪ Isolation barriers are set in place to ensure that cross-flow, contamination or pressure reduction will not occur. ▪ Barriers will be set to meet or exceed the requirements of applicable standards for the decommissioning and abandonment of water bores and abandonment of petroleum wells. ▪ The placement of isolation barriers will in general be to isolate the groups of formations as listed under comments. The number and placement of barriers may be varied from this standard approach on a case-by-case basis by SACB Operator personnel using relevant available data and the SA Cooper Basin Water Pressure and Salinity Module Report (2002), and in consultation with DWLBC.		

Objective 7: ***Minimise disturbance to native vegetation and native fauna***.	Primary risks to native fauna include clearing of habitat and obstruction of movement through cleared areas, the presence of borrow pits, fuel and chemical storage and management, and waste management activities.	Well Lease and Access Track Construction and Restoration ▪ Proposed well sites, camp sites, access tracks and borrow pit sites have been assessed for rare, vulnerable and endangered flora and fauna species before the commencement of construction. ▪ Consider alternate routes during planning phase to minimise environmental impacts ▪ Facilities (e.g. borrow pits, well cellars) are designed and constructed as far as practicable to minimise fauna entrapment. ▪ Sumps and mud pits are fenced as appropriate to minimise wildlife access ▪ Assessment records are kept and are available for auditing. ▪ In recognised conservation reserves (i.e. Innamincka Regional Reserve) excavations are left in a state as agreed with the responsible statutory body ▪ Borrow pits are restored to minimise water holding capacity, where agreements are not in place with stakeholders.	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 2, 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 4. Borrow Pits Construction and Restoration ▪ 0, +1 or +2 GAS criteria are attained for "Minimise impacts on vegetation" objective as listed in Appendix 4 during borrow pit site selection and construction, and "Minimise Impact on Vegetation" objective in Appendix 5 for borrow pit restoration.	The Rossco-1 well was not located in or near areas of high biological or wilderness values and hence the drilling operation presented no long term impact to any such area. National Parks and Wildlife flora/fauna databases contain no records of vulnerable or endangered species within 30km of the site. Access track construction required minimal clearance of vegetation and was aligned to avoid clearing trees. The site contained sparse vegetation, and clearance was minimised. Trees that were present on the site and adjacent to the site were not cleared. Facilities were designed and constructed to minimise fauna entrapment. • Borrow pits will be rehabilitated and restored in accordance with the guidelines set down in PIRSA's Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, to attain the highest feasible GAS rating.

Objective 7: (Continued) ***(Minimise disturbance to native vegetation and native fauna*)**		Waste Management ▪ Covered bins are provided for the collection and storage of wastes. ▪ All loads of rubbish are covered during transport to the central waste facility. ▪ Pits are not established in locations, which pose an unacceptable hazard to stock or wildlife.	Waste Management ▪ Refer to assessment criteria for Objective 11. Fuel and Chemical Storage and Management Refer to assessment criteria for Objectives 2 and 4.	• Great Artesian's Drilling Operations Manual sets out the company's policy in relation to storage, use and disposal of hazardous material. • At the Rossco-1 well site wastes were managed as described in the Drilling & Well Operations EIR. • Wastes were collected, stored and transported in covered bins / containers. • All rubbish was disposed of at a licensed waste facility.

Objective 8 : ***Minimise air pollution and greenhouse gas emissions.***	Atmospheric emissions occur as a result of standard practices undertaken during drilling and well operations. Emissions of particular environmental significance are: ▪ combustion by-products (eg. oxides of nitrogen, carbon monoxide and sulphur dioxide); ▪ organic carbon and carbon particulates (black smoke); and ▪ flared/vented hydrocarbons (gases).	Well Testing ▪ Conduct well testing in accordance with appropriate industry accepted standards. ▪ Continually review and improve operations. ▪ Appropriate emergency response procedures are in place for the case of a gas leak. Well Blowdown ▪ Blowdown carried out in accordance with industry accepted standards / good production practice. ▪ Any well that is consistently blown down is identified for a small ID tubing or plunger lift installation to minimise blow downs on that well.	▪ Compliance with EPA requirements.	A Drill Stem Test was attempted and aborted during drilling operations at the Rossco-1 well.

Objective 9 : ***Maintain and enhance partnerships with the Cooper Basin community.***	The importance of liaison with and contribution to the local community is recognised by the South Australian Cooper Basin Operators. Notification, consultation, contribution to community activities, projects and events and membership of relevant organisations are considered to be key strategies for ensuring partnerships with the local community are enhanced.	▪ Relevant affected parties are notified and consulted on proposed activities. ▪ Forward development plans are presented to the local community. ▪ Local community projects and events are sponsored and supported where appropriate. ▪ Industry membership of appropriate regional land management committees and boards i.e. the Lake Eyre Basin Consultative Council, Marree Soil Conservation Board, and Catchment Committees.	▪ No unresolved reasonable complaints from the community.	- Great Artesian maintained regular contact with landholders and associated stakeholders prior to and while undertaking drilling operations at the Rossco-1 site. • Great Artesian donates money to the Royal Flying Doctor Service.

Objective 10 : ***Avoid or minimise disturbance to stakeholders and/or associated infrastructure.***	Communication and the establishment of good relations with stakeholders and community is fundamental to minimising disturbance to as low as practicably possible. Many pastoral properties are certified under the Organic Beef or CattleCare accreditation schemes and therefore may be affected by fuel and chemical storage, moving machinery and contaminated sites.	Induction for all employees and contractors covers pastoral, conservation, legislation and infrastructure issues. Relevant stakeholders are notified prior to survey and construction of well sites, camp sites and access tracks and undertaking of operations (pursuant to Petroleum Regulations). Borrow pits left open (unrestored) if requested by landholder and upon receipt of letter of transfer of responsibility to landholder. ▪ Gates or cattle grids are installed to a standard, consistent with pastoral infrastructure in fences where crossings are required for access. ▪ All gates left in the condition in which they were found (ie. open/closed). ▪ Potential sources of contamination are fenced as appropriate to prevent stock access. ▪ System is in place for logging landholder complaints to ensure that issues are addressed as appropriate. ▪ Requirements of the Cattle Care and Organic Beef accreditation programs are complied with. ▪ In recognised conservation reserves (i.e. Innamincka Regional Reserve) excavations are left in a state as agreed with the responsible statutory body.	▪ No reasonable stakeholder complaints left unresolved.	▪ Great Artesian maintained regular contact with landholders and associated stakeholders prior to and while undertaking drilling operations at the Rossco-1 site. ▪ The access track and well were located away from tourist routes. ▪ The Rossco-1 well site was not located near a cattle watering point and cattle were not present in significant numbers. ▪ Major de-stocking has occurred in this region due to prolonged drought conditions. ▪ When the initial lease restoration was conducted, suitable fencing was erected to isolate any pits or plant installed in site.

Objective 11 : ***Optimise waste reduction and recovery.***	Waste reduction requires continual improvements in purchasing, efficiency of use and reuse. Due to the distances involved the costs of recycling a large range of products is not possible however continual review of recycling options is required to ensure that any opportunities are taken advantage of.	▪ Bulk chemical and oil purchasing and use of "bulki bins" or other storage tanks in place for large volume items.	▪ 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. ▪ Attainment of GAS criteria for "Site left in clean, tidy and safe condition after final clean-up" objective during well site restoration (refer Appendix 4). ▪ Attainment of GAS criteria for "Site left in clean, tidy and safe condition" objective during borrow pit restoration (refer Appendix 5).	▪ Waste was removed from the Rossco-1 well site in accordance with Great Artesian policy set out in the company's Drilling Operations Manual. ▪ Non-putrescible waste material (including hazardous material) was stored safely on site for later removal to an EPA approved disposal facility.

Objective 12 : ***Remediate and rehabilitate operational areas to agreed standards.***		Rehabilitation / abandonment plans for surface activities will be developed in consultation with relevant stakeholders	▪ No unresolved reasonable stakeholder complaints. <u>Contaminated Site Remediation</u> ▪ 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.	▪ *Well site* will be restored as per the standards and procedures detailed in the Cooper Basin SEO for Drilling and Well Operations (2003) and internal guidelines. ▪ Restoration of the well site will proceed when the sump pits have dried and earthmoving machinery is available in the vicinity. ▪ Contaminated sites were remediated in accordance with Great Artesian's Guidelines and Industry Standards.
		<u>Well Site and Access Track Restoration</u> ▪ Compacted soil areas have been ripped (except on gibber and tablelands) and soil profile and contours are reinstated following completion of operations.	<u>Well Site and Access Track Restoration</u> - The attainment of 0, +1 or +2 GAS criteria for (refer Appendix 4): - "minimise visual impact of abandoned well sites" - "minimise visual impact of abandoned access tracks" - "re-establish natural vegetation on abandoned well sites and access tracks"	▪ The Rossco-1 borrow pits, well site and the access track will be rehabilitated (if the production testing does not indicate commercially producible quantities of hydrocarbons) and restored in accordance with the guidelines set down in PIRSA's Field Guide to attain the highest feasible GAS rating.

Objective 12 : ***(Continued)*** ***(Remediate and rehabilitate operational areas to agreed standards)***			Borrow Pit Restoration ▪ The attainment of 0, +1 or +2 GAS criteria (refer Appendix 5) for : "minimise impact on vegetation", "minimise impact on soil", "Minimise visual impacts" Note: Well abandonment issues addressed under objective 6.	The access trrack to the well site will not be rehabilitated, as requested by the landowner.

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

WELL NAME: UDACHA-1				
OBJECTIVE	**COMMENT**	**GUIDE TO HOW OBJECTIVES CAN BE ACHIVED**	**ASSESSMENT CRITERIA**	**PERFORMANCE IN ACHIEVING OBJECTIVE**
Objective 1: ***Minimise the risk to public and other third parties.***	The criteria for assessing the achievement of this objective have been developed on the basis of the current understanding of the risks associated with drilling and well operations. The key to achieving this objective in relation to both downhole abandonment and surface well site restoration 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.	▪ All employees and contractor personnel complete a safety induction prior to commencement of work in the field. ▪ All employees and contractor personnel undertake a refresher induction every 2 years. ▪ Signage in place to warn third parties of access restrictions to operational areas, with particular warnings when potentially dangerous operations are being undertaken. ▪ Permit to work systems in place for staff and contractors in dangerous situations.	▪ Reasonable measures implemented to ensure no injuries to the public or third parties.	The design and operation of the Udacha-1 well was undertaken in accordance with Beach safety policies, standards and guidelines. All employees undertook a safety induction prior to commencing work in the field and will undertake a refresher course if/when required. Udacha-1 well was cased and suspended. The 4 - kilometre access track to the well site commenced from an existing station track on Mungeranie station, which is not open for public use. The drilling operations were not visible from the track. Signage was erected along the access track to advise that only authorised personnel were permitted on to the well site. Beach Permit to Work system was in operation during the drilling operations to control potentially dangerous situations.

Objective 1: ***(Continued)*** ***Minimise the risk to public and other third parties.***	The backfilling of the well cellar and the removal of rubbish from the restored well site should be carried out Fires or explosions at well sites	▪ Reporting systems for recording injuries and accidents in place, and annual; (at minimum) review of records to determine injury trends. Implementation of appropriate corrective actions.		Accident / incident reporting systems were in place as defined in the Beach Drilling Operation Manual. Records are reviewed regularly to assess trends.

.	could result in complications resulting in a spill of production fluids (formation water and hydrocarbon), atmospheric emissions, disturbance of native vegetation and wildlife habitat, loss of reservoir pressure, and risk to employees, contractors and the public.	▪ Ensuring safety management plans are updated and reviewed. ▪ All appropriate PPE (personnel protective equipment) is issued and available as required in accordance with company operating requirements and applicable standards.		Beach safety management plans are updated and reviewed on a regular basis. Appropriate PPE was issued to all personnel involved in the drilling operations.

Objective 1: ***(Continued)*** ***Minimise the risk to public and other third parties.***	The movement of heavy equipment associated with rig moves present a risk to the safety of employees, contractors and third parties (ie tourists).	▪ Effective Emergency Response Plan (ERP) and procedures are in place in the event of a fire or explosion. ▪ Annual exercise of ERP. ▪ Communication of rig moves and other potential hazards to safety associated with drilling and well operations to potentially affected parties prior to commencement of operations.		An Emergency Response Plan (ERP) was prepared for the drilling operations at Udacha-1, and all personnel involved in the operations were aware of the Emergency Response Plan. However, no situation arose that required the implementation of the Plan. Beach undertakes regular ERP exercises at selected drilling operations. Beach maintained regular contact with landholders and associated stakeholders during the drilling operations at the Udacha-1 site.

Objective 2 :				

Minimise disturbance and avoid contamination to soil.	The impacts associated with soil disturbance can potentially include wind and water erosion and dust generation. The main source of disturbance to soils is associated with lease and access track construction, creation of borrows pits, restoration activity, vehicle movement in off-road locations and sub-surface excavations (i.e. sumps, flare pits and borrow pits).	<u>Well Site and Access Track Construction</u> ▪ Consider alternate routes during planning phase to minimise environmental impacts ▪ Gibber mantle on access tracks and well sites (excluding sumps) has not been removed, only rolled, during construction and restoration on gibber and tableland land systems. ▪ Topsoil stockpiled (including gibber mantle) from sump construction and respread on abandonment. ▪ The need to traverse sensitive land systems and the methods of managing the impacts should be justified in accordance with company procedures, recorded and available for auditing. <u>Production Testing / Well Blowdowns</u> ▪ If appropriate use: - impermeable flare pit - flare tanks.	<u>Well Site and Access Track Construction</u> ▪ 0, +1 or +2 GAS criteria are attained for "Minimise visual impacts of abandoned well sites and access tracks" objective as listed in Appendix 4 for well lease and access track construction. ▪ No unauthorised off-road driving or creation of shortcuts. ▪ No construction activities are carried out on salt lakes, steep tableland land systems or wetlands land systems (as defined in EIR). <u>Production Testing / Well Blowdowns</u> ▪ No soil contamination as a result of production testing or well blowdown operations.	• Site construction was in accordance with the guidelines outlined in Guidelines for Lease Construction and Restoration. • There were no gibber pavements along the access track or at the Udacha-1 well site. • Topsoil was stockpiled for subsequent respreading when restoration activities are conducted. • Vehicle movements were strictly limited to the defined access track and well pad area – areas which had been given cultural heritage clearance for the drilling operations. • The Udacha-1 well has been cased and suspended prior to production testing. If this production testing does not prove commercial producible hydrocarbons then the appropriate P/A program will be implemented.
<u>Objective 2 :</u> ***(Continued)***			<u>Borrow pit construction and restoration</u> ▪ 0, +1 or +2 GAS criteria	• Borrow pits will be rehabilitated and restored in accordance with the guidelines set down in

(Minimise disturbance and avoid contamination to soil)			are attained for "Minimise Visual Impacts for constructing borrow pits" objective as listed in Appendix 3, and "Minimise visual impacts" and "Minimise impact on soil" objectives as listed in Appendix 5. <u>Production Testing / Well Blowdowns</u> ▪ No soil contamination as a result of production testing or well blowdown operations.	PIRSA's Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, South Australia, to attain the highest feasible GAS rating. • No Production testing was undertaken at Udacha-1. • All fuel, oil and chemicals were stored in accordance with relevant standards. • Refuelling was undertaken as per Drilling Contractors' procedures. • There were no spills during the drilling operations that required reporting or corrective action to be taken in accordance with the Beach Incident Reporting system.
		<u>Fuel and Chemical Storage and Handling</u> ▪ All fuel, oil and chemical storages bunded in accordance with the appropriate standards ▪ Records of spill events and corrective actions maintained in accordance with company procedures. ▪ Spills or leaks are immediately reported and clean up actions initiated.	<u>Fuel and Chemical Storage and Handling</u> ▪ No spills/leaks outside of areas designed to contain them. ▪ Level of hydrocarbon continually decreasing for in situ remediation of spills. ▪ Soils remediated to a level as determined by the SHI process.	▪ There were no spills during the drilling operations outside of areas designed to contain them.
<u>Objective 2 :</u>		▪ Logged incidents are reviewed		

(Continued) ***(Minimise disturbance and avoid contamination to soil.)***		annually to determine areas that may require corrective action in order to reduce spill volumes in subsequent years (and drive continual improvement). ▪ Chemical and fuel storage procedures, including signage, are reviewed and monitored in audit process. <u>Spill Response / Contingency Planning</u> ▪ 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. ▪ Oil spill contingency plan (reviewed annually) is up to date with specific scenarios relating to spills to creeks and floodplain areas. ▪ Spill response equipment is audited annually. ▪ Annual spill response training exercise is undertaken. <u>Waste Disposal (domestic, sewage and sludges)</u> ▪ Covered bins are provided for the collection and storage of wastes. ▪ All loads of rubbish are covered during transport to the central waste facility. ▪ Pits are not established in locations, which pose an unacceptable hazard to stock or wildlife.	▪ All domestic wastes are disposed of in accordance with EPA licensing requirements. ▪ 0, +1 or +2 GAS criteria for 'Waste material' objective is attained. ▪ No spills or leaks from sewage treatment process and sludge pits.	Beach's Oil Spill Contingency Plan is included in the Emergency Response Plan. • Wastes were managed as described in the Cooper Basin Drilling & Well Operations EIR. • Wastes were collected, stored and transported in covered bins / containers. • All rubbish was disposed of at a licensed waste facility.

Objective 3 : ***Avoid introduction or spread of pest plants and animals and implement control measures as necessary.***	Activity associated with lease and access track construction, such as movement of vehicles and equipment, is a potential source of weed or disease introduction and spread. The most effective technique to prevent the introduction and spreading of weed species is to ensure that vehicles and equipment are appropriately cleaned prior to entry into a construction site.	▪ Where appropriate a weed and feral animal management strategy is in place (avoidance and control strategies). ▪ Rig and vehicle wash downs are initiated in accordance with the management strategy.	▪ No weeds or feral animals are introduced to operational areas.	• Drilling rig, associated equipment and vehicles have already been working in the Cooper Basin prior to commencing the drilling operations at Udacha-1.

Objective 4 : ***Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources.***	The main threats to drainage patterns and surface waters, and shallow ground waters are considered to be interruption of natural flows as a result of earthworks and contamination. Access track and well site selection should aim to minimise impact to drainage systems, by avoiding sensitive areas and appropriate construction methods to avoid windrows.	Drilling Mud Sumps and Flare Pits ▪ All drill cuttings, muds and non toxic drill fluids are contained within the designated mud sumps with adequate freeboard at the completion of operations to allow for a 1m cover of clean fill at remediation.	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). Drilling Mud Sumps and Flare Pits ▪ No overflow of drill cuttings, muds and other drilling fluids from mud sumps. ▪ No waste material disposal to sumps and flare pits.	• The Udacha-1 well site was not located in an area where flooding from local watercourses is likely to occur. • The drill pad and access track were constructed and situated to ensure that, in the event of local inundation, the flood waters would not be diverted from their natural flow direction. • 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 1m cover of clean fill at remediation.
Objective 4 : ***(Continued)*** ***(Minimise disturbance to drainage patterns and avoid contamination of surface***	There is potential for the contamination of chemical and fuel storage areas, from oil and gas systems at well heads, during transportation of fuel and chemicals and during transportation of wastes. Localised contamination may result from spills or leaks of well operations chemicals (eg. corrosion inhibitors) during	Well Heads (Oil and Gas Systems) ▪ Where appropriate, imperviously lined well cellars are installed on oil wells. ▪ Chemical containment devices are installed on gas well skids. ▪ Well heads shut in and chemicals removed prior to flood events. ▪ Jet pumps are installed within containment device with an adequately sized containment sump.	Well Heads (Oil and Gas Systems) ▪ No leaks/spills outside of areas designed to contain them.	• Udacha-1 well was cased and suspended. There was no requirement for a well head.

waters and shallow ground water resources)	storage and handling.			
		Well Blowdown / Production Testing ▪ Activity is conducted in accordance with accepted industry standards / good oilfield practice. ▪ If appropriate use: - impermeable flare pit - flare tanks - separators - supervision	Well Blowdown/Production Testing ▪ No water (surface or groundwater) contamination as a result of production testing or well blowdown operations.	• No Production testing was undertaken at Udacha-1.

Objective 4 : ***(Continued)*** ***(Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources)***		Fuel and Chemical Storage and Handling ▪ All fuel, oil and chemical storages bunded in accordance with the appropriate standards ▪ Records of spill events and corrective actions maintained in accordance with company procedures. ▪ Spills or leaks are immediately reported and clean up actions initiated. ▪ Logged incidents are reviewed annually to determine areas that may require corrective action in order to reduce spill volumes in subsequent years (and drive continual improvement). ▪ Chemical and fuel storage procedures, including signage, are reviewed and monitored in audit process.	Fuel/Chemical Storage and Handling ▪ No leaks/spills outside of areas designed to contain them.	• Specific oil spill containment / cleanup materials were on site at all times. • All fuel, oil and chemicals were in accordance with relevant standards ▪ Refuelling was undertaken as per Drilling Contractors' procedures. ▪ There were no spills during the drilling operations outside of areas designed to contain them.

Objective 4 : ***(Continued)*** ***(Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources)***	The major threat of spills is the threat to soil, vegetation and watercourses directly impacted by the spill. Therefore, the achievement of this objective also consequently contributes to the achievement of Objectives 2 and 7 in relation to minimising the impacts on soil and natural habitats. 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.	<u>Spill Response / Contingency Planning</u> ▪ 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. ▪ Oil spill contingency plan (reviewed annually) is up to date with specific scenarios relating to spills to creeks and floodplain areas. ▪ Spill response equipment is audited annually. ▪ Annual spill response training exercise is undertaken.		• Beach's Oil Spill Contingency Plan is included in the Emergency Response Plan.

Objective 5 : ***Avoid disturbance to sites of cultural and heritage significance***.	The aim of the objective is to ensure that any sites of cultural (Aboriginal or non-Aboriginal) heritage significance are identified and protected.	Consultation with stakeholders (i.e. government agencies, landholders etc) in relation to the possible existence of heritage sites, as necessary. Heritage report forms completed for any sites or artefacts identified, and report forms forward to the Department of State Aboriginal Affairs (DOSAA). ▪ Survey records are kept and are available for auditing. ▪ Areas requiring remediation which lie outside previously surveyed sites should be surveyed in accordance with company heritage clearance procedures.	▪ Proposed well sites and access tracks have been surveyed and any sites of Aboriginal and non-Aboriginal heritage identified. ▪ Any identified cultural and heritage sites have been avoided. <u>*Note:*</u> Where a negotiated agreement or determination for heritage clearance is in place, compliance with the negotiated agreement or determination takes precedence over the above criteria.	Beach have an agreement with the Dieri Aboriginal Corporation Native Title Claimant group which specifies the requirements for scouting areas proposed for well sites and access tracks to identify and avoid areas of heritage value and archaeological significance. A site visit was carried out with representatives from the Native Title Claimant group. Proposed drilling locations and access routes were agreed and given heritage clearance. Areas of significance were recorded and marked as exclusion zones.

Objective 6 : ***Minimise loss of aquifer pressures and avoid aquifer contamination***.	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. To address this objective, the risks of cross flow between aquifer cells known to be	<u>Drilling & Completion Activities:</u> ▪ A competent cement bond between aquifer and hydrocarbon reservoirs is demonstrated. For cases where isolation of these formations is not established, a risk assessment incorporating the use of pressure / permeability / salinity data is undertaken in consultation with DLWBC & AAWCMB to determine if	<u>Drilling & Completion Activities:</u> ▪ There is no uncontrolled flow to surface (Blow out). ▪ Sufficient barriers exist in casing annulus to prevent crossflow between separate aquifers or hydrocarbon reservoirs.	

	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 minimize the fresh water aquifer cells from contamination and isolate potential and producing formations from formations that may deplete the reservoir pressure when not on production. The following geological formations are aquifers in the Cooper-Eromanga Basins. They may contain permeable sands which may be in natural hydraulic isolation from each other (from shallowest to deepest), and in general isolation will be maintained between these groups:	lack of cement or poor bond will cause or has caused damaging crossflow which needs to be remediated. <u>Producing, Injection and, Inactive Wells</u> ▪ Monitoring programs implemented (eg. Through well logs, pressure measurements, casing integrity measurements and corrosion monitoring programs) to assess condition of casing and cross-flow behind casing. ▪ Casing annulus pressures are monitored every 2 years. ▪ The condition of the primary casing barrier is adequate. ▪ For cases where crossflow is detected, a risk assessment incorporating the use of pressure / permeability / salinity data is undertaken in consultation with DLWBC & AAWCMB to determine if lack of cement or poor bond will cause or has caused damaging crossflow which needs to be remediated.	▪ Relevant government approval obtained for abandonment of any radioactive tool left downhole. <u>Producing, Injection, Inactive and Abandoned Wells</u> ▪ No cross-flow behind casing between aquifers, and between aquifers and hydrocarbon reservoirs unless approved by DWLBC.	
<u>Objective 6 :</u> ***(Continued)*** ***(Minimise loss of aquifer pressures and avoid aquifer contamination)***.	• Eyre, Winton & Mackunda; • Coorikiana & Cadna-owie; • Murta (incl. McKinlay Mbr) • Namur, Adori & Birkhead; • Hutton, Poolowanna; • Cuddapan; Nappamerri Group formations, Walkandi and Peera Peera formations • Toolachee; Daralingie; • Epsilon, Patchawarra or Mt Toodna or Purni;	<u>Well Abandonment Activities:</u> ▪ Isolation barriers are set in place to ensure that cross-flow, contamination or pressure reduction will not occur ▪ Barriers will be set to meet or exceed the requirements of applicable standards for the decommissioning and abandonment of water bores and abandonment of petroleum wells. ▪ The placement of isolation barriers		

	• Tirrawarra sandstone or Stuart Range; Merrimelia; Boorthanna; Crown Point formations and Basement reservoirs. **Note**: Crossflow (if it occurs), should not compromise the long term sustainability of a particular resource.	will in general be to isolate the groups of formations as listed under comments. The number and placement of barriers may be varied from this standard approach on a case-by-case basis by SACB Operator personnel using relevant available data and the SA Cooper Basin Water Pressure and Salinity Module Report (2002), and in consultation with DWLBC.		

Objective 7 : ***Minimise disturbance to native vegetation and native fauna***.	Primary risks to native fauna include clearing of habitat and obstruction of movement through cleared areas, the presence of borrow pits, fuel and chemical storage and management, and waste management activities.	Well Lease and Access Track Construction and Restoration ▪ Proposed well sites, camp sites, access tracks and borrow pit sites have been assessed for rare, vulnerable and endangered flora and fauna species before the commencement of construction. ▪ Consider alternate routes during planning phase to minimise environmental impacts ▪ Facilities (e.g. borrow pits, well cellars) are designed and constructed as far as practicable to minimise fauna entrapment. ▪ Sumps and mud pits are fenced as appropriate to minimise wildlife access ▪ Assessment records are kept and are available for auditing. ▪ In recognised conservation reserves (i.e. Innamincka Regional Reserve)	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 2, 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 4.	The Udacha-1 well was not located in or near areas of high biological or wilderness values and hence the drilling operation presented no long term impact to any such area. National Parks and Wildlife flora/fauna databases contain no records of vulnerable or endangered species within 30km of the site. Access track construction required minimal clearance of vegetation and wasaligned to avoid clearing trees. The site contained sparse vegetation, and clearance was minimised. Trees that were present on the site and adjacent to the site were not cleared.

		excavations are left in a state as agreed with the responsible statutory body ▪ Borrow pits are restored to minimise water holding capacity, where agreements are not in place with stakeholders.	<u>Borrow Pits Construction and Restoration</u> ▪ 0, +1 or +2 GAS criteria are attained for "Minimise impacts on vegetation" objective as listed in Appendix 4 during borrow pit site selection and construction, and "Minimise Impact on Vegetation" objective in Appendix 5 for borrow pit restoration.	Facilities were designed and constructed to minimise fauna entrapment. • Borrow pits will be rehabilitated and restored in accordance with the guidelines set down in PIRSA's Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, South Australia, to attain the highest feasible GAS rating.
<u>Objective 7 :</u> ***(Continued)*** ***(Minimise disturbance to native vegetation and native fauna)***		<u>Waste Management</u> ▪ Covered bins are provided for the collection and storage of wastes. ▪ All loads of rubbish are covered during transport to the central waste facility. ▪ Pits are not established in locations, which pose an unacceptable hazard to stock or wildlife.	<u>Waste Management</u> ▪ Refer to assessment criteria for Objective 11. <u>Fuel and Chemical Storage and Management</u> Refer to assessment criteria for Objectives 2 and 4.	▪ Beach's Drilling Operations Manual sets out the company's policy in relation to storage, use and disposal of hazardous material. ▪ At the Udacha-1 well site wastes were managed as described in the Drilling & Well Operations EIR. ▪ Wastes were collected, stored and transported in covered bins / containers ▪ All rubbish was disposed of at a licensed waste facility.

Objective 8 : ***Minimise air pollution and greenhouse gas emissions.***	Atmospheric emissions occur as a result of standard practices undertaken during drilling and well operations. Emission**s** of particular environmental significance are: ▪ combustion by-products (eg. oxides of nitrogen, carbon monoxide and sulphur dioxide); ▪ organic carbon and carbon particulates (black smoke); and ▪ flared/vented hydrocarbons (gases).	Well Testing ▪ Conduct well testing in accordance with appropriate industry accepted standards. ▪ Continually review and improve operations. ▪ Appropriate emergency response procedures are in place for the case of a gas leak. Well Blowdown ▪ Blowdown carried out in accordance with industry accepted standards / good production practice. ▪ Any well that is consistently blown down is identified for a small ID tubing or plunger lift installation to minimise blow downs on that well.	▪ Compliance with EPA requirements.	Two Drill Stem Tests were run during drilling operations at the Udacha-1 well. Flaring of gas was kept to a practical minimum.

Objective 9: ***(Maintain and enhance partnerships with the Cooper Basin community)***	The importance of liaison with and contribution to the local community is recognised by the South Australian Cooper Basin Operators. Notification, consultation, contribution to community activities, projects and events and membership of relevant organisations are considered to be key strategies for ensuring partnerships with the local community are enhanced.	▪ Relevant affected parties are notified and consulted on proposed activities. ▪ Forward development plans are presented to the local community. ▪ Local community projects and events are sponsored and supported where appropriate. ▪ Industry membership of appropriate regional land management committees and boards i.e. the Lake Eyre Basin Consultative Council, Marree Soil Conservation Board, and Catchment Committees.	▪ No unresolved reasonable complaints from the community.	▪ Beach maintained regular contact with landholders and associated stakeholders prior to and while undertaking drilling operations at the Udacha-1 site. • Beach sponsors local community social events including the Innamincka Races. • Beach also provides major sponsorship to the Royal Flying Doctor Service.

Objective 10 : ***Avoid or minimise disturbance to stakeholders and/or associated infrastructure***	Communication and the establishment of good relations with stakeholders and community is fundamental to minimising disturbance to as low as practicably possible. Many pastoral properties are certified under the Organic Beef or CattleCare accreditation schemes and therefore may be affected by fuel and chemical storage, moving machinery and contaminated sites.	▪ Induction for all employees and contractors covers pastoral, conservation, legislation and infrastructure issues. ▪ Relevant stakeholders are notified prior to survey and construction of well sites, camp sites and access tracks and undertaking of operations (pursuant to Petroleum Regulations). Borrow pits left open (unrestored) if requested by landholder and upon receipt of letter of transfer of responsibility to landholder. ▪ Gates or cattle grids are installed to a standard, consistent with pastoral infrastructure in fences where crossings are required for access. ▪ All gates left in the condition in which they were found (ie. open/closed). ▪ Potential sources of contamination are fenced as appropriate to prevent stock access.	▪ No reasonable stakeholder complaints left unresolved.	▪ Beach maintained regular contact with landholders and associated stakeholders prior to and while undertaking drilling operations at the Udacha-1 site. ▪ The access track and well were located away from tourist routes. ▪ The landowner has requested that no rehabilitation be undertaken on the access track. ▪ The Udacha-1 well site was not located near a cattle watering point and cattle were not present in significant numbers. Major de-stocking has occurred in this region due to prolonged drought conditions.
Objective 10 : (Continued) ***(Avoid or minimise disturbance to stakeholders***		▪ System is in place for logging landholder complaints to ensure that issues are addressed as appropriate. ▪ Requirements of the Cattle Care and Organic Beef accreditation programs		▪ When the initial lease restoration was conducted, suitable fencing was erected to isolate any pits or plant installed in site.

and/or associated infrastructure.)		are complied with. ▪ In recognised conservation reserves (i.e. Innamincka Regional Reserve) excavations are left in a state as agreed with the responsible statutory body.		

Objective 11 : ***Optimise waste reduction and recovery.***	Waste reduction requires continual improvements in purchasing, efficiency of use and reuse. Due to the distances involved the costs of recycling a large range of products is not possible however continual review of recycling options is required to ensure that any opportunities are taken advantage of.	▪ Bulk chemical and oil purchasing and use of "bulki bins" or other storage tanks in place for large volume items.	▪ 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. ▪ Attainment of GAS criteria for "Site left in clean, tidy and safe condition after final clean-up" objective during well site restoration (refer Appendix 4). ▪ Attainment of GAS criteria for "Site left in clean, tidy and safe condition" objective during borrow pit restoration (refer Appendix 5).	▪ Waste was removed from the Udacha-1 well site in accordance with Beach's policy set out in the company's Drilling Operations Manual. Non-putrescible waste material (including hazardous material) was stored safely on site for later removal to an EPA approved disposal facility.

Objective 12 : ***Remediate and rehabilitate operational areas to agreed standards.***		Rehabilitation / abandonment plans for surface activities will be developed in consultation with relevant stakeholders <u>Well Site and Access Track Restoration</u> ▪ Compacted soil areas have been ripped (except on gibber and	▪ No unresolved reasonable stakeholder complaints. <u>Contaminated Site Remediation</u> ▪ Contaminated sites are remediated in accordance with criteria developed with the principles of the National Environment Protection	Udacha-1 well site will be restored as per the standards and procedures detailed in the Cooper Basin SEO for Drilling and Well Operations (2003) and internal guidelines. Restoration of the well site will proceed when the sump pits have dried and

		tablelands) and soil profile and contours are reinstated following completion of operations.	Measure for Contaminated sites and in consultation with the EPA. <u>Well Site and Access Track Restoration</u> ▪ The attainment of 0, +1 or +2 GAS criteria for (refer Appendix 4): - "minimise visual impact of abandoned well sites" - "minimise visual impact of abandoned access tracks" - "re-establish natural vegetation on abandoned well sites and access tracks"	earthmoving machinery is available in the vicinity. Contaminated sites were remediated in accordance with Beach Guidelines and Industry Standards. The Udacha-1 borrow pits and well site will be rehabilitated and restored in accordance with the guidelines set down in PIRSA's Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, South Australia, to attain the highest feasible GAS rating.

<u>Objective 12 :</u> ***(Continued)*** ***Remediate and rehabilitate operational areas to agreed standards.***			<u>Borrow Pit Restoration</u> ▪ The attainment of 0, +1 or +2 GAS criteria (refer Appendix 5) for: "minimise impact on vegetation", "minimise impact on soil", "minimise visual impacts" ▪ *<u>Note:</u>* Well abandonment issues addressed under objective 6.	▪ The access track to the well site will not be rehabilitated, as requested by the landowner.

ASSESSMENT OF BEACH PETROLEUM'S PERFORMANCE IN ACHIEVING THE ENVIRONMENTAL OBJECTIVES DEFINED IN THE COOPER BASIN DRILLING SEO WELL NAME: MIDDLETON-1				
OBJECTIVE	**COMMENT**	**GUIDE TO HOW OBJECTIVES CAN BE ACHIEVED**	**ASSESSMENT CRITERIA**	**PERFORMANCE IN ACHIEVING OBJECTIVE**
Objective 1: ***Minimise the risk to public and other third parties.***	The criteria for assessing the achievement of this objective have been developed on the basis of the current understanding of the risks associated with drilling and well operations.	▪ All employees and contractor personnel complete a safety induction prior to commencement of work in the field. ▪ All employees and contractor personnel undertake a refresher	▪ Reasonable measures implemented to ensure no injuries to the public or third parties.	The design and operation of the Middleton-1 well was undertaken in accordance with Beach safety policies, standards and guidelines. All employees undertook a safety induction prior to

		induction every 2 years. ▪ Signage in place to warn third parties of access restrictions to operational areas, with particular warnings when potentially dangerous operations are being undertaken. ▪ Permit to work systems in place for staff and contractors in dangerous situations.		commencing work in the field and will undertake a refresher course if/when required. Middleton-1 well was cased and suspended as a potential gas producer. The 14 - kilometre access track to the well site commenced from an existing station track on Mungeranie station, which is not open for public use. The drilling operations were not visible from the track. Signage was erected along the access track to advise that only authorised personnel were permitted on to the well site. Beach Permit to Work system was in operation during the drilling operations to control potentially dangerous situations.
Objective 1: ***(Continued)*** ***(Minimise the risk to public and other third parties)*** .	The backfilling of the well cellar and the removal of rubbish from the restored well site should be carried out Fires or explosions at well sites could result in complications resulting in a spill of production fluids (formation water and hydrocarbon), atmospheric emissions, disturbance of native vegetation and wildlife habitat, loss of reservoir pressure, and risk to employees, contractors and	▪ Reporting systems for recording injuries and accidents in place, and annual; (at minimum) review of records to determine injury trends. Implementation of appropriate corrective actions. ▪ Ensuring safety management plans are updated and reviewed. ▪ All appropriate PPE (personnel protective equipment) is issued and available as required in accordance with company		Accident / incident reporting systems were in place as defined in the Beach Drilling Operation Manual. Records are reviewed regularly to assess trends. Beach safety management plans are updated and reviewed on a regular basis. Appropriate PPE was issued to all personnel involved in the drilling operations.

	the public.	operating requirements and applicable standards.		

Objective 1: ***(Continued)*** ***(Minimise the risk to public and other third parties)***	The movement of heavy equipment associated with rig moves present a risk to the safety of employees, contractors and third parties (ie tourists).	▪ Effective Emergency Response Plan (ERP) and procedures are in place in the event of a fire or explosion. ▪ Annual exercise of ERP. ▪ Communication of rig moves and other potential hazards to safety associated with drilling and well operations to potentially affected parties prior to commencement of operations.		An Emergency Response Plan (ERP) was prepared for the drilling operations at Middleton-1, and all personnel involved in the operations were aware of the Emergency Response Plan. However, no situation arose that required the implementation of the Plan. Beach undertakes regular ERP exercises at selected drilling operations. Beach maintained regular contact with landholders and associated stakeholders during the drilling operations at the Middleton-1 site.

Objective 2 : ***Minimise disturbance and avoid contamination to soil.***	The impacts associated with soil disturbance can potentially include wind and water erosion and dust generation. The main source of disturbance to soils is associated with lease and access track construction, creation of borrows pits,	<u>Well Site and Access Track Construction</u> ▪ Consider alternate routes during planning phase to minimise environmental impacts ▪ Gibber mantle on access tracks and well sites (excluding sumps) has not	<u>Well Site and Access Track Construction</u> ▪ 0, +1 or +2 GAS criteria are attained for "Minimise visual impacts of abandoned well sites and access tracks" objective as listed in	• Site construction was in accordance with the guidelines outlined in Guidelines for Lease Construction and Restoration. • There were no gibber

	restoration activity, vehicle movement in off-road locations and sub-surface excavations (i.e. sumps, flare pits and borrow pits).	been removed, only rolled, during construction and restoration on gibber and tableland land systems. ▪ Topsoil stockpiled (including gibber mantle) from sump construction and respread on abandonment. ▪ The need to traverse sensitive land systems and the methods of managing the impacts should be justified in accordance with company procedures, recorded and available for auditing. <u>Production Testing / Well Blowdowns</u> ▪ If appropriate use: - impermeable flare pit - flare tanks.	Appendix 4 for well lease and access track construction. ▪ No unauthorised off-road driving or creation of shortcuts. ▪ No construction activities are carried out on salt lakes, steep tableland land systems or wetlands land systems (as defined in EIR).	pavements along the access track or at the Middleton-1 well site. • Topsoil was stockpiled for subsequent respreading when restoration activities are conducted. • Vehicle movements were strictly limited to the defined access track and well pad area – areas which had been given cultural heritage clearance for the drilling operations. • The Middleton-1 wellsite will not be rehabilitated until production from the well becomes uneconomic. • At that time it will be restored in accordance with the guidelines set down in PIRSA's Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, South Australia to attain the highest feasible GAS rating.
<u>Objective 2:</u> ***(Continued)*** ***(Minimise disturbance and avoid contamination to***			<u>Borrow pit construction and restoration</u> ▪ 0, +1 or +2 GAS criteria are attained for "Minimise Visual Impacts for constructing borrow pits" objective as listed in Appendix 3, and "Minimise visual impacts" and "Minimise	• Borrow pits will be rehabilitated and restored in accordance with the guidelines set down in PIRSA's Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, South Australia, to attain the highest feasible

soil.)			impact on soil" objectives as listed in Appendix 5. <u>Production Testing / Well Blowdowns</u> ▪ No soil contamination as a result of production testing or well blowdown operations.	GAS rating. • Production testing undertaken at Middleton-1 was for gas flows, which has minimal chance of soil contamination. • All fuel, oil and chemicals were stored in accordance with relevant standards. • Refuelling was undertaken as per Drilling Contractors' procedures. • There were no spills during the drilling operations that required reporting or corrective action to be taken in accordance with the Beach Incident Reporting system.
<u>Objective 2:</u> ***(Continued)*** ***(Minimise disturbance and avoid contamination to soil.)***		<u>Fuel and Chemical Storage and Handling</u> ▪ All fuel, oil and chemical storages bunded in accordance with the appropriate standards ▪ Records of spill events and corrective actions maintained in accordance with company procedures. ▪ Spills or leaks are immediately reported and clean up actions initiated. ▪ Logged incidents are reviewed annually to determine areas that may require corrective action in	<u>Fuel and Chemical Storage and Handling</u> ▪ No spills/leaks outside of areas designed to contain them. ▪ Level of hydrocarbon continually decreasing for in situ remediation of spills. ▪ Soils remediated to a level as determined by the SHI process.	▪ There were no spills during the drilling operations outside of areas designed to contain them.

		order to reduce spill volumes in subsequent years (and drive continual improvement). ▪ Chemical and fuel storage procedures, including signage, are reviewed and monitored in audit process. <u>Spill Response / Contingency Planning</u> ▪ 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. ▪ Oil spill contingency plan (reviewed annually) is up to date with specific scenarios relating to spills to creeks and floodplain areas. ▪ Spill response equipment is audited annually. ▪ Annual spill response training exercise is undertaken.		• Beach's Oil Spill Contingency Plan is included in the Emergency Response Plan.
<u>Objective 2:</u> ***(Continued)*** ***(Minimise disturbance and avoid contamination to soil.)***		<u>Waste Disposal (domestic, sewage and sludges)</u> ▪ Covered bins are provided for the collection and storage of wastes. ▪ All loads of rubbish are covered during transport to the central waste facility. ▪ Pits are not established in locations, which pose an unacceptable hazard to stock or wildlife.	▪ All domestic wastes are disposed of in accordance with EPA licensing requirements. ▪ 0, +1 or +2 GAS criteria for 'Waste material' objective are attained. ▪ No spills or leaks from sewage treatment process and sludge pits	▪ Wastes were managed as described in the Cooper Basin Drilling & Well Operations EIR. ▪ Wastes were collected, stored and transported in covered bins / containers. ▪ All rubbish was disposed of at a licensed waste facility

Objective 3 : ***Avoid introduction or spread of pest plants and animals and implement control measures as necessary.***	Activity associated with lease and access track construction, such as movement of vehicles and equipment, is a potential source of weed or disease introduction and spread. The most effective technique to prevent the introduction and spreading of weed species is to ensure that vehicles and equipment are appropriately cleaned prior to entry into a construction site.	Pits are not established in locations, which pose an unacceptable hazard to stock or wildlife. ▪ Where appropriate a weed and feral animal management strategy is in place (avoidance and control strategies). ▪ Rig and vehicle wash downs are initiated in accordance with the management strategy.	▪ No weeds or feral animals are introduced to operational areas.	• Drilling rig and associated equipment and vehicles had already been working in the Cooper Basin prior to commencing the drilling operations at Middleton-1.

Objective 4 : ***Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources.***	The main threats to drainage patterns and surface waters, and shallow ground waters are considered to be interruption of natural flows as a result of earthworks and contamination. Access track and well site selection should aim to minimise impact to drainage systems, by avoiding sensitive areas and appropriate construction methods to avoid windrows.	Drilling Mud Sumps and Flare Pits ▪ All drill cuttings, muds and non toxic drill fluids are contained within the designated mud sumps with adequate freeboard at the completion of operations to allow for a 1m cover of clean fill at remediation.	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). Drilling Mud Sumps and Flare Pits ▪ No overflow of drill cuttings, muds and other drilling fluids from mud sumps. ▪ No waste material disposal to sumps and flare pits.	• The Middleton-1 well site was not located in an area where flooding from local watercourses is likely to occur. • The drill pad and access track were constructed and situated to ensure that, in the event of local inundation, the flood waters would not be diverted from their natural flow direction. • 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 1m cover of clean fill at remediation.
Objective 4 : ***(Continued)*** ***(Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground***	There is potential for the contamination of chemical and fuel storage areas, from oil and gas systems at well heads, during transportation of fuel and chemicals and during transportation of wastes. Localised contamination may result from spills or leaks of well operations chemicals (eg. corrosion inhibitors) during storage and handling.	Well Heads (Oil and Gas Systems) ▪ Where appropriate, imperviously lined well cellars are installed on oil wells. ▪ Chemical containment devices are installed on gas well skids. ▪ Well heads shut in and chemicals removed prior to flood events. ▪ Jet pumps are installed within containment device with an adequately sized containment sump.	Well Heads (Oil and Gas Systems) ▪ No leaks/spills outside of areas designed to contain them.	• Middleton-1 well was cased and suspended as a potential gas producer. There were no spills or leaks at the wellsite in areas that were unbunded.

water resources)				
		<u>Well Blowdown / Production Testing</u> ▪ Activity is conducted in accordance with accepted industry standards / good oilfield practice. ▪ If appropriate use: - impermeable flare pit - flare tanks - separators - supervision	<u>Well Blowdown/Production Testing</u> ▪ No water (surface or groundwater) contamination as a result of production testing or well blowdown operations.	• Testing was undertaken at Middleton-1 for commercial gas production. No contamination of surface water resulted from these tests.
<u>Objective 4:</u> ***(Continued)*** ***(Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources)***		<u>Fuel and Chemical Storage and Handling</u> ▪ All fuel, oil and chemical storages bunded in accordance with the appropriate standards ▪ Records of spill events and corrective actions maintained in accordance with company procedures. ▪ Spills or leaks are immediately reported and clean up actions initiated. ▪ Logged incidents are reviewed annually to determine areas that may require corrective action in order to reduce spill volumes in subsequent years (and drive continual improvement). ▪ Chemical and fuel storage procedures, including signage, are reviewed and monitored in audit process.	<u>Fuel/Chemical Storage and Handling</u> ▪ No leaks/spills outside of areas designed to contain them.	• Specific oil spill containment / cleanup materials were on site at all times. • All fuel, oil and chemicals were in accordance with relevant standards ▪ Refuelling was undertaken as per Drilling Contractors' procedures. ▪ There were no spills during the drilling operations outside of areas designed to contain them.
<u>Objective 4:</u>	The major threat of spills is the	<u>Spill Response / Contingency Planning</u> ▪ Results of emergency response		• Beach's Oil Spill

(Continued) ***(Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources)***	threat to soil, vegetation and watercourses directly impacted by the spill. Therefore, the achievement of this objective also consequently contributes to the achievement of Objectives 2 and 7 in relation to minimising the impacts on soil and natural habitats. 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.	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. ▪ Oil spill contingency plan (reviewed annually) is up to date with specific scenarios relating to spills to creeks and floodplain areas. ▪ Spill response equipment is audited annually. ▪ Annual spill response training exercise is undertaken.		Contingency Plan is included in the Emergency Response Plan.

Objective 5 : ***Avoid disturbance to sites of cultural and heritage significance***.	The aim of the objective is to ensure that any sites of cultural (Aboriginal or non-Aboriginal) heritage significance are identified and protected.	Consultation with stakeholders (i.e. government agencies, landholders etc) in relation to the possible existence of heritage sites, as necessary. Heritage report forms completed for any sites or artefacts identified, and report forms forward to the Department of State Aboriginal Affairs (DOSAA). ▪ Survey records are kept and are available for auditing. ▪ Areas requiring remediation which lie outside previously surveyed sites should be surveyed in accordance with company heritage clearance procedures.	▪ Proposed well sites and access tracks have been surveyed and any sites of Aboriginal and non-Aboriginal heritage identified. ▪ Any identified cultural and heritage sites have been avoided. <u>*Note:*</u> Where a negotiated agreement or determination for heritage clearance is in place, compliance with the negotiated agreement or determination takes precedence over the above criteria.	Beach have an agreement with the Dieri Aboriginal Corporation Native Title Claimant group which specifies the requirements for scouting areas proposed for well sites and access tracks to identify and avoid areas of heritage value and archaeological significance. A site visit was carried out with representatives from the Native Title Claimant group. Proposed drilling locations and access routes were agreed and given heritage clearance. Areas of significance were recorded and marked as exclusion zones.

Objective 6 : ***Minimise loss of aquifer pressures and avoid aquifer contamination***.	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. To address this objective, the risks of cross flow between aquifer cells known to be	<u>Drilling & Completion Activities:</u> ▪ A competent cement bond between aquifer and hydrocarbon reservoirs is demonstrated. For cases where isolation of these formations is not established, a risk assessment incorporating the use of pressure / permeability / salinity data is undertaken in consultation with DLWBC & AAWCMB to determine if	<u>Drilling &Completion Activities:</u> ▪ There is no uncontrolled flow to surface (Blow out). ▪ Sufficient barriers exist in casing annulus to prevent crossflow between separate aquifers or hydrocarbon reservoirs.	

	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 minimize the fresh water aquifer cells from contamination and isolate potential and producing formations from formations that may deplete the reservoir pressure when not on production. The following geological formations are aquifers in the Cooper-Eromanga Basins. They may contain permeable sands which may be in natural hydraulic isolation from each other (from shallowest to deepest), and in general isolation will be maintained between these groups:	lack of cement or poor bond will cause or has caused damaging crossflow which needs to be remediated. <u>Producing, Injection and, Inactive Wells</u> ▪ Monitoring programs implemented (eg. Through well logs, pressure measurements, casing integrity measurements and corrosion monitoring programs) to assess condition of casing and cross-flow behind casing. ▪ Casing annulus pressures are monitored every 2 years. ▪ The condition of the primary casing barrier is adequate. ▪ For cases where crossflow is detected, a risk assessment incorporating the use of pressure / permeability / salinity data is undertaken in consultation with DLWBC & AAWCMB to determine if lack of cement or poor bond will cause or has caused damaging crossflow which needs to be remediated.	▪ Relevant government approval obtained for abandonment of any radioactive tool left downhole. <u>Producing, Injection, Inactive and Abandoned Wells</u> ▪ No cross-flow behind casing between aquifers, and between aquifers and hydrocarbon reservoirs unless approved by DWLBC.	
<u>Objective 6 :</u> ***(Continued)*** ***(Minimise loss of aquifer pressures and avoid aquifer contamination)***	• Eyre, Winton & Muckunda; • Coorikiana & Cadna-owie; • Murta (incl. McKinlay Mbr) • Namur, Adori & Birkhead;, • Hutton, Poolowanna; • Cuddapan; Nappamerri Group formations, • Walkandi and Peera Peera formations • Toolachee; Daralingie; • Epsilon, Patchawarra or Mt Toodna or Purni;	<u>Well Abandonment Activities:</u> ▪ Isolation barriers are set in place to ensure that cross-flow, contamination or pressure reduction will not occur. ▪ Barriers will be set to meet or exceed the requirements of applicable standards for the decommissioning and abandonment of water bores and abandonment of petroleum wells.		

	• Tirrawarra sandstone or Stuart Range; Merrimelia; Boorthanna; Crown Point formations and Basement reservoirs. **Note**: Crossflow (if it occurs), should not compromise the long term sustainability of a particular resource.	▪ The placement of isolation barriers will in general be to isolate the groups of formations as listed under comments. The number and placement of barriers may be varied from this standard approach on a case-by-case basis by SACB Operator personnel using relevant available data and the SA Cooper Basin Water Pressure and Salinity Module Report (2002), and in consultation with DWLBC.		

Objective 7: ***Minimise disturbance to native vegetation and native fauna***	Primary risks to native fauna include clearing of habitat and obstruction of movement through cleared areas, the presence of borrow pits, fuel and chemical storage and management, and waste management activities.	Well Lease and Access Track Construction and Restoration ▪ Proposed well sites, camp sites, access tracks and borrow pit sites have been assessed for rare, vulnerable and endangered flora and fauna species before the commencement of construction. ▪ Consider alternate routes during planning phase to minimise environmental impacts ▪ Facilities (e.g. borrow pits, well cellars) are designed and constructed as far as practicable to minimise fauna entrapment. ▪ Sumps and mud pits are fenced as appropriate to minimise wildlife access ▪ Assessment records are kept and are available for auditing. ▪ In recognised conservation reserves (i.e. Innamincka Regional Reserve)	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 2, 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 4.	The Middleton-1 well was not located in or near areas of high biological or wilderness values and hence the drilling operation presented no long term impact to any such area. National Parks and Wildlife flora/fauna databases contain no records of vulnerable or endangered species within 30km of the site. Access track construction required minimal clearance of vegetation and was aligned to avoid clearing trees. The site contained sparse vegetation, and clearance was minimised. Trees that were present on the site and adjacent to the site were not cleared.

		excavations are left in a state as agreed with the responsible statutory body ▪ Borrow pits are restored to minimise water holding capacity, where agreements are not in place with stakeholders.	<u>Borrow Pits Construction and Restoration</u> ▪ 0, +1 or +2 GAS criteria are attained for "Minimise impacts on vegetation" objective as listed in Appendix 4 during borrow pit site selection and construction, and "Minimise Impact on Vegetation" objective in Appendix 5 for borrow pit restoration.	Facilities were designed and constructed to minimise fauna entrapment. • Borrow pits will be rehabilitated and restored in accordance with the guidelines set down in PIRSA's Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, South Australia, to attain the highest feasible GAS rating.
<u>Objective 7:</u> ***(Continued)*** ***(Minimise disturbance to native vegetation and native fauna)***		<u>Waste Management</u> ▪ Covered bins are provided for the collection and storage of wastes. ▪ All loads of rubbish are covered during transport to the central waste facility. ▪ Pits are not established in locations, which pose an unacceptable hazard to stock or wildlife.	<u>Waste Management</u> ▪ Refer to assessment criteria for Objective 11. <u>Fuel and Chemical Storage and Management</u> Refer to assessment criteria for Objectives 2 and 4.	• Beach's Drilling Operations Manual sets out the company's policy in relation to storage, use and disposal of hazardous material. • At the Middleton-1 well site wastes were managed as described in the Drilling & Well Operations EIR. • Wastes were collected, stored and transported in covered bins / containers. • All rubbish was disposed of at a licensed waste facility.

Objective 8 : ***Minimise air pollution and greenhouse gas emissions.***	Atmospheric emissions occur as a result of standard practices undertaken during drilling and well operations. Emissions of particular environmental significance are: ▪ combustion by-products (eg. oxides of nitrogen, carbon monoxide and sulphur dioxide); ▪ organic carbon and carbon particulates (black smoke); and ▪ flared/vented hydrocarbons (gases).	Well Testing ▪ Conduct well testing in accordance with appropriate industry accepted standards. ▪ Continually review and improve operations. ▪ Appropriate emergency response procedures are in place for the case of a gas leak. Well Blowdown ▪ Blowdown carried out in accordance with industry accepted standards / good production practice. ▪ Any well that is consistently blown down is identified for a small ID tubing or plunger lift installation to minimise blow downs on that well.	▪ Compliance with EPA requirements.	Two Drill Stem Tests were run during drilling operations at the Middleton-1 well. Flaring of gas was kept to a practical minimum.

Objective 9: ***Maintain and enhance partnerships with the Cooper Basin community***	The importance of liaison with and contribution to the local community is recognised by the South Australian Cooper Basin Operators. Notification, consultation, contribution to community activities, projects and events and membership of relevant organisations are considered to be key strategies for ensuring partnerships with the local community are enhanced.	▪ Relevant affected parties are notified and consulted on proposed activities. ▪ Forward development plans are presented to the local community. ▪ Local community projects and events are sponsored and supported where appropriate. ▪ Industry membership of appropriate regional land management committees and boards i.e. the Lake Eyre Basin Consultative Council, Marree Soil Conservation Board, and Catchment Committees.	▪ No unresolved reasonable complaints from the community.	▪ Beach maintained regular contact with landholders and associated stakeholders prior to and while undertaking drilling operations at the Middleton-1 site. • Beach sponsors local community social events including the Innamincka Races. • Beach also provides major sponsorship to the Royal Flying Doctor Service.
Objective 10 : ***Avoid or minimise disturbance to stakeholders and/or associated infrastructure***	Communication and the establishment of good relations with stakeholders and community is fundamental to minimising disturbance to as low as practicably possible. Many pastoral properties are certified under the Organic Beef or CattleCare accreditation schemes and therefore may be affected	Induction for all employees and contractors covers pastoral, conservation, legislation and infrastructure issues. Relevant stakeholders are notified prior to survey and construction of well sites, camp sites and access tracks and undertaking of operations (pursuant to Petroleum Regulations). Borrow pits left open (unrestored) if requested by landholder and upon receipt of letter of transfer of	▪ No reasonable stakeholder complaints left unresolved.	▪ Beach maintained regular contact with landholders and associated stakeholders prior to and while undertaking drilling operations at the Middleton-1 site. ▪ The access track and well were located away from tourist routes.

	by fuel and chemical storage, moving machinery and contaminated sites.	responsibility to landholder. ▪ Gates or cattle grids are installed to a standard, consistent with pastoral infrastructure in fences where crossings are required for access. ▪ All gates left in the condition in which they were found (ie. open/closed). ▪ Potential sources of contamination are fenced as appropriate to prevent stock access.		▪ The landowner has requested that no rehabilitation be undertaken on the access track. ▪ The Middleton-1 well site was not located near a cattle watering point and cattle were not present in significant numbers. ▪ Major de-stocking has occurred in this region due to prolonged drought conditions.
Objective 10 : ***(Continued)*** ***(Avoid or minimise disturbance to stakeholders and/or associated infrastructure.)***		▪ System is in place for logging landholder complaints to ensure that issues are addressed as appropriate. ▪ Requirements of the Cattle Care and Organic Beef accreditation programs are complied with. ▪ In recognised conservation reserves (i.e. Innamincka Regional Reserve) excavations are left in a state as agreed with the responsible statutory body.		▪ When the initial lease restoration was conducted at the conclusion of drilling operations, suitable fencing was erected to isolate any pits or plant installed on site.

Objective 11 : ***Optimise waste reduction and recovery.***	Waste reduction requires continual improvements in purchasing, efficiency of use and reuse. Due to the distances involved the costs of recycling a large range of products is not possible however continual review of recycling options is required to ensure that any opportunities are taken advantage of.	▪ Bulk chemical and oil purchasing and use of "bulki bins" or other storage tanks in place for large volume items.	▪ 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. ▪ Attainment of GAS criteria for "Site left in clean, tidy and safe condition after final clean-up" objective during well site restoration (refer Appendix 4). ▪ Attainment of GAS criteria for "Site left in clean, tidy and safe condition" objective during borrow pit restoration (refer Appendix 5).	▪ Waste was removed from the Middleton-1 well site in accordance with Beach's policy set out in the company's Drilling Operations Manual. Non-putrescible waste material (including hazardous material) was stored safely on site for later removal to an EPA approved disposal facility.

Objective 12 : ***Remediate and rehabilitate operational areas to agreed standards.***		Rehabilitation / abandonment plans for surface activities will be developed in consultation with relevant stakeholders <u>Well Site and Access Track Restoration</u> ▪ Compacted soil areas have been ripped (except on gibber and	▪ No unresolved reasonable stakeholder complaints. <u>Contaminated Site Remediation</u> ▪ Contaminated sites are remediated in accordance with criteria developed with the principles of the National Environment Protection	Middleton-1 well site will be restored as per the standards and procedures detailed in the Cooper Basin SEO for Drilling and Well Operations (2003) and internal guidelines. Restoration of the well site will proceed when the sump pits have dried and

		tablelands) and soil profile and contours are reinstated following completion of operations.	Measure for Contaminated sites and in consultation with the EPA. <u>Well Site and Access Track Restoration</u> ▪ The attainment of 0, +1 or +2 GAS criteria for (refer Appendix 4): - "minimise visual impact of abandoned well sites" - "minimise visual impact of abandoned access tracks" - "re-establish natural vegetation on abandoned well sites and access tracks"	earthmoving machinery is available in the vicinity. Contaminated sites were remediated in accordance with Beach Guidelines and Industry Standards. The Middleton-1 borrow pits and well site will be rehabilitated and restored in accordance with the guidelines set down in PIRSA's Field Guide for the Environmental Assessment of Abandoned Petroleum Wellsites in the Cooper Basin, South Australia, to attain the highest feasible GAS rating.
<u>Objective 12 :</u> ***(Continued)*** ***(Remediate and rehabilitate operational areas to agreed standards)***			<u>Borrow Pit Restoration</u> ▪ The attainment of 0, +1 or +2 GAS criteria (refer Appendix 5) for : "minimise impact on vegetation", "minimise impact on soil", "minimise visual impacts" ▪ *<u>Note:</u>* Well abandonment issues addressed under objective 6.	▪ The access track to the well site will not be rehabilitated, as requested by the landowner.

4. COMPLIANCE – SEISMIC OPERATIONS

NEW FIELD OPERATIONS

Seismic field operations for Permit Year Three of PEL 106 consisted of two seismic surveys, Karla 2D and Paranta 3D. The Karla 2D seismic survey was conducted by Great Artesian Oil and Gas during October 2005. The survey (a total of 136.46 km) consisted of twelve lines, GA05-01 to GA05-11 and GA05-13. The Paranta 3D seismic survey was conducted by Great Artesian Oil and Gas during October – November 2005. The survey comprised 82.5 km of 3D seismic data. This data was acquired over and adjacent to the Paranta-1 discovery well as well as Welcome Lake East and Nephrite Gas Fields.

Government approval for Great Artesian Oil and Gas to conduct the seismic surveys was conditional upon Great Artesian committing to the objectives defined in the "Statement of Environmental Objectives for Seismic Operations in the Cooper/Eromanga Basins – South Australia".

Great Artesian's strategies for achieving each of the SEO objectives for the Karla 2D and Paranta 3D Seismic Surveys are outlined below.

The SEO requires an Environmental Report to be submitted at the completion of each seismic survey. The Environmental Reports for the Karla 2D and Paranta 3D Seismic Surveys are included in this Annual Report as Appendices 1 and 2.

STATEMENTS OF ENVIRONMENTAL OBJECTIVES (SEO)

SEO Objective 1:	Ensure that the potential impacts of the proposed seismic operations on biological diversity and cultural requirements of the environments are assessed within a planning process and incorporated into field management procedures.

Goal 1.1: Identify important or sensitive environmental and cultural components

Great Artesian has an Agreement with the Ngayana Dieri Karna (NDK) Claimant Group, whose Claim Area covers portion of PEL 106. Prior to the commencement of the line preparation, a Work Area Clearance (WAC) was undertaken by representatives of the NDK under the terms of the Agreement. The scouting party inspected a representative sample of the proposed lines.

A report was prepared by the accompanying anthropologist, documenting the locations where deviations would be required along the proposed seismic lines to avoid sites of cultural significance. Extracts from the WAC Reports on the Karla 2D seismic survey and original Paranta 3D, were submitted to PIRSA on 5 October 2005 as part of the application process.

All field crews associated with the seismic program attended an induction on cultural heritage issues for this area, with particular emphasis on identification and avoidance of significant cultural material.

Goal 1.2: Identify threatening processes and activities

No processes or activities associated with the survey operations were considered to be threatening to the subject environment.

Goal 1.3: Assess any adverse impact on biological diversity likely to arise from the proposed operation on a regional basis

The area covered by PEL 106 in which the activities occurred comprises one land systems: dunefield. GAS criteria for assessing adverse impacts on biodiversity for this land system is provided in the Statement of Environmental Objectives (Refer to Appendix 1, Table p.31-39 and Appendix 2, Table p.42-49).

The seismic lines for the Karla 2D and Paranta 3D Seismic Surveys were recorded in PEL 106 within a grid of pre-existing seismic lines comprising a number of old vintages. No adverse impacts have been identified in this region as arising from these seismic operations.

Goal 1.4: Ensure that issues raised in the planning process are incorporated into field management procedures

All personnel involved in the field operations were briefed at the commencement of the survey operations with respect to appropriate procedures for environmental management and protection of cultural heritage.

A company representative, Mr Bruce Beer, was present with the line clearing and recording crews throughout the field operations to ensure adherence to the planned field management procedures.

SEO Objective 2:	Monitor and manage those activities that have, or are likely to have, temporary impacts on biological diversity, cultural components of the environment, groundwater, or other land uses, and facilitate rehabilitation so as to minimise such impacts if they occur.

As defined in the SEO, the goals of this objective are to minimize:

- Clearing of native vegetation
- Disturbance to native fauna and their inhabitats
- Impacts on soil, surface drainage, visual ambience and other land uses
- The potential for third parties to use survey tracks and sites following completion of operations

Two sets of GAS criteria are defined in the SEO for assessing the extent of these impacts. One set of criteria relates to assessment carried out at the completion of the field operations. The second set relates to assessment carried out when the lines have been left to rehabilitate for some period.

At the completion of the Karla 2D and Paranta 3D Seismic Surveys, an assessment of the impacts was undertaken against the first set of GAS criteria at various locations referred to as Environmental Monitoring Points (EMPs). These EMPs are located in representative areas of the dunefield environment. The results of the GAS audits are presented in the Environmental Reports (refer to Appendices 1 and 2). All GAS scores were in the range of 0 to +1.

SEO Objective 3:	Avoid undertaking any activities which have, or are likely to have, long-term significant adverse impact(s) on biological diversity, cultural components of the environment, groundwater, or other land

	uses.

The seismic recording activities undertaken in the Karla 2D and Paranta 3D Seismic Surveys were similar to many previous seismic surveys undertaken in the dune field environments within the Cooper Basin. No activities were carried out in the following components of the environment:

- Cultural sites
- Areas of high biological diversity or wilderness value
- Areas which are of social or scientific importance
- Areas with rare and endangered fauna and flora

No exotic species were introduced or spread in the area.

The GAS auditing reported in the Environmental Reports for these surveys showed that line preparation was carried out according to best practice techniques of minimal blading and clearing of vegetation. As a result, the combination of wind action and occassional rainfall will revegetate the lines to the point they will be indiscernible within a few years. There was no indication of any likely long-term adverse impacts.

The technique of weaving the routes of the seismic lines had been practised extensively during acquisition, enabling the minimising of any visual impact of the operations.

Rehabilitation of the seismic lines recorded in Year Three of the Permit

The Statement of Environmental Objectives (SEO) for Seismic Operations in the Cooper Basin requires an Environmental Monitoring Report to be submitted to PIRSA following completion of a seismic survey.

The Environmental Monitoring Reports for the Karla 2D and Paranta 3D Seismic Survey (refer to Appendices 1 and 2), include a description of the location of Environmental Monitoring Points (EMP-01) in PEL 106 that are to be used for future monitoring of the progress of natural rehabilitation of the disturbed ground.

Photographs were taken at EMP-01 which is at the intersection of two seismic lines, immediately after the survey operations had been completed. The level of environmental impact at EMP-01 resulting from the survey operations was also assessed using the GAS (Goal Attainment Scaling) system specified in the SEO.

As part of the on-going monitoring process, “repeat” photographs will be taken at EMP-01 approximately 12 months after recording operations have finished. Copies of these photographs will be used to provide a comparative study of the regenerative processes.

5. COMPLIANCE – PIPELINE CONSTRUCTION

On 3 August 2005 Great Artesian Oil and Gas Limited lodged an application to construct a buried gas pipeline, flowline, connecting the Smegsy-1 well head to the existing Moonanga flowline. As part of Great Artesian Oil and Gas Limited application process for the approval of the construction a tie-in gas pipeline and to conform with the requirements of Regulations 16, 19 and 20 under section 74(3)(a) of the Petroleum Act 2000 (S.A.), the Submission for Operator Assessment (Pipeline Construction) was submitted on 5 January 2006. This document contained:

- A description of the front end Engineering Design (FEED) contract signed with Santos undertaken as part of the initial planning and design of the pipeline
- Line of Sight Survey
- Details of flow line pressure and specs including well head design
- The tie-in flow line route description
- Front End Engineering Design
- Work Area Clearance Report
- Environmental Report
- Environmental Management Statement
- Risk Assessment

5.1 STATEMENTS OF ENVIRONMENTAL OBJECTIVES

Great Artesian has undertaken an assessment of the proposed activities against the *South Australian Cooper Basin Joint Venture Statement of Environmental Objectives: Production and Processing Operations* and is of the opinion that it is covered by this existing SEO, particularly given the construction and operation of the flowline was undertaken by Santos (on behalf of Great Artesian). The location of the flowline is in a relatively resilient dunefield land system and the management measures that will be implemented adhere to environmental best practice for the Cooper Basin.

Prior to the commencement of activites Great Artesian commissioned Ecos Ltd to undertake an environmental survey along the proposed route of the pipeline. The results of this survey are included as Appendix to the Submission of Operator Assessment document. The survey did not identify any areas of significant or sensitive environmental importance. The following is extracted from the report prepared by Ecos.

“Following reinstatement of the flowline construction corridor, very little above-ground infrastructure will be visible. Above ground infrastructure will be limited to a wellhead skid at the Smegsy-1 wellsite, the riser and associated pipework at the Moonanga flowline intersection and marker posts to identify the location of the flowline.

The operation of the Smegsy flowline will be in accordance with the *Production and Processing Operations* SEO, Santos procedures, AS 2885 and the *APIA Code of Environmental Practice*.

A routine operation and maintenance program will be implemented, which will include leak detection surveys, ground and/or aerial patrols, repair or replacement of faulty pipe or other equipment, corrosion monitoring and remediation.

Environmental impact associated with operating gas flowlines is minimal and is generally associated with access and potential emissions (venting)."

As the licence holder, Great Artesian Oil and Gas Limited performed the field inspection of the Smegsy-1 flow line and facilities on the 1st and 2nd of March 2006. This report is included in Appendix 3.

5.2 NATIVE TITLE AND HERITAGE

In accordance with the requirements of the Deed and associated Ancillary Agreements Great Artesian entered into with the Edward Landers Dieri People and the Ngayana Dieri Karna (Aboriginal Corporation) on 6 February 2003.

Great Artesian commission a Work Area Clearance Survey (WAC) which was conducted along a 100m corridor following the proposed pipeline route as part of this application process. The WAC is included as Appendix to the Submission of Operator Assessment.

The WAC did not identify any significant heritage items or sites as part of the clearance process.

REGULATION CHECK-LIST

Regulation Reference	Regulation Requirement	Details
s 76	Security Lodgement Insurance Native Title Act	Previously forwarded to Manager, Licensing and Royalties. Certificates of Currency enclosed See Point 5.2 above
s20 SSL; s59 AFL; Santos v Minister decision	If survey activity is proposed outside the licence area (excluding activities pursuant to production licence) then they must be authorised by separate authority from the primary licence (eg SSL or AFL).	The activity will be conducted entirely within the confines of PEL 106 and therefore not outside of the licence area.
s 96	Is the proposal covered by an existing SEO?	Yes; refer to Reg 20(1)(g) below.
Reg 20(1)(a)	The licence number and the name of the licensee	PEL 106, Great Artesian Oil and Gas Limited
(b)	A description of the relevant activity	Refer to: ▪ Flowline Line of Sight Survey (Appendix 5) ▪ Front End Engineering Design (Appendix 1) ▪ Environmental Report (Appendix 2)
(c)	Information on the proposed location of the relevant activity, using co-ordinates in the GDA 94 datum and including a map of the relevant area showing the proposed location of the relevant activity and significant topographical, environmental and cultural features	Flowline extends from the Smegsy-1 gas well (27o 55' 54.39" S, 139 o 45' 43.30" E) to the existing Moonanga-1 flowline (27o 56' 47.67" S, 139o 47' 23.29" E). Refer to: ▪ Flowline Line of Sight Survey (Appendix 5) ▪ Front End Engineering Design (Appendix 1) ▪ Environmental Report (Appendix 2)
(d)	The full name and business address of any contractor who will be involved to a significant degree in carrying out the activity	Santos Limited King William Street, Adelaide, SA 5000.
(e)	The proposed commencement date and the estimated duration of the activity	Commencing January 2006 (provisional), for approximately 1 -2 months for construction of flowline.

Regulation Reference	Regulation Requirement	Details
(f)	The name and address of the owner of the relevant land, a declaration concerning compliance with Part 10 of the Act and a copy of any notice provided under that Part, and (if relevant) information on any scheme or process that will be put in place for giving or providing notices or information to owners of the land as the activity progresses	Refer to Landowner details and Part 10 notifications
(g)	An assessment as to whether the relevant activity is covered by an existing statement of environmental objectives under Part 12 of the Act	Great Artesian has undertaken an assessment of the proposed activities against the *South Australian Cooper Basin Joint Venture Statement of Environmental Objectives: Production and Processing Operations* and is of the opinion that it is covered by this existing SEO, particularly given the construction and operation of the flowline will be undertaken by Santos (on behalf of Great Artesian), the location of the flowline in a relatively resilient dunefield land system and the management measures that will be implemented. For further details refer to: ▪ Environmental Report ▪ Operator Assessment.
(h)	*Geophysical surveys – not applicable*	
(i)	*Well drilling – not applicable*	
Reg 19 (2) (a)	Must include, or be accompanied by, detailed information on the licensee's proposals in respect of the operator assessment factors	Refer to Operator Assessment

REGULATION 16 ASSESSMENT

Requirement	Policy / Strategy / Procedure Reference
Regulation 16.2 (a)	
A licensee's corporate policies with respect to:	
The protection of the environment, resource management, development and production, public safety, compliance with regulatory requirements and the achievement of regulatory objectives	Great Artesian has developed an number of management systems, including an EMS, SMS, Emergency Response Plan (ERP) and associated documents. For the construction and operation of the Smegsy-1 Flowline, the contractor's HSE management system will be implemented. Policies relevant to specific aspects are outlined below. ▪ Great Artesian Environmental Policy - contained in the Great Artesian EMS manual (Appendix 8) ▪ Safety Policy ▪ Resource management, development and production – Great Artesian is committed to responsible and efficient resource management, development and production in accordance with good oilfield practice, Great Artesian's Environmental Policy and regulatory requirements and objectives Compliance with regulatory requirements and achievement of regulatory objectives ▪ Environmental Policy (Appendix 8) ▪ EMS Manual (Attachment 1) ▪ Emergency Response Plan (Attachment 2) Responsibilities for environment, health and safety are outlined in the EMS Manual, Environmental Report and ERP
Regulation 16.2 (b)	
A licensee's work practices and procedures associated with:	
Compliance with regulatory requirements	Great Artesian will use a compliance checklist to ensure Petroleum Act requirements are met (Attachment 3). This checklist includes approval and reporting requirements. A checklist to ensure SEO requirements are met has also been developed and is included in the Environmental Report.
The achievement of regulatory objectives	The *South Australian Cooper Basin Joint Venture Statement of Environmental Objectives: Production and Processing Operations* applies to the construction and operation of the Smegsy-1 Flowline.(see Environmental Report). The SEO checklist (refer Environmental Report) provides an outline of how SEO requirements will be met, and the steps taken to achieve objectives so far. These include: ▪ notification and consultation with landowners ▪ a site Environmental Report ▪ a clearance undertaken with the Dieri community (Appendix 6) Great Artesian have developed a number of management strategies for the Smegsy-1 Flowline based on the *South Australian Cooper Basin Joint Venture Statement of Environmental Objectives: Production and Processing Operations (*refer Environmental Report Table 4). These management strategies are based on the identified possible risks and impacts associated with the Flowline with the aim of avoiding or minimising those impacts.
Regulation 16.2 (c)	
A licensee's practices and procedures with respect to:	

Requirement	Policy / Strategy / Procedure Reference
Communicating regulatory requirements and regulatory objectives to employees and contractors	The EMS Manual (Attachment 1), the Environmental Report and the contractor HSE documentation specify the requirements for communicating these objectives to employees and contractors. These include a requirement to communicate site-specific management requirements. The Great Artesian site representative, the Consultant Engineer, will be present during the construction and commissioning of the Flowline. He will ensure that the regulatory requirements are communicated to site personnel and implemented. Site meetings between contractors and Great Artesian personnel in the field will cover technical, safety and environmental factors. Contractors operating at the site will be supplied with a copy of the site Environmental Report and native title work area clearance reports and will be required to comply with its requirements. Great Artesian will have a designated representative on site whenever personnel are present. This designated representative will be the Great Artesian Consultant Petroleum Engineer. Flowline construction activities are based on industry best practice and incorporate controls related to identified hazards and risks. The Flowline construction and operations contractor has extensive experience carrying out pipeline construction and operations activities in the region and is familiar with regulatory requirements.
Regulation 16.2 (d)	
A licensee's practices and procedures associated with:	
Identifying risks and implementing measures associated with achieving regulatory objectives.	The Environmental Report for Smegsy-1 Flowline (Table 4) identifies the risks and measures required to achieve the objectives of the SEO. The Flowline contractor has demonstrated to Great Artesian that it has adequately identified the risks associated with the proposed activities. The Flowline construction and operations contractor has extensive experience carrying out pipeline construction and operations activities in the region and is familiar with regulatory requirements. The contractor has in place a comprehensive EHSMS, which includes procedures, assessment and management systems to accommodate day to day risks associated with Flowline construction and operation. Site specific environmental risks have been assessed in the site Environmental Report and Native Title work area clearance reports. The designated Great Artesian Representative will be responsible for ensuring that measures for achieving regulatory objectives are implemented.
Regulation 16.2 (e)	
A licensee's arrangements to:	
Monitor, audit and review the licensee's performance against regulatory objectives.	Great Artesian will use a compliance checklist to ensure Petroleum Act requirements are met. This checklist includes approval and reporting requirements and will be checked before, during and after the EPT. The Great Artesian consultant petroleum engineer will be present during the construction and commissioning of the Flowline. He will monitor regular reports from the Flowline construction contractor. He will investigate any events or incidents that may impact on Great Artesian's management strategies for achieving regulatory objectives. Incidents will be reported to PIRSA as required by the Act and the SEO and reviewed by Great Artesian's Exploration Manager to evaluate if changes are required to operational procedures to prevent similar incidents reoccurring. The Flowline construction contractor will also undertake site and systems audits during construction activities as per their HSEMS procedures.
Regulation 16.2 (f)	
A licensee's practices with respect to:	

Requirement	Policy / Strategy / Procedure Reference
The keeping and verification of records of performance.	During the construction and operation of the flowline records will be kept and key documentation will be held at Great Artesian's office in Sydney. Both hard and electronic copies will be kept where possible.
Regulation 16.2 (g)	
A licensee's systems to:	
Identify and report serious incidents and reportable incidents under the act.	Reporting requirements are outlined in the Petroleum Act, SEO and the ERP. The contractor will report incidents to the designated Great Artesian representative on site, who will report to the Great Artesian Exploration Manager. He shall be responsible for determining whether incidents are "reportable" or "serious" and reporting to PIRSA as required by the Petroleum Act and SEO.
Regulation 16.2 (h)	
A licensee's Emergency Response:	
Record	Great Artesian has not previously undertaken the construction of a Flowline in South Australia, however it has been operator for drilling of wells in South Australia, as well as seismic surveys in South Australia in PEL 106. There have been no emergencies associated with these activities.
Policies and Plans (including testing and reporting practices and procedures).	Great Artesian has prepared an Emergency Response Plan/Manual for the Smegsy-1 Flowline activities (see Attachment 2). The contractor also has Emergency Response Procedures which will be implemented under Great Artesian's ERP. The ERP clearly details response actions, responsibilities and reporting procedures. ERP tests have not been undertaken in the past by Great Artesian, but Great Artesian is investigating the possibility of undertaking a joint ERP exercise with other explorers in the Cooper Basin.
Regulation 16.2 (i)	
A licensee's practices and procedures with respect to Induction of employees, and Training of employees.	Requirements for inductions and training are specified in the Environmental Report as well as contractor HSE documentation. Great Artesian will hold a site induction which includes coverage of environment, native title and regulatory issues. The Construction contractor has in place an induction and training program, outlined in their HSE documentation. The designated Great Artesian representative is responsible for ensuring that all personnel receive an induction into safety, environment and heritage issues relevant to the site operations.
Regulation 16.2 (j)	
A licensee's practices and procedures with respect to consulting interested persons and bodies (including government agencies and instrumentalities).	In planning for the construction of the Smegsy-1 Flowline, Great Artesian has contacted (and will continue to liaise with where appropriate): ▪ PIRSA ▪ Station owner ▪ Native Title Claimants / ARLM ▪ Santos
Regulation 16.2 (k)	
A licensee's practices with respect to providing adequate supervision of its employees and contractors in order to ensure compliance with regulatory requirements and the achievement of regulatory objectives.	The Great Artesian Exploration Manager will be responsible for all aspects of the field work required to prepare for, carry out and clean up after the construction of the Flowline. The Great Artesian Petroleum En gineer will be on site as the designated Great Artesian representative during contsruction and commissioning and will provide direct supervision. The Great Artesian Exploration Manager has overall responsibility for ensuring that Great Artesian and contractor policies and procedures and followed in order to ensure compliance with regulatory requirements and the achievement of regulatory objectives. The designated Great Artesian representative will ensure that environmental and native title issues detailed in the Environmental Report and work area clearance are communicated to

Requirement	Policy / Strategy / Procedure Reference
	all contractors, and that they are supplied with a copy of the documents. Earthworks associated with the project will generally be undertaken by an experienced contractor. If an inexperienced contractor is used, activities would be supervised by a Great Artesian representative.
Regulation 16.2 (l)	
A licensee's record in achieving regulatory objectives and regulatory requirements.	Great Artesian has not previously undertaken the construction of a Flowline or well production activities in South Australia, however it has achieved regulatory compliance for well drilling in PEL 106 and seismic surveys carried out in PEL 106. The Flowline contractor has many years experience in petroleum operations in this region and has a good record of regulatory compliance.