



2003 ANNUAL REPORT

On
**Pipeline Licence 12
Beverley Pipeline**

Document Number S-25-209BEV-AR-G-001

February 2004

TABLE OF CONTENTS

1.0	PURPOSE.....	5
2.0	SCOPE.....	5
3.0	PIPELINE INTEGRITY MANAGEMENT.....	5
3.1	Maintenance Performance	5
3.2	Pipeline	6
3.3	Cathodic Protection	6
3.4	Electrical & Instrumentation	7
3.5	Mechanical.....	7
3.6	Communications	8
3.7	Ancillary Equipment.....	8
4.0	THREAT MITIGATION.....	8
4.1	Surveillance	8
4.2	Maintenance Programs	9
4.3	Marking	9
4.4	Landholder Contacts	9
4.5	Pipeline Location Service	9
4.6	Community Awareness.....	9
4.7	Training.....	9
5.0	MANAGEMENT	10
5.1	Risk Assessments	10
5.1.1	AS2885 Risk Assessment.....	10
5.1.2	Other.....	10
5.2	Management Systems	10
5.2.1	Reports Generated in 2003	10
5.2.2	2003 One-off Activities.....	10
5.2.3	2004 One-off Activities.....	11
5.2.4	2005 One-off Activities.....	11
5.2.5	Volume of Product Transported	11
5.2.6	Statement of Expenditure	11
5.3	Emergency Response	11
5.3.1	Emergency Response Exercise.....	11
5.4	Reported Incidents	11
5.5	Audits	11
5.5.1	Operational Audits	11
5.5.2	Environmental Audits.....	12
5.5.3	Safety Audits	12
5.6	Exempt Expenditure.....	12
5.7	Contractual Issues	12
5.8	Review and Improvement	12
5.8.1	Compliance Issues.....	12
5.8.2	Actions to Rectify Non-Compliance	12
5.9	Key Performance Indicators.....	12
6.0	CONCLUSIONS.....	13

7.0 APPENDIX A: ASSESSMENT OF STATED OBJECTIVES..... 14

8.0 APPENDIX B: PIPELINE CATHODIC PROTECTION DATA AND
ON/OFF POTENTIALS PROFILES 20

LIST OF ABBREVIATIONS

AS2885	Australian Standard 2885 – Pipelines-Gas and Liquid Petroleum
CFS	Country Fire Service
CP	Cathodic Protection
CPU	Cathodic Protection Unit
Cu/CuSO4	Copper/Copper Sulphate
EMS	Environmental Management System
HAZOP	Hazard Operability
MAP	Moomba to Adelaide Pipeline
MFS	Metropolitan Fire Service
MLV	Mainline Valve
PIRSA	Primary Industries and Resources of South Australia
PL12	Pipeline Licence No. 12
RTU	Remote Terminal Unit
SCADA	Supervisory Control and Data Acquisition
SEO	Statement of Environmental Objectives
SES	State Emergency Service
SMS	Safety Management System
SRB	Sulphate Reducing Bacteria
SWER	Single Wire Earth Return
UHF	Ultra High Frequency
VHF	Very High Frequency

1.0 PURPOSE

This report is submitted in accordance with the requirements of Pipeline Licence 12 and Petroleum Regulations 2000.

2.0 SCOPE

The Beverley Pipeline is owned by Heathgate Resources and is operated and maintained by Epic Energy.

This report reviews operations carried out during 2003 and intended operations for 2004 and 2005. In accordance with the Petroleum Regulations, a performance assessment is also provided, with regard to the Statement of Environmental Objectives, for the Beverley Pipeline.

3.0 PIPELINE INTEGRITY MANAGEMENT

During 2003, a decision was made by Epic Energy's Senior Cathodic Protection Engineer, after consultation with Heathgate Resources, to permanently connect the Beverley Lateral Pipeline to the Moomba to Adelaide Pipelines impressed current cathodic protection system and abandon the sacrificial anode system that was originally installed at the time of the pipeline construction.

The decision to connect the pipeline to the MAP was taken after trials showed that the original sacrificial anode system was not performing to specification and when the change was initiated "On/Off" pipeline potential readings met the laid down criteria. The trial was run until September 2003, at which time the Beverley Lateral Pipeline was tied permanently to the MAP.

3.1 Maintenance Performance

In 2003, 25 Maintenance Work orders were produced from Epic Energy's Computerised Maintenance Management System (Maximo), made up as follows:

- 64% Preventative/Routine Maintenance tasks;
- 36% Corrective Maintenance tasks; and
- 0% Modification/Change Request tasks.

3.2 Pipeline



- Monthly road patrols were completed, as per Epic Energy's contractual obligations, in accordance with the requirements and AS2885.3. The objective of this patrol is to monitor the pipeline and easement for leaks, threats and external interference to the pipeline and environmental factors. There were no issues detected in 2003.
- As part of the maintenance strategy, all compounds are routinely inspected, weeds removed, fences, gates, padlocks, signage and fire extinguishers etc., are maintained.

3.3 Cathodic Protection



- To mitigate corrosion, all buried pipelines are covered with a protective coating, which serves to isolate the external pipeline surfaces from corrosive elements in the surrounding environment. Secondary protection at coating holidays and imperfections is achieved by applying cathodic protection.
 - The effectiveness of the cathodic protection system is monitored by carrying out two full line potential surveys annually, once at the end of summer and then again at the end of winter. In addition, all cathodic protection units (CPU's) are inspected for correct operation bi-monthly.
-
- The Beverley Lateral routine full-line cathodic protection surveys were completed during 2003, as scheduled by Epic Energy's computerized maintenance management system (Maximo). Results of these surveys are presented graphically and in tabular form in Appendix B.
 - During 2003, additional full line surveys were carried out to ensure that the cathodic protection system was operating correctly. These checks were part

of a review process after the as built sacrificial anode system was abandoned.

- The lateral was tied to the Moomba to Adelaide pipeline for cathodic protection purposes and the sacrificial anode system abandoned during 2003.
- During a routine cathodic protection system survey, after the sacrificial anode system had been abandoned, a bond connection was found to be fitted to the wrong side of the insulating flange. This connection was reinstalled in the correct position and the system tested for correct operation.

3.4 Electrical & Instrumentation

Epic Energy's maintenance contract with Heathgate Resources lays out how the pipeline, associated facilities and electrical and instrumentation maintenance activities will be managed throughout the year. All electrical and instrumentation system routine activities are specified in Epic Energy's computerized maintenance management system (Maximo) and scheduled by this system to the maintenance staff via work orders.

The list below summarizes the activities carried out by the maintenance teams in 2003;



- Bi-monthly custody transfer Meter Accuracy Verification Tests were completed, in accordance with Epic Energy's maintenance plan and as specified by the contract requirements. These tests will be changed to 3 monthly in 2004, after agreement with Heathgate Resources was reached at the last scheduled meeting.

Routine six monthly electrical and instrumentation inspections were carried out at the site. These tests and checks cover;

- Hazardous area electrical equipment inspections to ensure they meet the Australian standards;
- Pressure and temperature instrument calibrations;
- Earthing system checks as per Australian standards;
- Battery maintenance, and
- Electrical fitness for purpose inspection of the site equipment.

3.5 Mechanical

Epic Energy's maintenance contract with Heathgate Resources lays out how the pipeline and its associated facilities mechanical maintenance activities will be managed throughout the year. All mechanical system routine activities are specified in Epic Energy's computerized maintenance management system

(Maximo) and scheduled by this system to the maintenance staff via work orders.

The list below summarises the activities carried out by the maintenance teams in 2003;



- Quarterly inspections and overhauls of the Tartarinni pressure regulators at the Heathgate pressure reduction facility have now been rescheduled. Heathgate Resources representatives advised during the recent site meeting that these checks are now to be carried out annually, after experience has shown that a quarterly regime is not required.
- Corrective maintenance repairs were carried out to the Epic Energy Meter Station Pietro Fiorentinni active monitor pressure regulator.
- A pipeline lateral input gas supply filter has been installed at the Epic Energy meter station during 2003.

3.6 Communications

The Beverley Meter Station is monitored via the on site Bristol Babcock RTU, which then relays the data to the Epic Energy SCADA system microwave link, back to Epic Energy's Transportation Services Control Centre in Perth.

During 2003, a number of minor communications system failures have been addressed by the maintenance staff with no significant faults being found.

3.7 Ancillary Equipment

There is no ancillary system associated with the Beverley Lateral. A dust filter vessel was installed at the Epic Energy upstream meter and regulator station to eliminate contamination problems with the regulator pilot filters. Although the filter is not directly associated with the pipeline, it assists in assuring reliable, regulated pressure to the pipeline system.

4.0 THREAT MITIGATION

4.1 Surveillance

Epic Energy's maintenance contract with Heathgate Resources lays out how the surveillance activities associated with the pipeline system will be managed throughout the year. All routine surveillance activities are specified in Epic

Energy's computerized maintenance management system (Maximo) and scheduled by this system to the maintenance staff via work orders.

During 2003, routine monthly road patrols were completed, as per the maintenance schedule and in accordance with AS2885.3. No third party encroachments, pipeline threats or environmental issues were detected. Pipeline warning signs were upgraded during the routine patrols to ensure line of sight and the pipeline route is clearly identified.

4.2 Maintenance Programs

During 2003, Epic Energy's maintenance planning group introduced a new method of scheduling work to the maintenance crew, which consisted of rolling up all tasks scheduled into a pack and issuing the complete pack to the staff at the beginning of a work period. The planning group are monitoring and fine tuning the system, to ensure the maintenance staff work is scheduled and completed in the most efficient and cost effective way.

4.3 Marking

All pipeline signage is inspected and repaired as part of the routine line patrols carried out each month.

As a result of the feedback from the routine patrol reports, additional signs have been installed at a number of locations .

4.4 Landholder Contacts

There is one landowner and occupier along the Beverley Pipeline. Contact was made during the year with the occupier. There were no issues concerning the lateral.

4.5 Pipeline Location Service

Epic Energy provides a free service to locate pipelines for which we are responsible. This service is primarily used by other companies, carrying out civil works in the vicinity, of any of the pipelines administered by Epic Energy.

There were no easement encroachments identified.

4.6 Community Awareness

A pipeline safety awareness presentation was made to Ric Phillips (Heathgate Mines Superintendent) during 2003.

4.7 Training

During 2003, Epic Energy's maintenance group attended a range of training courses. A summary of these is contained in the bullet point list below;

- Fatigue and stress management training delivered to Field Maintenance Officers and Superintendents.
- First aid training for roster personnel carried out.
- OH&S and Planning presentation undertaken for all SA FMO's.
- Confined Space and Raised Platform training conducted for all maintenance staff.

- 4WD training carried out for field maintenance staff.
- Employee Opinion survey conducted.
- “First 5 Minutes” – Fire Training.
- Epic Energy employee skills update underway in zones 1,2 & 3.
- SA Gas Quality Upgrade Meeting/Workshop.
- Safety inductions to allow Epic Energy employees access to the Heathgate Resources facilities was carried out.

5.0 MANAGEMENT

5.1 Risk Assessments

A HAZOP study of the Meter Station Filter Installation was carried during the design phase of the project. All hazards identified were addressed or managed prior to the installation of the filter.

5.1.1 AS2885 Risk Assessment

No threats to the pipeline were recorded during the reporting period. Given that the Beverley Lateral is a 14 kilometre long pipeline and is contained within one property in a remote part of South Australia, the level of risk from third party interference is relatively low, which assists Epic Energy in ensuring no threats to the pipeline are recorded. An AS2885 Risk Assessment of this lateral will be carried out in conjunction with Epic Energy’s, Moomba to Adelaide Pipeline, which is scheduled for 2006.

5.1.2 Other

There were no incidents recorded on the Beverley Lateral during the reporting period.

5.2 Management Systems

5.2.1 Reports Generated in 2003

The following reports were generated and forwarded to Heathgate Resources during 2003:

- Emergency Exercise Report, [Operation Yellowcake], forwarded in January 2003.
- PL12 Annual Report 2002, forwarded in March 2003.

5.2.2 2003 One-off Activities

- Hydro test and store spare emergency pipe at compressor station 4 was successfully completed in 2003. This resulted from an action in the emergency exercise [Operation Yellowcake].
- The purchase and installation of additional line of site signage.
- Additional pipeline cover to accommodate new vehicular crossings was completed in 2003.

- A dust filter vessel was installed at the Epic Energy, Beverley Meter Station Off take during September 2003.

5.2.3 2004 One-off Activities

To allow pigging operations on the lateral, installation of pigging facilities to the lateral are proposed for 2004.

5.2.4 2005 One-off Activities

No special activities are planned at this time.

5.2.5 Volume of Product Transported

Approximately 130 TJ of natural gas were transported through the Beverley Pipeline in 2003.

5.2.6 Statement of Expenditure

Commercial In Confidence.

5.3 Emergency Response

Pipeline Licence 12 requires Emergency Response procedures to be maintained and followed in the event of an emergency. These procedures are detailed in Epic Energy's "Emergency Response Manual". This manual was updated in November 2003.

The Emergency Response Trailer located at compressor station 4, on the Epic Energy Moomba to Adelaide pipeline, is inspected annually to ensure the equipment is in a satisfactory condition, if required in the event of an emergency. This is the location whereby personnel responsible for attending to any emergency on the Beverley Lateral are located.

5.3.1 Emergency Response Exercise

There was no Emergency response exercises conducted on the Beverley Lateral in 2003. The most recent exercise was held in December 2002.

During 2003, Epic Energy held three emergency response exercises on other pipeline systems to ensure the emergency preparedness of it's South Australian personnel, equipment and procedures.

5.4 Reported Incidents

No reportable incidents occurred on the Beverley Lateral during the reporting period.

5.5 Audits

5.5.1 Operational Audits

No operational audits were conducted during the reporting period.

5.5.2 Environmental Audits

There was no dedicated environmental audit of the Beverley Lateral. During the year, monthly surveillance patrols were carried out along the Beverley Pipeline, environmental issues were monitored as part of this activity. At each interface meeting, the landowner (Heathgate Resources) was asked to comment on any issues that they may have in relation to the operation of the pipeline through their land. Any area of concern was documented and addressed. No environmental non-conformance was noted.

5.5.3 Safety Audits

Safety audits were completed at the Beverley Meter Station, the pressure reduction station and during the routine patrols. There were no issues identified that needed follow up action. Given the location and the lack of complexity of the pipeline system, this is not unexpected.

5.6 Exempt Expenditure

No exempt expenditure was incurred during the reporting period.

5.7 Contractual Issues

There were no contractual issues identified between Epic Energy and Heathgate Resources.

5.8 Review and Improvement

5.8.1 Compliance Issues

Every endeavor is made to ensure that design, manufacture, construction, operation, maintenance and testing of all appropriate facilities, is carried out in accordance with AS2885. Any non-compliance identified is logged in Epic Energy's computerised maintenance management system, where they are tracked to conclusion. Significant items are reported through Heathgate Resources to PIRSA.

A Statement of Environmental Objectives (SEO's) has been gazetted for PL12. The overall objectives of the SEO's were achieved, in that;

- Appropriate consultative processes involving people directly affected by regulated activities and the public generally were established; and
- The public was protected from risks inherent in regulated activities involving the Beverley Lateral.

5.8.2 Actions to Rectify Non-Compliance

The annual monitoring for ROW vegetation was not completed during 2003. This will be undertaken early in 2004. This requirement has now been placed on the internal compliance register to ensure all future monitoring is conducted in the appropriate time frame.

5.9 Key Performance Indicators

The following key performance indicators have previously been established to monitor performance of operations and maintenance activities on the Beverley Lateral Pipeline.

	2003 target	2003 actual	2003 Comment
Cathodic Protection			
1. Length of the pipeline protected to the AS2885-1997 level	100	100	During 2003, the Sacrificial Anode System that was originally installed during the pipeline construction, was abandoned and the pipeline connected to the Moomba to Adelaide pipeline system for cathodic protection purposes
Third Party Incident			
1. Number of times pipeline is damaged	0	0	No damaged occurred to the pipeline during the reporting period
2. Number of near misses (digging within 1m of pipeline)	0	0	No activities of this nature that involved Epic Energy the owner or a third party were identified during the reporting period
3. Exposure of pipeline due to washout and wind erosion	0	0	During the reporting period, there were no instances of the pipeline cover being eroded due to wind or water
SCADA and Leak Detection			
1. Reliability of SCADA and Leak Detection System	100%	99.97%	A number of minor communication system failures occurred throughout the year, which resulted in loss of SCADA information. In all cases these outages were less than 2 hours in duration and dealt with in a timely manner by the maintenance staff.
Environmental			
1. Number of uncontrolled hydrocarbon releases	0	0	No uncontrolled Hydrocarbon releases were recorded during the reporting period
Earth Tremor Surveillance			
1. Vehicular surveillance immediately after an earth tremor or flood	100%	100%	No floods or earth tremors were reported during 2003

6.0 CONCLUSIONS

The maintenance and inspection programs carried out on the Beverley Lateral in 2003, indicate the pipeline is in sound condition and is capable of operating at set parameters with no restrictions.

The Cathodic Protection Survey results, as supplied at Appendix B, indicate the protection level meets the targeted performance levels for this system.

7.0 APPENDIX A: ASSESSMENT OF STATED OBJECTIVES

APPENDIX A

2003 PL12 ANNUAL REPORT

DATED FEBRUARY 2004

ASSESSMENT OF STATED OBJECTIVES

ASSESSMENT OF DECLARED OBJECTIVES

Beverley Pipeline Objectives and Assessment Criteria¹

OBJECTIVE	GOAL(S)	ACHIEVED/NOT ACHIEVED	COMMENTS
1. Minimise vegetation and habitat clearance outside of the approved pipeline trench	The pipeline will be installed parallel to the mine access road for its entire length (except for the last 100m). Therefore the road will be used for construction access and a pipeline easement of 4m only will be cleared for pipeline construction (refer Heathgate letter 3/2/2000 – an additional 1m will form part of the road verge). Vegetation and habitat clearance is minimised by adhering to these easements for construction. Note that audit program will assess un-authorized off-ROW activity (DEF Section 10).	Achieved	
2. Minimise the period and extent of vegetation and habitat loss around the pipeline trench	The extent of vegetation and habitat loss is assessed by the criteria for Objective 1.	Achieved	
3. Rare and endangered species managed in accordance with stated protocols	Refer Heathgate 2000b. "The mine access road and pipeline route were assessed for cultural significance by Native Title Claimants, and a consultant ecologist was present during the survey of the route. During this assessment and others throughout the EIS process, no rare or endangered species were recorded along the ROW. However, the strategy for the observation for rare and endangered species is as follows: · If adjacent to the ROW-the area will be flagged off and contractors notified its possible significance; · If on the ROW-the area will be assessed and either the pipeline route deviated around the area of significance, the construction activities work delicately around the significant area, or the rare and endangered species moved to an adjacent location (assuming plant species), and or the seeds collected and propagated. The most likely rare and endangered species to be observed will be of Forrest's Mouse and it is expected that this would move away from any disturbances. The strategy used will be dependant upon the size and type of rare and endangered species encountered. If it	Achieved	

¹ Assessment criteria have been developed to be "black and white". Professional judgement is required to assess whether non-compliance is minor or major. It is necessary to ensure that adequate information is available to enable this judgement to be made.

2003 PL12 ANNUAL REPORT – BEVERLEY PIPELINE

OBJECTIVE	GOAL(S)	ACHIEVED/NOT ACHIEVED	COMMENTS
	<p>is possible to work around it, then this will be the first option.</p> <p>It should be noted that the ROW for the pipeline already exists. Increasing this by a mere 2 to 4 metres is not expected to disturb or encounter additional rare and endangered species. If rare and endangered species exist along the pipeline, they will exist within the surrounding countryside also. The ROW is not in itself an extensive disturbance.</p>		
4. Prevent the establishment of additional alien species	<p>Based on historical experience, the introduction of weeds is unlikely, (DEF, Section 9, EIS Sec 6.13.4). Workers are not permitted to bring plants into the region and drivers are required to remove excess soil and plant debris from their vehicles prior to entering the area.</p> <p>Refer to monitoring program in DEF Section 10.</p>	Not Achieved	Refer to section 5.8.2. Actions to Rectify Non-Compliance issues
5. Design and construct the pipeline trench to avoid where possible, and to minimise where not, impacts on major creek habitats	<p>It is noted that there will be minimal impact at the creek crossing as a result of pipeline construction, as the crossing has already been cleared for the road.</p> <p>Heathgate letter dated 3/2/2000 states that river sand will be removed at the Paralana Creek crossing down to a firm base to allow pipeline trench construction.</p> <p>Pipeline will be buried 2m below firm base.</p>	Achieved	
6. Avoid the entrapment of vertebrates in the pipeline trench during construction	<p>Construction and filling of trench will be progressive.</p>	Achieved	
7. Ensure the protection of heritage sites in accordance with State and Commonwealth legislation.	<p>Refer also to EIS S7, S9.9, S12. Note that there has been consultation with Aboriginal groups on the location of facilities (EIS S7.1.2).</p>	Achieved	
8. Minimise the generation of waste	<p>General objective.</p>	Achieved	
9. Minimise the impact on the environment of waste handling and disposal methods	<p>This includes criteria for disposal of hydrotest water. Hydrotest water will contain no additives (e.g. biocide), and will be disposed either via evaporation ponds or injected into the Northern Area Disposal Array, an approved disposal site (Heathgate 2000a).</p>	Achieved	
10. Maximise opportunity for rehabilitation success of right-of-way	<p>Section 10 of the DEF lists the following rehabilitation strategies:</p> <ul style="list-style-type: none"> · Stockpiling of vegetation and topsoil where appropriate for re-use on rehabilitation areas. · Site cleanup to remove construction solid wastes 	Achieved	

2003 PL12 ANNUAL REPORT – BEVERLEY PIPELINE

OBJECTIVE	GOAL(S)	ACHIEVED/NOT ACHIEVED	COMMENTS
	(refer Objective 9). · Re-spreading of topsoil over bare surfaces with landscaping/shaping of the soil. · Surface scarifying or ripping where appropriate or necessary. · Supplementary seeding using locally collected seed or respreading of stockpiled vegetation. Supplementary seeding will only be used where first annual monitoring results record no new seedlings, (refer Heathgate 2000a).		
11. Total cover of perennials and dominant perennial reach 80% of cover compared to relevant control sites	The monitoring program is carried out on an annual basis. Rehabilitation considered complete when 80% of the total cover of perennials calculated from control sites is achieved. In addition rehabilitation must also have 80% of the cover provided by the dominant perennial species. However, no fixed time frame is attached to this. In order to assess revegetation after a given time frame, GAS criteria based on the Cooper Basin wellsite criteria after 5 years is proposed (PIRSA 1998).	Not Achieved	Refer to section 5.8.2. Actions to rectify Non-Compliance issues
12. Risk to the safety of the public and property during construction are acceptable and ALARP	The licensee must ensure that risks to the public during construction are minimised. Heathgate 2000a addresses fire risks and mitigation measures.	Achieved	
13. Risk to the safety of the public and property operation are acceptable and ALARP	The risk to the public and property is addressed if the pipeline is designed and constructed in accordance with AS2885.1-1997. This includes completion of the AS2885 Risk Assessment process. Ongoing safety is maximised by continued adherence to the requirements of AS2885.3-1997	Achieved	
14. Ongoing monitoring of rehabilitation carried out	Annual monitoring for ROW revegetation required until revegetation goals achieved, (Refer to DEF Section 10).	Not Achieved	Refer to section 5.8.2. Actions to rectify Non-Compliance issues
15. Environmental management and rehabilitation carried out in accordance with construction objectives for any operational dig-ups	At various times over the life of the pipeline, dig-ups may be required. These should be carried out in such a way that rehabilitation success is maximised.	No dig ups done to date	

2003 PL12 ANNUAL REPORT – BEVERLEY PIPELINE

OBJECTIVE	GOAL(S)	ACHIEVED/NOT ACHIEVED	COMMENTS
16. Compliance with the requirements of Petroleum Bill 1999, Petroleum Regulations 1999			Bill later became the Petroleum Act 2000
17. Supply of Moomba to Adelaide is not affected by an emergency on the Beverley Pipeline	An emergency constitutes either a loss of containment from the pipeline, or a loss of supply.	Achieved	No emergencies occurred during the reporting period
18. Environmental management and rehabilitation carried out in accordance with construction objectives for any emergency dig-ups	In the event of an emergency, stockpiling of top soil and vegetation etc., are not a consideration. Appropriate rehabilitation action should be taken once the emergency has been dealt with. This may involve measures such as ripping compacted ground, seeding etc.	Achieved	No emergency dig ups during the reporting period

**8.0 APPENDIX B: PIPELINE CATHODIC PROTECTION DATA
AND ON/OFF POTENTIALS PROFILES**

APPENDIX B

2003 PL12 ANNUAL REPORT

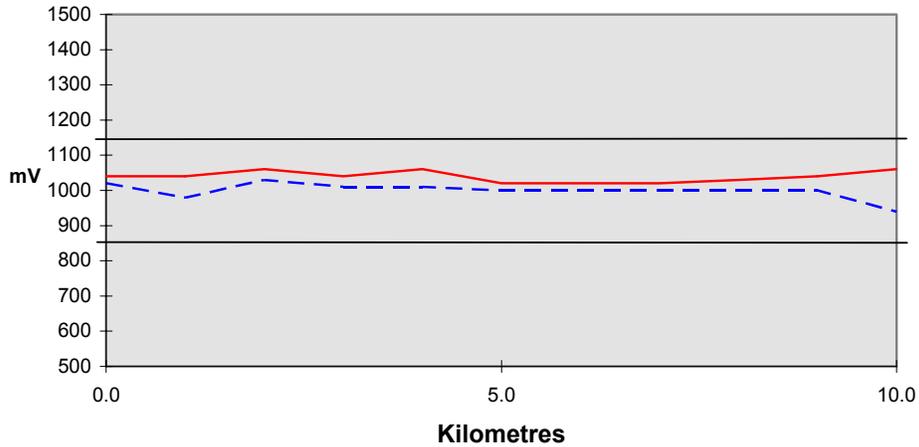
DATED FEBRUARY 2004

**PIPELINE CATHODIC PROTECTION DATA AND ON/OFF
POTENTIALS PROFILES**

Beverley Lateral Corrosion Protection On/Off Potentials 2003 Surveys

Protection On/Off potentials taken in February and September 2003 indicated that the pipeline was polarised to potentials more negative than minus 850mV Cu/CU SO4 on its entire length. The pipeline shows improved CP characteristics since being coupled to the mainline gas pipeline impressed current system.

Beverley Lateral Full Line Surveys



On the Graph above the "Red" data shows potential values plotted from the September "On/Off" survey.

The "Blue" data shows values plotted from the February "On/Off" survey.

Beverley Lateral Pipe Potential, mV Original Sacrificial System 25.10. 2002 <i>This system was officially abandoned in 2003 when the pipeline was connected to the Moomba to Adelaide pipeline cathodic protection system.</i> <i>This information has been provided for reference only.</i> ALL POTENTIAL ARE NEGATIVE (TP = Test Point)	
TP 1	480
TP 2	793
TP 3	774
TP 4	676
TP 5	653
TP 6	714
TP 7	694
TP 8	680