2007 Annual Report

MOOMBA TO ADELAIDE NATURAL GAS PIPELINE

Pipeline Licence 1

Document Number S-1-101-AR-G-008

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LIST OF ABBREVIATIONS

ALARP	As Low As Reasonably Practical
AS2885	Australian Standard 2885 Pipelines - Gas and Liquid Petroleum
AVT	Accuracy Verification Test
CDP	Corrosion Detection Pig
CFS	Country Fire Service
CMMS	Computerized Maintenance Management System (MAXIMO)
CP	Cathodic Protection
CPU	Cathodic Protection Unit
CS 1-7	Compressor stations 1, 2, 3, 5, 6 & 7
Cu/CuSO4	Copper/Copper Sulphate
DCGV	Direct Current Voltage Gradient
DNV	Det Norske Veritas
EGP	Electronic Geometry Pig
EMS	Environmental Management System
ERE	Emergency Response Exercise
ESD	Emergency Shut Down
GEA	Gas Engine Alternator
GPS	Geographical Positioning System
GUF	Gas unaccounted for
HAZOP	Hazard Operability
HELM	Heritage, Environment and Land Management
HSE	Health, Safety and Environment
ILI	In line Inspection
LMS	Land Management System
MAPS	Moomba to Adelaide Pipeline System
MFS	Metropolitan Fire Service
MLV	Mainline Valve
PIRSA	Primary Industries and Resources of South Australia
PL1	Pipeline Licence 1
POMS	Pipeline Operating Management System
ROW	Right of Way
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
TI	Torrens Island Power Station
TJ	Tera Joule
UHF	Ultra High Frequency
VHF	Very High Frequency

1 PURPOSE

This report is submitted in accordance with the requirements of Pipeline Licence 1 and the SA Petroleum Regulations 2000.

2 SCOPE

The Moomba to Adelaide natural gas transmission pipeline system is owned, operated and maintained by Epic Energy.

This report reviews operations carried out during 2007 and intended operations for 2008.

In accordance with the Petroleum Regulations a performance assessment is also provided with regard to the Statement of Environmental Objectives for PL1.

3 TECHNICAL INFORMATION

Table 1 summarizes the technical aspects of the Moomba to Adelaide natural gas transportation pipeline and Figure 1 shows diagrammatically the pipeline system.

Table 1 - Moomba to Adelaide pipeline Technical data [PL 1]

Date Constructed	1967 / 68
Date Commissioned	1969
Length	781km
External Diameter	559mm
Wall Thickness:- - Normal - Special Crossings (rivers, roads etc.) - MLV	 7.92 mm 9.50mm 9.50mm
Pipe Grade	API 5L X52
MAOP - North KP731 - South KP731 to TI	 7322kPa Voluntary reduction of 6100KPa
Coating	Plicoflex Tape
Depth of cover	Nominal 750 mm 1200mm at road, rail and creek crossings
Main Line Valves	Cameron Ball valves (30 in total)
Actuators (Remote activation)	Shafer gas over oil valve actuators(11 in total)
Actuators (Local activation)	19 Manual gear type operators
Fluid	Natural Gas
Mainline Compressor & scraper stations	7 compressor stations installed on mainline. Each site has two gas turbine powered centrifugal compressor packages.
Lateral compressor stations	2 compressor units installed on the lateral pipelines located at Whyte Yarcowie and Wasleys
Meter Stations	29
Corrosion Protection	Impressed current CP system 116 transformer rectifier units installed
SCADA system	Digital microwave link from Moomba to Adelaide with VHF radio coverage for voice communication

Table 2 summarizes the technical aspects of laterals and looping systems on the mainline pipeline system.

Table 2 – Laterals and Looping on Mainline

(Refer to key below)

Item	A	B	C	D	E	F	G	H	
Date Constructed	2000	1986	1972	1975-1976	1974	1984	1969	2000	2001
Date Commissioned	2000	1986	1972	1976	1974	1984	1969	2000	2002
Length (Kms)	CS1 5.2 km , CS2 10 km, CS3 13.3 km, CS 4 6 km (Total 34.4 km)	42	1.9	77.8	15	5.5	38.7	River – 0.855 Km , Land – 1.007 Km	114.3
External Diameter (mm)	600	508	88.9	168.3	88.9	219.1	219	356	219
Fluid	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas
Wall Thickness (mm)	Loops 1 to 3 – 7.14, Loop 4 – 8.74	9.0	4.78	4.37	4.78	4.77	4.78	7.1	4.00 & 4.78
Pipe Grade	API 5L X65	API 5L X60	ASTM A53 Gr B	ASTM A53 Gr B	ASTM A53 Gr B	API 5L X42	API 5L X42	API 5L X52	API 5L X42
MAOP (Kpa)	Loops 1 to 3 7322 , Loop 4 8740	7322	690	8240	7322	7322	7322	9600	9930
Coating	FBE	FBE	Armathene	Pilcoflex PVC	Yellow Jacket	FBE	Pilcoflex PVC	River – 400 micron, FBE plus powercrete, land – 400 micron	Yellow jacket
Main Line Valves		6		3			1		1
Actuators (Remote activation)		4							
Actuators (Local activation)		Two manual gear type actuators							
Compressor stations		1 (Wasley)		1 (Whyte Yarcowie)					
Meter Stations		5	1	1	1	1	3	1	1

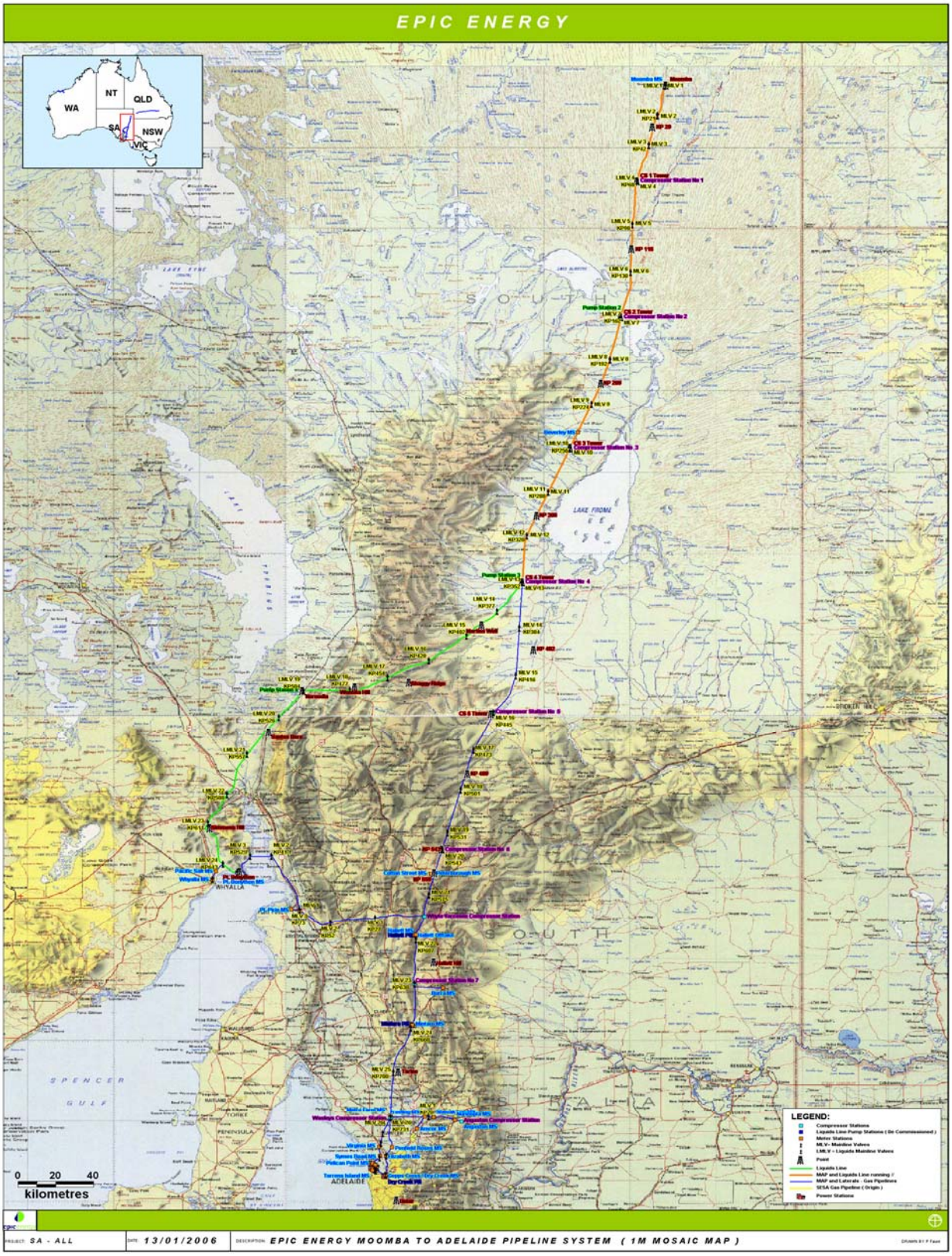
Key:
A – Main pipeline loop sections
B – Wasleys to Adelaide Loop Line
C - Peterborough Lateral
D - Port Pirie Lateral
I – Amcor lateral
E- Burra Lateral
F – Mintaro Lateral
G - Angaston Lateral
H- Pelican Point Lateral

Table 2 – Laterals and Looping on Mainline
(Refer to key below)

Item	J	K	L	M	N	O	P	Q	R	S
Date Constructed	1998	1970-71	1969	1988-1989	1988-1989	1972	1988-1989	2001	1972	2001
Date Commissioned	1998	1971	1969	1989	1989	1972	1989	2002	1972	2001
Length (Kms)	River – 0.852 , Land 1- 1.31, Land 2 – 0.188	1.3	1.2	5.5	87.8	1.6	11.5	0.14	0.35	0.74
External Diameter (mm)	River – 273.1 , Land 1- 273.1, Land 2 – 219.1	323.9	323.9	114.3	219.1	114.3	114.3	219	89	219
Fluid	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas
Wall Thickness (mm)	River – 6.4 , Land 1- 9.2, Land 2 – 4.0	9.53	9.53	4.1 to KP 5.43, 4.8 KP 5.43 to Port Bonython	4.3	4.78	4.3	8.2	4.78	8.2
Pipe Grade	API 5L X42	API 5L X42	API 5L X42	API 5L X42	API 5L X52	ASTM A53 Gr B	API 5L X52	API 5L X42	ASTM A53 Gr B	API 5L X42
MAOP (Kpa)	10000	2067	7322	7322	10130	1379	10130	7322	1379	7322
Coating	River FBE concrete coated, Land Yellow Jacket	Yellow Jacket	Double wrap coal tar epoxy concrete coated	Polyken 2 layer tape	Polyken 2 layer tape	Armathene	Polyken 2 layer tape 25 mm concrete coating at crossings	Yellow jacket	Armahene	Yellow jacket
Main Line Valves					4				1	1
Actuators (Remote activation)										
Actuators (Local activation)										
Compressor stations										
Meter Stations	1	2	1	1	3	1		1		1

Key:
J – Osborne Lateral
K- Dry Creek Lateral
L – Taperoo Lateral
M - Port Bonython Lateral
R - Tarac Lateral
N- Whyalla Lateral
O – Nurioopta Lateral
P- Whyalla Lateral Loop
Q- Quarantine Lateral
S – Hallett Lateral

Figure 1 - Moomba to Adelaide Pipeline System



4 OPERATIONAL & MAINTENANCE ACTIVITIES - 2007

4.1 Risk Management Review

A review of the AS 2885 Risk Assessment was carried out and a final report developed in 2007. As part of this risk assessment review, additional requirements of the Draft AS 2885.1 DR 04561] ref 3 was taken into consideration.

The review of the risk assessment found that in most cases the workshop team considered that the protection measures in place reduced the risks of the identified threats to acceptable levels. Where there was doubt or further investigation was deemed necessary, an action was raised.

The major threats and hazards identified during the risk assessment included, water exploration and boring, excavation, railway accidents, anchor dragging, third party activities over and adjacent to the pipeline and new industrial developments.

Many recommended actions were made by the workshop team. These consisted of several different types of activities such as:

- Analyze to confirm adequacy of standard design with respect to power line faults to ground and lightning strikes.
- Confirmation of depth of pipeline cover
- Review effects of tree roots on the pipeline and implement at tree removal program
- Review adequacy of AC mitigation measures
- Confirm adequate pipeline warning signage

These actions are currently being addressed with no high priority actions outstanding. A program has been developed to complete the actions by end of 2008.

Resulting from the risk assessment a depth of pipeline cover project has commenced to positively confirm the actual depth of cover at all roads, rivers/creeks, railways and fences on the MAP and laterals associated with PL1 to update the Epic Energy GIS. An additional action commenced in 2007 was to engage an arborist to survey the MAP and Wasleys Loop Line south of Mintaro and prepare a report on the potential impact root systems may be having on the pipeline coating systems.

Two additional AS 2885 Risk Assessment reviews of sections of the MAP were carried out due to extensive redevelopment of the Port Wakefield Road and the proposed development of a new railway siding in the Virginia area.

4.2 Training

Epic Energy is committed to developing the skills of their employees and contractors to meet the operational needs of its business. During 2007 staff training was conducted in-house using a number of techniques which included training courses developed specifically for Epic Energy and delivered using self paced modules or as a group presentation using either a training service provider or suitably skilled Epic Energy staff.

In addition to internal training, staff attended a range of external courses selected to further enhance their knowledge of the natural gas and liquid hydrocarbon pipeline transmission industry. The range of training staff attended during 2007 included:

- Asbestos workshop
- Santos safety inductions
- Cathodic Protection Monitoring

- The Use of Chemicals
- Electrical hazardous Area Installation and maintenance
- Elevated Platform Work Practices
- Fork Lift Operators Training
- Gas Detection
- GPS/Palm Pilot
- Incident Investigation
- Introduction to Gas Pipelines
- Job Hazard Analysis
- Mercury Awareness
- Working at Heights
- Working in Remote Locations
- 4WD training
- Senior First Aid training (conducted by St John Ambulance Australia)
- Epic Energy Safety Inductions (Office, field and contractors)
- Defensive driving (Collision avoidance and 4WD training)
- Pipeline Excavation training
- Permit to Work
- Emergency Response Refresher training
- AS2885 Awareness training
- Defect Assessment of Pipelines
- Manual Handling training
- Atmospheric Testing training
- Confined Space Entry
- Third Party Works on Pipeline Easements
- First Five minutes Fire training
- Pipeline locator use, surveillance and easement activities training
- Heat stress training
- Workplace Drugs & Alcohol
- Preventing Discrimination & Harassment
- Fatigue & Stress Management
- Hazard & Incident reporting
- Clockspring Installation
- Communication Protocols

4.3 Operations & Maintenance Activities

Epic Energy operates and maintains the Moomba to Adelaide natural gas transmission pipeline and its associated facilities in accordance with AS2885 and other relevant standards. All routine and corrective maintenance activities identified are specified in Epic Energy's CMMS and are scheduled by this system which generates work orders for maintenance staff to complete.

Some of the key items in the maintenance schedule include:

- Daily road patrols on the main line and the looped section of the line in the Adelaide metropolitan area from Two Wells to Torrens Island power station.
- Two weekly road patrols from Wasleys to Torrens Island power station and the Angaston lateral
- Monthly road patrols from CS5 to Wasleys as well as the Whyte Yarcowie to Port Pirie, Whyalla, Port Bonython, Burra, Peterborough, and Hallet lateral pipelines.
- Quarterly patrols of the mainline from Moomba to CS5
- Monthly aerial patrols in the metropolitan area
- Quarterly aerial patrols from Adelaide to CS4 including the loop line and the Whyte Yarcowie to Whyalla lateral

- Two monthly CP system transformer rectifier unit inspections
- Six monthly CP system full line surveys
- Six monthly inspection and servicing of all portable fire extinguishers
- Six monthly mechanical inspections, operational checks & servicing of equipment at all MLV and scraper station sites
- Six monthly Pig vessel maintenance and checks
- Quarterly, six monthly and annual compressor and meter station servicing covering:
  - Pressure reduction regulators.
  - Relief valves.
  - Isolation valves and their associated actuators.
  - Filter changes. (Generally based on condition).
  - meter tube cleaning. (Generally based on condition)
  - SCADA system pressure, flow and temperature instrumentation calibration
  - un-interruptible power supply and battery maintenance.
  - Fire and natural gas detection equipment testing and calibration.
  - Pressure vessel inspections (using suitably accredited external contractors) at all facilities associated with the Moomba to Adelaide natural gas pipeline system including the Dry Creek maintenance depot.
  - Compressor and meter station emergency shutdown system testing.
  - Calibration of all compressor station gas turbine or gas fueled reciprocating engine powered process compressor package control systems including testing of all safety shutdown devices.
  - Compressor station power generation equipment engine control system calibrations and testing of all safety shutdowns.
  - Routine electrical hazardous area equipment inspections and maintenance.
  - Routine electrical appliance and equipment testing with timings as per the relevant Australian standards.
  - Routine hours based compressor station GEA servicing.
  - Routine hours based compressor station process compressor package maintenance.
- Annual communications system mast maintenance.
- Annual communications system un-interruptible power supply and battery maintenance.
- Annual communications system VHF and microwave bearer checks and tests.
- Routine meter station custody transfer equipment AVT calibrations and checks with frequencies determined by the relevant contracts as agreed between Epic Energy and the customers.

A description of the Operations and Maintenance activities for 2007 is provided below.

4.3.1 Patrol Activities

All road and aerial patrols scheduled by the CMMS were completed in 2007. The road and aerial patrols ensure that the following pipeline activities are addressed:

- Signage is clearly visible, in suitable condition and maintaining pipeline line of sight. Any issues not addressed during the patrol are fed back into the CMMS and repairs are affected as soon as is practically possible.
- There are no unauthorized activities occurring along the pipeline route or at any of the facilities.
- Restoration of any soil erosion due to wind and water is addressed.
- There are no leaks occurring at any of the pipeline facilities or along the pipeline route.
- All sites are secure, kept clean, neat and tidy.
- Items including above ground pipe coating condition, fences, gates, padlocks, signage, fire extinguishers, weeding and other housekeeping activities are addressed at all of the facilities associated with the pipeline system.

In 2007 significant issues detected by patrolling officers included three third party easement encroachments and soil erosion on Torrens Island and the MAP between Moomba and CS5. While none of these items resulted in any damage to the pipeline immediate action was required on each occasion. These incidents were brought to PIRSA's attention at the quarterly meetings held between Epic Energy and PIRSA.

4.3.2 Pipeline Integrity

4.3.2.1 MAPS Defect Repair Program

In 2003 the MAP was intelligently pigged and from the results of this a corrosion defect repair program was developed.

In 2005 the defect repair program commenced and continued into 2007. In 2007 forty five defects were investigated and a total of seventy eight clock spring repair sleeves were fitted to the MAP. In addition to the defect repairs a total of 580 metres of pipeline was excavated, inspected for SCC and the coating refurbishment completed using Vessy Epoxy system.

Sine the start of this program in 2005 approximately two kilometres of pipeline has been inspected for SCC, 120 defects assessed and repaired and coating refurbished. This program will continue into 2008 and be reassessed setting new targets after the 2008 Intelligent Pigging Program is completed.

4.3.2.2 Meter Station\ Project Work

A new delivery meter station was built in 2007, approximately 5km ENE of Two Wells [Frost Road] as an extension to the existing Mainline Valve 27L site on the Wasleys Loop line, to supply natural gas to the D'Vine ripe glasshouses all year round including zero flow periods each day, thereby requiring bubble tight shut off for pressure control and limited redundancy. The new delivery meter station was designed to provide gas filtering, metering, temperature control (heating), pressure control and safety shutdown to meet an initial peak flow requirement of 1,300 scmh (50 GJ/hr) at a delivery pressure of 350 kPag and delivery temperature of at least 0°C with a pipeline pressure of between 3,000 and 7,300 kPag. The pipeline connecting the Meter Station to the glasshouses is approximately 2 km of 200mm HDPE which was designed and installed by others and includes odorant storage and dosing facilities, also in the extended compound.
In accordance with regulation 9 of the Petroleum Act 2000 an Environmental Impact Report [EIR] was developed for this project and it determined the Statement of Environmental Objectives [SEO] previously developed for the Hallett meter station was suitable for use in the construction of this facility. Construction was completed with all objectives of the SEO being met. The current SEO for Pipeline Licence #1 was reviewed and determined appropriate for operations.

At the Mintaro meter station the antiquated Leeds and Northrup SCADA communications equipment was removed with SCADA information taken directly from the existing Daniel flow computer which is capable of communication with the upgraded Epic Energy Telvent SCADA system via a ModBus link. (This modification was required as the upgraded Telvent SCADA system can no longer use the Leeds and Northrup protocol). In addition to upgrading the actual SCADA equipment the communications link to Mintaro which utilized a standard copper wire and modem type service was upgraded with the installation of a "Next G" wireless service.

Replacement "Anderson & Greenwood" modulating relief valves have been purchased for Elizabeth (1 off), Gepps Cross (1 off), Angaston (1 off) and Taperoo (1 off) meter stations. These relief valves will replace snap action "Axelson" type valves which while still being fully operational are no longer considered appropriate for the type of service currently asked of them. The replacement valves will be progressively installed during 2008.

4.3.2.3 Compressor Station Project work

In 2007 Epic Energy carried out an ongoing remedial programme to upgrade electrical equipment in Compressor Station Hazardous Areas as defined in AS/NZS 60079-10 using an Engineering Compliance Review as the basis for the Scope of Work. The Review was carried out by the engineering consultants Maunsell Australia Pty Ltd.

An upgrade to Compressor Station 3 Yard Lighting was completed in 2007. Existing luminaries were 400 watt Mercury Vapour High Intensity Discharge Lamps and were approximately 30 years old and difficult to maintain. These were replaced with 400 watt Metal Halide luminaries with an IP rating of 65, Metal Halide provides an increased efficacy and colour rendition over Mercury Vapour. These luminaries are pole top mounted at a height of 10 metres

Work was carried out throughout the year to complete all aspects of this Ladder and Platform Upgrade Project. This work involved the fabrication and erection of additional platforms, ladders and safety barriers to ensure routine maintenance tasks can be dismissed with safety

The Whyte Yarcowie Compressor Station System Control and Data Acquisition (SCADA) communications equipment which consisted of a Leeds and Northrup telemetry system which used a communications protocol no longer supported by the Telvent SCADA system was replaced with an Allen Bradley Prosoft module and the site Allen Bradley PLC5 software modified to allow control and monitoring information to be transmitted back to the transportation services control centre in Melbourne in a format compatible with the upgraded SCADA equipment. In addition to upgrading the actual SCADA equipment the communications link to Whyte Yarcowie which utilized a standard copper wire and modem type service was upgraded with the installation of a “Next G” wireless service.

An additional modification was made to allow remote access to the site PLC using a software product called “Citect” which is the standard human machine interface software at all of the other MAP compressor stations. This modification allows staff located at any of the other compressor stations or at the Dry Creek maintenance depot accesses the site for monitoring and troubleshooting activities.

Compressor station GEA starting battery chargers were replaced with a latest technology Victron Energy “Centuar” 24 volt DC 30 ampere charger.

At Compressor Station 3 the antiquated Wormalds fire detection and suppressant system and the Sieger 1300 gas detection system were replaced with a “HIMA” safety fire and gas detection system. This upgrade involved the replacement of all smoke, thermal and gas detectors for the latest technology equipment and in the case of the turbine buildings and power generation room additional UV/IR flame detectors were installed. The detectors are monitored by a “HIMA” safety system PLC which initiates any alarms and shutdowns required to the site PLC and the site hardwired Emergency Shutdown (ESD). The new equipment allows full visibility of all compressor station zones through the site HMI and via SCADA to the Melbourne control centre.

At the Wasley compressor / meter station a new Daniel type 700 Gas Chromatograph (GC) has been installed which allows the flow measurement equipment at this site to now use GC data rather than the information from the antiquated densitometers thus improving the metering accuracy at the site which in turn will improve the overall gas balance measurement between Moomba and Wasleys.

Electrical power distribution boards were replaced at CS1, 2 & 3 to bring these boards into compliance with Australian Standards for switchboards. This task involved the complete removal of the distribution board at each site and replacing with a new board manufactured by Mayfield’s which meets all aspects of the Australian standards for switchboards. In addition to the replacement of the switch boards a GEA power sequencing PLC which allows the site GEA’s to be operated in parallel was removed and the existing site PLC-5 software was upgraded to include the

ability to parallel the GEA's as well as manage the station power requirements to ensure the most efficient use of the power generation equipment.

The Compressor Station 2, 5 and 7 mothballing work is now completed as per AS 2885. While there are a number of minor outstanding site housekeeping items that are still required to complete this project and the final installation of the dual cathodic protection TR units and the valve RTU's we consider for this report that we can advise the site isolation is complete. (The RTU and CP TR units are installed and only the final connections are outstanding and scheduled for first quarter of 2008.

During 2007 Epic Energy engaged the services of Rolls Royce Melbourne to provide boroscoping inspection services for a number of Allison 501KC-5 gas turbine engines which are installed as the unit B machines at CS1, CS3, CS4 unit A and CS6. The boroscope inspection reports showed that all units were in a serviceable condition with no major problems being identified. The engine at CS6 has been identified as requiring accelerated monitoring and will be re-assessed at an interval of 2000 hours from this inspection.

4.3.3 Cathodic Protection

The following routine planned maintenance tasks were scheduled and completed in 2007 for the MAPS mainline and the associated laterals on the system.

4.3.3.1 MAP Mainline

Cathodic Protection OFF potential surveys for the MAP mainline were carried out in February and August 2007.

Epic Energy's twice yearly pipe to soil potential surveys have shown that the level of cathodic protection applied to the Moomba to Adelaide Pipeline (MAP) between Compressor Stations 3 (KP 256.2) and 4 (KP 352.8) is not satisfactory and does not satisfy AS2832.1 protection criteria of -850 to -1200 mv instantaneous off potential.

The level of protection has declined due to a combination of factors including degradation of the pipeline coating and the existing impressed current cathodic protection systems.

To restore protection levels preliminary work has indicated that 2 new solar powered cathodic protection units may be required at:

- KP 266 between the existing solar powered cathodic protection units at Dingo Lake and Munyallina
- KP 316 between Wertaloona and Moorowie Bore.

This project is in progress and expected to be completed in 2008, where the objective is to archive the proper protection criteria of -850 to -1200 mv instantaneous off potentials in the pipe line between station 3 and 4.

Interference testing conducted in the Moomba Area between the MAP and Santos flow lines in 2007 concluded that the level of interference measured on the various pipelines is due to electrolytic interference from negative soil voltage gradients associated with poorly coated pipelines at adjacent pipe crossings. The level of anodic interference in many cases exceeds the 20 mv shift as specified in Australian Standard 2832.1. The majority of pipelines are sufficiently negative to offset this minor anodic shift without compromising the level of protection of the pipeline to any significant degree. If protection levels are compromised then this will be addressed via resistive bonds between the pipelines and or coating refurbishment at pipe crossings. This issue was discussed with Santos and waiting feed back from them to include the dig ups for the 2008 program.

Overall, during the February and August survey 93% of the readings taken satisfied the minimum protection criteria of -850Mv versus a copper/ copper sulphate reference electrode.

Pipe to soil potential readings are affected by seasonal variations and during the dryer season pipe to soil potential readings tend to fall due to increased soil resistivity and improve during winter as soil resistivity decreases.

These potentials are expected to improve following the installation of new and replacement of a number of existing ground-beds during 2008 anode bed replacement program. The protection of the mainline is considered to be adequate.

4.3.3.2 Wasleys Loop Line

Cathodic Protection OFF potential surveys for the Wasley Loop were carried out in January and July 2007. These surveys indicated that pipeline is satisfactorily protected.

4.3.3.3 Peterborough Lateral

Cathodic Protection OFF potential surveys for the Peterborough Lateral were carried out in May and October 2007. These surveys indicated that the pipeline is satisfactorily protected.

4.3.3.4 Port Pirie Lateral

Cathodic Protection OFF potential surveys for the Port Pirie Lateral were carried out in February and May 2007. Three high protection levels were recorded during 2007 August survey which has been attributed to seasonal variation. This will be monitored moving forward and this line is considered to be adequately protected.

4.3.3.5 Burra Lateral

Cathodic Protection OFF potential surveys for the Burra Lateral were carried out in March and October 2007. These surveys indicated that pipeline is satisfactorily protected.

4.3.3.6 Mintaro Lateral

Cathodic Protection potential surveys were carried out in April and September 2007. ON potential surveys only are possible on this pipeline because the pipeline is protected by magnesium anodes. These surveys indicated that the pipeline is satisfactorily protected.

Four Zinc anodes were replaced at the meter station following the April survey due to low protection levels and the results were successful in September survey.

4.3.3.7 Angaston Lateral

Cathodic Protection OFF potential surveys for the Angaston Lateral were carried out in January and July 2007.

Due to the low potential levels reported during 2006, Anode beds were replaced by identified locations. These installations had given the adequate potentials and the latest survey shows improvements.

4.3.3.8 Pelican Point Lateral

Cathodic Protection potential surveys were carried out in January and July 2007. ON potential surveys only are possible on this pipeline because the pipeline is protected by zinc anodes.

The Zinc anodes were replaced at the Torrens Island take-off point and at the Pelican Point meter station following the past survey due to low protection levels and the results shows satisfactory in 2007. This will be monitored moving forward and any changes for the line will be decided after the 2008 February survey.

4.3.3.9 Osborne Lateral

A Cathodic Protection ON and OFF surveys carried out in February and August 2007. Due to the Anode replacement program in 2005 and 2006 readings had shown satisfactory results.

4.3.3.10 Dry Creek Lateral

Cathodic Protection OFF potential surveys for the Dry Creek Lateral were carried out in February and August 2007. Due to low potential in few points new anode beds were replaced in 2007. This will be monitored moving forward and this line is considered to be adequately protected.

4.3.3.11 Taperoo Lateral

Cathodic Protection OFF potential surveys for the Taperoo Lateral were carried out in January and August 2007. These surveys indicated that pipeline is satisfactorily protected.

4.3.3.12 Port Bonython Lateral

Cathodic Protection OFF potential surveys for the Bonython Lateral were carried out in March and August 2007. These surveys indicated that pipeline is satisfactorily protected.

4.3.3.13 Whyalla Lateral

Cathodic Protection OFF potential surveys for the Whyalla Lateral were carried out in Mach and June 2007. Due to the low potential readings in two locations and an assessment of the impressed current system anode beds associated with these sites has identified and have been replaced in 2006 and the results were satisfactory during the surveys carried out in 2007.

4.3.3.14 Nurioopta Lateral

Cathodic Protection potential surveys were carried out in January and August 2007. ON potential surveys only are possible on this pipeline because the pipeline is protected by magnesium anodes. The survey results indicate that the pipeline is satisfactorily protected to the criteria specified in AS 2832.1-2001.

4.3.3.15 Quarantine Lateral

The Quarantine lateral Cathodic Protection potential surveys were carried out in January and July 2007. ON potential surveys only are possible on this pipeline because the pipeline is protected by one zinc anode at 0.1 KP. These surveys indicated that pipeline is satisfactorily protected.

4.3.3.16 Summary

In conclusion the “Off” and “On” potentials from the surveys conducted indicated that the MAPS and its associated lateral are adequately protected indicating that the impressed current and sacrificial anode cathodic protection systems are effectively protecting the pipelines. Where items have been identified programs are in place to address these issues.

4.3.4 Electrical and Instrumentation

Routine mainline valve, meter and compressor station pressure and temperature transmitter

calibrations were completed at all pipeline facilities verifying that the inputs to the SCADA system were within the specified tolerances for the installed devices thus ensuring that the control of the natural gas transportation process was within the design parameters at all times.

Routine meter and compressor station emergency and safety shutdown checks were conducted as per the maintenance schedule to ensure these functions are operational and fit for purpose. Generally these systems are failsafe and any malfunctions trigger the shutdowns. Testing ensures the mechanical devices that perform the valve closures and other functions actually operate. Maintaining these systems as part of a regular maintenance regime guarantees their operation should an emergency situation arise.

Routine process compressor package control system instrumentation and emergency shutdown checks were carried out verifying that the machinery control stays within the original equipment manufacturers design parameters at all times and that the information supplied to the pipeline SCADA system is accurate and within the measuring devices tolerance range.

All process compressor emergency shutdown functions were tested to ensure that in the event they are needed to operate the correct action occurs and the machinery is brought to a safe condition as per the original equipment manufacturers design.

Routine meter and compressor station fire and gas detection equipment maintenance and tests were conducted to meet statutory requirements and allow the identification of faulty components to ensure that the system operates correctly should the need arise.

Routine power generation equipment and the distribution system maintenance including the testing and calibration of any instruments associated with this equipment were completed as per the maintenance schedule ensuring that a reliable supply of AC power was available at the remote compressor stations. Generation of AC power at remote compressor stations is a key element in the process of transporting natural gas through the pipeline system and given it must be available twenty four hours a day three hundred and sixty five days a year equipment reliability is of prime concern to the maintenance effort.

Routine uninterruptible power supply system maintenance activities were conducted to ensure that compressor and meter station batteries and their associated chargers are in a serviceable condition. Battery cells are assessed annually with a charge and discharge regime to identify remaining service life so that replacements can be made prior to any unexpected failures.

Ongoing programmed routine maintenance of our SWER and HT reticulation systems to ensue operability and reliability. Maintenance includes the inspection of pole top insulators, high and low voltage earthing grids, pole footings, Hi Pot (Megger) testing, removal, cleaning and greasing of all line taps and take offs etc.

All meter and compressor station site electrical equipment was routinely inspected and maintained in accordance with the laid down Australian standards and to ensure any defective items are identified and repaired in a timely manner.

Meter station process gas custody transfer metering equipment is tested and calibrated as per the contracts between Epic Energy and their customers. All AVT's were completed during 2007 with no significant anomalies being identified.

During 2007 while numerous electrical and instrumentation corrective maintenance activities were undertaken no one or multiple failure was considered to be of a significant nature.

4.3.5 Communications

All pipeline facilities control and monitoring functions are communicated to the central control system located in Melbourne Victoria via a microwave link that runs parallel to the buried pipeline

system from Moomba to Peterborough and then via a Telstra land line system to the Dry Creek maintenance depot.

In addition to the microwave equipment a VHF radio link to allow voice communications between staff and the control centre is also supported by the communications system.

The communications link is essential for the safe monitoring and control of the pipeline and the following range of maintenance activities were carried out in 2007 to ensure the system provided a high level of availability and reliability:

- Three and six monthly maintenance tasks associated with the communications system uninterruptible power supply batteries and their associated charging system.
- Three monthly radio shack electrical equipment and appliance maintenance.
- Six monthly routine air conditioning equipment maintenance.
- Annual Microwave bearer and VHF communications system maintenance.

In addition to the routine tasks above, the maintenance staff have responded to, investigated and solved numerous corrective maintenance issues that have had a minor impact on the communication systems for short periods of time.

As a result of Telstra removing a variety of services in preparation for the “Next G” introduction Epic Energy has installed new “Tait” radio base stations at the Hallet Tarlee and Belair radio repeater sites as well as hardware that allows the use of “voice over I/P” technology and the hardware required to access the “Next G” Telstra services This new filed based equipment talks to new “voice over I/P” hardware at the Dry Creek maintenance depot via a “Wide Area Network” system.

Additional “voice over I/P” equipment was installed at the Peterborough radio site and the Dry Creek maintenance depot which utilizes Dry Creeks wide area network system to allow VHF radio communications between TSCC in Melbourne and all MAP facilities.

At MLV’s 24,25,26, 27L & 28L the antiquated Leeds and Northrup telemetry equipment has been removed with a new PLC based remote transmission unit installed to allow valve site SCADA information to be transmitted back to the upgraded Epic Energy Telvent SCADA system which no longer supports the Leeds and Northrup SCADA communications protocol.

4.3.6 Mechanical

Routine mainline valve and scraper station maintenance including valve sealing integrity checks, stem and ball seal greasing, valve operational checks and valve actuator serviceability checks completed. Scraper trap doors seals inspected and traps checked for leakage.

All pipeline, meter station and compressor station routine pressure regulator and over pressure protection devices were tested in accordance with the relevant Australian standard and the maintenance schedule. Frequencies of pressure regulator inspections differ from facility to facility and are determined from operational experience driven by the amount of use these devices are exposed to. Generally meter station pressure reduction devices have shorter service intervals given they operate twenty four hours a day for most of the year.

All compressor station power generation equipment is serviced at 1000 hourly intervals to ensure high reliability and availability levels whilst attempting to achieve original equipment supplier recommended major overhauls timeframes without any premature failures being experienced.

All compressor station process compressor package equipment has varying levels of service required dependant on operating hours. Typically filter changes and package walk-around type inspections occur at 1000 hour intervals with major strip downs and boroscope inspections occurring at 4000 hour intervals. Service intervals at these levels ensure maximum availability and

reliability levels are achieved. All scheduled servicing for the process compressor package equipment occurred within the specified timeframe during 2007.

Ancillary equipment, such as pipe supports, pipe ground entry points, valves and pigging facilities, are routinely inspected as part of the facilities inspections or as a part of mechanical maintenance routines.

Routine and on condition meter and compressor station process gas filter changes were completed as required.

Minor mechanical maintenance tasks identified during routine site work along the pipeline are prioritized, entered into the CMMS with work orders issued for the rectification of these faults.

In addition to the routine activities above, the maintenance staff have investigated and solved numerous corrective maintenance issues that have been identified as a result of the routine activities or from failures that occur in the day to day operation of the pipeline system.

All mechanical and ancillary equipment is considered to be in good condition and fit for purpose with no significant mechanical failures were reported on the pipeline system during 2007.

4.3.7 Pigging Operations

No pigging activities were carried out on the MAPS during 2007. An Intelligent Pigging Program has been scheduled for 2008. A CDP tool has been confirmed for the entire length of the MAP and the Wasleys Loop and an ADF tool will be run between compressor station 1 and 4.

4.3.8 Leak Detection

During 2007, Epic Energy began an upgrade to their operational SCADA system. The intention was to replace the existing Telvent OASys 5.2.2 system with the new Telvent OASys DNA 7.4 system. The new system has been installed and is currently under going operational testing in parallel with the old system. The communications paths from field to SCADA host are primarily the same, although some remote site communications have also been upgraded during the year. Completion of commissioning is expected by the end of the first quarter of 2008.

The Epic Energy Control Centre employs a computer model of the pipeline system that continuously monitors the MAPS, providing a real time leak detection capability allowing the control staff to instantly identify any anomalies that may be occurring and notify maintenance personnel to investigate further onsite.

The control centre staff can, if required, isolate the pipeline remotely using any one of 15 out of 36 mainline valves (includes Wasleys to Adelaide loop line) isolating sections of the pipeline to minimize any leakage should the need arise.

The real time leak detection system is augmented by maintenance activities along the pipeline which assists in the identification of any pipeline leakage ensuring the appropriate resources are mobilized to address the problem in a timely manner. In addition to the field maintenance staff activities the pipeline operations group and senior maintenance staff carry out a daily check of the hourly line balance to ensure no significant leakage is occurring on the pipeline system again mobilizing staff to inspect any sites that they may identify.

5 INCIDENT REPORTING

During 2007 there were 11 incidents on the pipeline system pursuant to Regulation 32 of the “South Australian Petroleum Regulations 2000”. All incidents were investigated to identify the root cause of the incident and where possible improvements to address any short comings can be implemented. All actions that are raised are tracked to ensure their timely completion before the

incident is considered to be closed out. A summary of the incidents raised in 2007 is provided in Table 3.

Table 3 Reportable Incidents for 2007

Description of incident.	Root Cause determined	Corrective action	Preventive action
A structure was installed on the easement to protect some above-ground pipework. Small trees were also planted, obscuring the easement warning signs	**PRIMARY ROOT CAUSE:** *INDUCTION AND TRAINING* Acting without authority, information not handed-over when the Company's OHS Management changed	Determine protective structure installation contractor and advise them of the contravention.	Review landowner contact frequency and patrol regime for improvement potential
An oil tank mounted on a trailer moved in transit. A fitting broke, releasing 50 to 80Lt of oil.	**PRIMARY ROOT CAUSE:** *DESIGN* The load came adrift in the trailer due to mechanical stress as a result of poor road conditions. this stressed the pipework and fittings	Repair the trailer and restore the spill site	Improve the design of the trailer to prevent or mitigate consequence of spills
A pressure seal failed in CS4 B-unit, causing the oil reservoir to become pressurized. The pressure discharged approximately 60Lts from the unit's oil tank vents.	**PRIMARY ROOT CAUSE:** *MONITORING / MAINTENANCE* The Unit B suction valve failed, Unit B remained pressurized during shutdown and caused a pressure seal failure.	Clean up the spill site and initiate a root cause analysis (RCA) of the multiple unit failures.	RCA to recommend preventive measures to mitigate the risk of the multiple unit failures.
Gas product was released when a flange gasket failed during routine testing of relief valves	**PRIMARY ROOT CAUSE:** *MONITORING / MAINTENANCE* Gasket faulty or damaged before fitment, causing it to be incorrectly fitted	Replace gasket	Review procedure and remind all to align flanges / gaskets correctly
A landowner was found mechanically constructing a trench 450mm deep across the lateral to install water pipe. This was discovered during a daily patrol of the area.	**PRIMARY ROOT CAUSE:** *COMMUNICATION.* Operating without authority, procedural non-compliance, improper motivation and risk taking. The landowner was made aware of the risk before the encroachment was reported.	Confirm the depth of cover to ensure >300mm margin. Confirmed at 550mm. A written warning was sent to the landowner.	Maintain existing control methods - landowner contacts, line-of-sight warning signs and daily patrols.

A 25t excavator and 10t vibrating compacting roller were found to have scoured 150mm of topsoil, then laid and compacted crushed rubble on a security patrol track. This work crossed the line three times in 100m	**PRIMARY ROOT CAUSE:** *COMMUNICATION.* Operating without authority, procedural non-compliance, inadequate supervision & leadership. TRU authorised the work without due care to observe procedures which would identify the need for DBYD.	Discuss procedural failures, including ignoring the line-of-sight pipeline warning signs with TRU and the road work contractors. Raise this incident at TRU / Epic meeting.	Review existing control methods - landowner contacts, line-of-sight warning signs and daily patrols. Amend program if deemed appropriate.
NEAR LOSS REPORT: A relief valve was relieving pressure by a controlled gas venting to the atmosphere, in accordance with it's design parameters	**PRIMARY ROOT CAUSE:** *MONITOR / MAINTENANCE.* The regulator diaphragm was subject to degradation.	Replace worn diaphragm	Initiate the same procedure for the adjacent regulator

6 LAND MANAGEMENT

6.1 Land Owner Liaisons

There are 643 landholders along the MAP system. All available landowners on the pipeline were contacted during the year and a questionnaire was completed as part of each visit. The questions were centered on people's contact details, current and proposed land use, awareness of the pipeline location and their responsibilities with respect to works in the pipeline vicinity.

As part of Epic Energy's continuous improvement program for pipeline awareness the landowners were posted two letters and safety brochures during the year containing information covering pipeline and easement safety and the responsibilities landowners have to ensure no safety breaches occur on their properties. An Epic Energy year 2008 calendar reminding the landowner of pipeline safety was also forwarded in December 2007.

6.2 Pipeline Safety Awareness

Epic Energy implements a Community Awareness Program, which entails holding awareness meetings with communities along the pipeline route. To cover the various pipeline infrastructure that Epic Energy operates and maintains in South Australia Epic Energy had set a 2007 national target of a minimum 30 meetings annually with CFS, MFS, Police, Ambulance, SES, councils, earth moving contractors, irrigation and fencing installation contractors.

The presentations focus on the general properties of natural gas, the process of gas transmission by pipeline, location of Epic Energy's high pressure gas pipelines in the regions concerned, correct procedures when working within gas pipeline easements, pipeline threats and dealing with emergency situations.

A total of 39 Pipeline Safety Awareness Presentations were carried out to Utilities, Emergency Services and Councils in areas associated with the Moomba – Adelaide Pipeline System in 2007.

6.3 Pipeline Location and Referral Services

Epic Energy provides a free service to locate any pipeline that they own or operate on behalf of third parties. This service is primarily used by other companies and third parties planning new developments and carrying out civil works in the vicinity of the pipelines.

During 2007 Epic Energy received and attended 520 enquiries via the free call 1100 "Dial Before You Dig" asset referral service in relation to third party activity in the vicinity of the Moomba – Adelaide Pipeline system with approx 40% of these requests requiring an Epic Energy person to attend site to locate the pipeline or supervise third party activity within the pipeline easement.

During 2007 there were three identified third party unauthorized activities/encroachments within the pipeline easement.

7 ENVIRONMENTAL MANAGEMENT

Epic Energy has an audit program that ensures regular audits of the pipeline systems and procedures. An Environmental Audit on Operations of the MAP System [PL1] was carried out in 2007 to assess the operational environmental management practices against the Statement of Environmental Objectives [SEO].

Appendix A contains the "Assessment of Declared Objectives" completed for the Moomba – Adelaide Pipeline system.

8 EMERGENCY RESPONSE

Pipeline Licence 1 states that an ERE is to be conducted on the MAPS every two years. During 2007 Epic Energy conducted 2 emergency response exercises on the MAP. A desk top exercise was completed in January 2007 to test and train Epic Energy key personnel in the roles and responsibilities associated with the Emergency Incident Command Centre. A second Emergency Exercise Drill was carried in July 2007 on the Moomba to Adelaide Pipeline system. The main objectives of this exercise were to ensure participants understood:

- Current Emergency Response Manual
- Their roles and responsibilities
- The communication processes
- First in site preparedness (including a practical exercise)
- Permanent repair techniques

In addition to the ERE routine inspections of the first response emergency trailer and pipeline emergency repair equipment was carried out.

9 REGULATORY COMPLIANCE

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.

There are no known outstanding non compliances for the MAPS that Epic Energy is aware of against:

- The Petroleum Act & Regulations 2000
- The Pipeline Licence (PL1)
- The Statement of Environmental Objectives

Any non-compliance identified is logged in the CMMS where it is tracked to conclusion. Significant items are reported to PIRSA.

10 RISK MANAGEMENT

Epic Energy continually reviews operational risks with assessments including inputs from experienced gas industry personnel and emergency services representatives providing an insight into potential new risks and assisting in the development of appropriate management strategies.

Epic Energy utilizes the following risk management strategies to minimize risks to ALARP.

- Aerial and ground monitoring of the pipeline easement activities.
- Safe Work Systems, including Permit to Work .
- Routine maintenance activities to ensure all of the pipeline facilities are maintained in accordance with best industry practices and the relevant codes and standards that apply.
- Design change control.
- In accordance with AS2885 five yearly metre by metre risk assessment reviews.
- Pipeline & Safety awareness program.
- Land ownership and use notification system.
- Landholder and stakeholder contact program.
- Participation in state forums for external risk management.
- Free “1100” Dial before You Dig information system.

During 2007 several new developments within proximity of the pipeline, including the Port Wakefield Road upgrade and a new rail siding near Virginia, required sections of the AS 2885 Risk Assessment to be reviewed. With the installation of additional physical protection and the utilization

of the risk management strategies above, all risks identified were reduced to ALARP.

11 MANAGEMENT SYSTEM AUDITS

11.1 Environmental Audits

An Environmental Audit on Operations of the Moomba – Adelaide Pipeline [PL1] between Moomba and Compressor Station 4 was carried out by an independent consultant [RPS Ecos] in May 2007. The audit found the environmental impact of on-ground pipeline operations was minimal with several minor recommendations for improvement to consider.

Internal engineering audits wee conducted to investigate area of soil erosion causing low depth of pipeline cover after heavy rains/flooding and wind erosion in the vicinity of CS2. Initial erosion issues were addressed immediately to restore depth of cover.

Appendix A contains the “Assessment of Declared Objectives” completed for the MAP.

11.2 Health and Safety Audits

During 2007 Epic Energy conducted health and safety audits of its pipeline facilities. All issues noted during these audits are entered in the CMMS where they will be addressed as part of the corrective maintenance activities dealt with by the maintenance teams.

A review of the Epic Energy safe work systems was carried out in 2007, the procedures reviewed included Permit to Work, Excavation, Work at Heights, Confined Space, Job Hazard Analysis and Isolation and Tagging. Resulting from this review, a new safe work system with revised procedures and additional safety check lists will be rolled out to the teams in first quarter of 2008 as part of the consultation process with a view of implementation second half of 2008.

Site asbestos management plans and registers were updated and site inspections were completed against these updated documents.

No significant HSE issues occurred during 2007.

11.3 Management Audit

In 2007 an Operations and Maintenance Plant/Equipment audit was conducted by the Epic Energy Audit and Compliance Coordinator with the objective to ensure appropriate and sufficient facilities, plant and equipment are provided in order to support the achievements of defined business objectives. The general findings confirmed controls are in place, together with suitable policy and procedural documents which drive and maintain the company’s maintenance program.

In accordance with the South Australian Petroleum Act 2000 and the Petroleum Regulations Part 6 Division 4 the Moomba to Adelaide pipeline was assessed in 2007 with the final Fitness for Purpose Report due to PIRSA in February 2008.

In 2007 a working group was set up to review the Epic Energy National Pipeline Safety Awareness Strategy document and review the current work program in each state to maintain maximum effectiveness for the 2008 program.

A compliance audit of the Epic Energy Safety and Operating Plan for the MAP [PL1] was carried out against AS 2885.3 and a revised document provided in March 2007.

In 2007 a full audit of the 2008 Maintenance Plan was carried out for compliance with the Epic Energy Pipeline Integrity Plan, the maintenance Program and AS 2885.3.

12 REPORTS ISSUED DURING THE 2007 LICENCE YEAR

The following reports were generated and forwarded to PIRSA for the MAPS in 2007:

- PL 1 Annual Report for 2006 (forwarded Feb 2007).
- PL1 SAOP (For PIRSA review only, not for approval).
- Quarterly Incident reports.

In addition to this quarterly meetings were held with PIRSA and Epic Energy management throughout 2007.

13 VOLUME OF PRODUCT TRANSPORTED

Approximately 47,484 TJ of product was transported through the MAPS in 2007.

14 PROPOSED OPERATIONAL ACTIVITIES FOR 2008

During 2008 the following activities are proposed for the MAPS pipeline:

- Complete all scheduled routine maintenance activities and corrective maintenance identified.
- Continue with MAP Defect Excavation/Repair Program.
- Solar Taurus Dry Gas Seal replacement at CS3.
- Replace the Fire & Gas Detection system at CS6.
- Intelligent Pigging of the MAO and Wasleys – Torrens Island Loop Line.
- Conduct an Emergency Exercise on MAPS.
- Overhaul Solar Taurus engine at CS1.
- Close out "AS 2885 Risk Assessment" actions.

15 STATEMENT OF EXPENDITURE

Commercial in confidence.

16 KEY PERFORMANCE INDICATORS

The following key performance indicators have previously been established to monitor performance of operations and maintenance activities on the MAPS. Outlined below are the KPI results for 2007.

	2007 Target	2007 Actual	2007 Comment
Cathodic Protection			
Percentage of the pipeline protected to the AS2885-1997 level	Summer 75%	Summer 94%	This represents a satisfactory level of protection over the entire length of the pipeline. While low readings were recorded an a number of sites during both surveys the installation of new ground beds as detailed are expected to correct these results.
	Winter 97%	Winter 97%	
Third Party Incident			
Number of times pipeline is damaged	0	0	No damaged occurred to the pipeline during the reporting period. Target achieved
Number of near misses (digging within 1m of pipeline)	0	0	No activities of this nature that involved Epic Energy or a third party were identified during the reporting period. Target achieved
Unauthorized activity on the pipeline easement	6	3	Listed in the Assessment of Declared Objectives
Exposure of pipeline due to washout	6	0	During the reporting period, there were

and wind erosion			instances of the pipeline cover being eroded and reduced due to wind or water . No section of MAP was exposed during 2007.
Unplanned gas release			
Number of relief valve / vent discharges	5	2	Two uncontrolled gas vent occurred as detailed in the incident section. This target was achieved.
Number of pipeline leaks greater than 200m^3 / Hr	0	0	Target achieved
SCADA and Leak Detection			
Reliability of SCADA and Leak Detection System	99.5%	97.94%	SCADA system reliability failed to meet target expectations marginally. All communications outages were rectified in a timely manner and this measure will be worked on in 2007.
Environmental			
Number of oil or other uncontrolled hydrocarbon releases	2	2	Two small uncontrolled oil releases were recorded during the reporting period and while it is considered that these releases could have been avoided the target was met and no significant environmental damage remains.
Earth Tremor Surveillance			
Vehicular surveillance immediately after an earth tremor or flood	100%	100%	No floods or earth tremors were reported in the vicinity of the MAP during 2007

17 CONCLUSION

The maintenance and inspection programs carried out on the MAPS in 2007 indicated the pipeline is in sound condition and is capable of operating at set parameters with no restrictions.

The pipeline is considered to be in good working condition and well maintained.

ASSESSMENT OF DECLARED OBJECTIVES

Objectives and Assessment Criteria[1]

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
1. To avoid unnecessary disturbance to 3rd party infrastructure, landholders or land use	**1.1** To minimize disturbance or damage to infrastructure / land use and remediate where disturbance cannot be avoided	Incident report. Records of communications with adjacent landholders / 3rd party prior to and during maintenance work. Landholder contact records database. Photo points or inspection reports, specifically to look at: removal of waste products, re-instatement of soil profiles, adequate re-contouring of surface profile, return of land use.	Where disturbance is unavoidable or accidental, infrastructure or land use is restored to the satisfaction of the landholder or to undisturbed condition. Duration of disturbance does not exceed agreed timeframe.	Yes	During 2007 a number of excavations were carried out to support the Epic Energy work program. Work programs included excavation dig program to investigate and repair ILI defect and installation of cathodic protection ground beds. All excavations were carried out with prior approvals and clearances and works performed in accordance with Epic Energy's approved work instruction WM 02-134. There was minimal land disturbance to landowners and sites restored to original conditions.
	1.2 To minimize disturbance to landholders	Records of communications with adjacent landholders / 3rd party prior to and during maintenance work. Landholder contact records database. Landholder activities not restricted as a result of pipeline activities. Completed disturbance checklist	No reasonable landholder complaints. Landholder activities not restricted or disturbed as a result of pipeline activities unless by prior arrangement.	Yes	Minimal disturbance to the landholders, all prior approval and clearances recorded maintained in the epic Energy LMS.

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.

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
2. To maintain soil stability / integrity	**2.1** To remediate erosion as a result of pipeline operations in a timely manner	Timed photo points or annual land survey, specifically to look at evidence of erosion, subsidence, vegetation loss on easement & compare to adjacent land. Inspections undertaken as part of regular patrols, following specific works, following significant storm events. Preventative measures implemented and monitored in susceptible areas.	The extent of soil erosion on the easement was consistent with surrounding land	No	In 2007 heavy rains and flooding causing soil erosion and low depth of pipeline cover on the MAP between Moomba and CS6. Wind erosion has caused loss of soil from the pipeline easement in the vicinity of CS2, drought conditions has eliminated vegetation re-growth in several areas and contributed to this condition. King tides in St Vincent's Gulf removed soil from the Osborne lateral on Torrens Island. Remediation work has been completed to complete suitable pipeline depth of cover at these know sites.
	2.2 To prevent soil inversion	Annual land survey to look for soil discolouration, success of vegetation return as an indicator. Disturbance checklist signed off to indicate top soil/subsoil is stockpiled separately and soil profiles appropriately reinstated following the re-instatement of works/excavations.	Vegetation cover is consistent with surrounding land. No evidence of subsoil on surface (colour). Landholder signoff.	Yes	Epic Energy work instruction WM 02-134 ensures minimal ground disturbance and soil inversion, top soil moved and replaced to restore same environment.

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
3. To maintain native vegetation cover on the easement	**3.1** To maintain re-growth of native vegetation on the easement to be consistent with surrounding area	Annual land survey to look for evidence of disturbance to vegetation on easement (apart from access tracks). Disturbance checklist (including timed photos) signed off to indicate adequate steps undertaken to facilitate re-growth. Follow-up rehabilitation work was undertaken where natural regeneration was inadequate.	Species abundance and distribution on the easement was consistent with the surrounding area. Note: assessment of the consistency with surrounding areas will take into account that re-growth is a time and rainfall dependent process.	Yes	The condition of native vegetation within the pipeline easement is consistent with the surrounding vegetation
	3.2 To minimize additional clearing of native vegetation as part of operational activities	Annual land survey to look for evidence of disturbance to vegetation on easement (apart from access tracks). Use of Disturbance checklist and photo points before, during & after any excavation or land disturbance activity. Vegetation trimmed rather than cleared where possible. Consideration of sensitive vegetation during vegetation trimming and / or clearing activities.	Vegetation clearing within the easement or on land adjacent to the easement is limited to previously disturbed areas or areas assessed to be of low sensitivity, unless prior regulatory approval obtained.	Yes	Pipeline line of sight clearing was carried out with this activity removing re-growth of previously removed vegetation above 1 metre to allow clear visibility of the pipeline as laid down by AS 2885. No additional specific clearing activities were performed during 200. Excavations during 2007 were carried out in areas of the pipeline where there is little or no vegetation and therefore it is considered the impact had by these excavations was minimal.

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
	3.3 To ensure maintenance activities are planned and conducted in a manner that minimizes impacts on native fauna	Use of Disturbance checklist and photo points before, during & after any excavation or land disturbance activity. In event of pipeline repair, open trenches are monitored daily and not left open for more than 72 hours.	Vegetation clearing within the easement or on land adjacent to the easement is limited to previously disturbed areas or areas assessed to be of low sensitivity, unless prior regulatory approval obtained.	Yes	Routine maintenance activities during 2007 had no impact on native fauna. Excavation staff were mindful that they were operating in a sensitive area of the pipeline however the numbers of native Fauna in these areas are low and no instances of impacts were recorded during the program.
	3.4 To minimize disturbance of marine habitats	Only undertake non-interference maintenance activities in the marine habitat. Obtain regulatory approval prior to undertaking disturbance in marine habitat (contact should be initially made with PIRSA during the planning process). Use of Disturbance checklist and photo points before, during & after any excavation or marine disturbance activity.	No 'interference' activities undertaken in the marine habitat unless prior regulatory approval obtained.	Yes	No interference activities were undertaken in the marine environments through which the pipeline transits. No leakage or spillage was reported or recorded in any area where a marine environment exists.

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
4. To prevent the spread of weeds and pathogens	**4.1** To ensure that weeds and pathogens are controlled at a level that is at least consistent with adjacent land	Regular patrols undertaken to look for evidence of weeds on easement and adjacent land (if weeds on easement but not adjacent land must implement control to prevent spread). Records of outbreaks found, weed control activities and photo monitoring of significant outbreaks. Vehicle wash down register. Where appropriate, closure of ROW access road.	The presence of weeds and pathogens on the easement was consistent with or better than adjacent land. No new outbreak or spread of weeds reported.	Yes	The presence of weeds and pathogens on the easement are consistent with the adjacent land. Epic Energy has initiated a program of eradication in place on sections of the MAP easement.
5. To minimize the impact of the pipeline operations on surface water resources	**5.1** To maintain current surface drainage patterns	Regular patrols and annual survey undertaken to look for evidence of erosion, abnormal vegetation growth or death. Observations also to be undertaken following significant storm events. Use of Disturbance checklist and photo points before, during & after excavations, CP installation, construction activities, etc.	For excavations, surface drainage profiles restored. For existing easement, drainage is maintained to pre-existing conditions or better.	Yes	During the reporting period no alterations have been made to the landscape through which the pipeline transverses and therefore current drainage patterns have been maintained.

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
6. To avoid land or water contamination	**6.1** To prevent spills occurring, and if they occur minimise their impact	Evidence of soil discolouration, vegetation or fauna death during patrols. Incident / Spill reports. Use of spill protection methods where work is completed within or adjacent to environmentally sensitive areas. Containment of all hazardous substances and liquid waste in appropriate vessels. Prevention program including pigging, intelligent pigging and pipe maintenance.	No evidence of any spills or leaks to areas not designated to contain spills. In the event of a spill, the spill was: • Reported • Contained • Cleaned-up, and • Cause investigated and corrective and/or preventative action implemented. Compliance with relevant sections of the Environment Protection Act.	No	Approx 60 litres of oil discharged to ground from compressor station 4 unit oil tank vent when the pressure seal failed. Between 50 and 80 litres of oil split on the ROW after a fitting failed on an vehicle mounted oil tank while in transit.
	6.2 To remediate and monitor areas of known contamination arising from pipeline operations	Incident / Spill reports. Active remediation methods implemented where it is determined that contamination is spreading or level of contamination is not decreasing. Use of groundwater monitoring bores. Use of soil farms for remediation.	Contamination confined to known area. Level of contamination continually decreasing, ultimately to meet EPA guidelines.	Yes	Ground monitoring at specific sites is carried out as a routine activity.

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
	6.3 To prevent the spread of contamination where the easement intersects known contaminated sites	Use of Disturbance checklist and photo points before, during & after excavations, CP installation, construction activities, etc. Identification of contaminated sites along easement and establishment of monitoring points.	No evidence of movement of contaminated material along easement (i.e. vegetation death, soil discolouration, subsidence).	Yes	To the best of Epic Energy's knowledge there are no contaminated sites that the pipeline easement passes through therefore the potential to spread contamination is negligible
	6.4 To ensure that rubbish and waste material is disposed of in an appropriate manner.	Regular patrols or annual survey undertaken to look for evidence of rubbish, spills (soil discolouration). Waste disposal records, chemical manifests. Appropriately licensed contractors used for any hazardous waste disposal and records are maintained for all hazardous waste disposal. Use of Disturbance checklist and photo points before, during & after excavations, CP installation, construction activities, etc.	No evidence of rubbish or litter on easement or at facilities. No evidence that waste material is not contained and disposed of in accordance with Epic approved procedures.	Yes	All rubbish and waste material is removed from all the pipeline facilities and the easement. This material is transported back to an approved refuse collection and disposal facility at Peterborough.

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
	6.5 To prevent impacts as a result of hydro test water and waste water (water bath heaters and wash down water) disposal	Water disposed of in a manner that prevented discharge or runoff to watercourses or environmentally sensitive areas. Water discharged onto stable ground, with no evidence of erosion as a result of discharge. Records on source of water and discharge method/location. Testing of water quality prior to release/disposal of waste water. Inspection of water disposal sites for evidence of water entering a watercourse or environmentally sensitive area.	No evidence of impacts to soil, water and vegetation as a result of water disposal (i.e. soil erosion, dead vegetation, water discoloration).	Yes	During the reporting period there were no operational requirements to dispose of any waste water
	6.6 To ensure the safe and appropriate disposal of grey water (sullage, sewage)	Compliance with the relevant local government regulations or relevant health and sanitation regulations.	No evidence of non-compliance with local or state government regulations.	Yes	All waste water at Epic Energy's facilities is managed in accordance with statutory regulations and requirements.

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
7. To minimise the risk to public health and safety	**7.1** To adequately protect public safety during normal operations	Job Hazard Analysis. Records of Annual Reports, Fitness for Purpose Reports, Risk Assessments and inspections. Records (including above) demonstrating compliance to AS2885.	No injuries or incidents involving the public. Demonstrated compliance with AS 2885. Emergency procedures implemented and personnel trained.	Yes	he use of approved work instructions, job hazard analysis, permit to work and experienced staff all contributes to Epic Energy meeting this objective
	7.2 To adequately protect public safety during maintenance	Job Hazard Analysis'. Records of communications with adjacent landholder prior to & during maintenance work including advice of the nature and schedule of maintenance activities. Use of signage or bunting to identify all potentially hazardous areas. Adequate implementation of traffic management practices. Records of regular emergency response training for employees and review of procedures. Incident Reports.	No injuries or incidents involving the public. Emergency procedures implemented and personnel trained.	Yes	As per comments in 7.1

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
	7.3 To avoid fires associated with pipeline maintenance activities	Incident reports. Records of regular fire safety and emergency response training for all operations personnel and review of procedures. Established procedures for minimizing fire risk during maintenance.	No pipeline related fires. Emergency procedures implemented and personnel trained.	Yes	During 2007 no fires were stated or recorded as a result of any activities carries out on the pipeline system.
	7.4 To prevent unauthorised activity on the easement that may adversely impact on the pipeline integrity	Inspection / Patrol reports and records. Comprehensive landholder liaison program and records of communications with landholders. Community education program implemented in Regional areas. 'Dial before you dig' number available and widely advertised. Clear identification of the pipeline by signs installed in accordance with AS2885. All reports of unauthorized activity are reported and investigated.	No unauthorised activity on the easement that has the potential to impact on the pipeline integrity.	No	During 2007 there were 3 unauthorised encroachments on the pipeline easement, incidents were appropriately reported to PIRSA • A landowner constructed a physical barrier within the MAP easement without Epic Energy authorization. • A landowner trenched 450mm deep across the Angaston Lateral without notifying Epic Energy for pipeline location and depth of cover. • A contractor used a 10 tonne vibrating roller within the Wasleys – Torrens Island Loop Line

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
8. Minimise impact of emergency situations	**8.1** To minimise the impact as a result of an emergency situation or incident	Incident reports. Emergency response trials (carried out at least annually) and associated documentation. Records of regular emergency response training for all personnel and review of procedures. Link between ER exercises and Risk assessment.	Emergency response procedures are effectively implemented in the event of an emergency. Emergency response exercises are aligned with credible threats and consequences identified in the risk assessment.	Yes	No emergency situations have been recorded or managed during this reporting period.
	8.2 To restore any damage that may occur as a result of an emergency situation	Refer to previous criteria (Objective 1, 2, 3 & 6).	Refer to previous criteria (Objective 1, 2, 3 & 6).	Yes	No emergency situations have been recorded or managed during this reporting period.
9. To minimise noise due to operations	**9.1** To ensure operations comply with noise standards	Incident reports. Monitoring results, where deemed necessary (e.g. frequent complaints).	Operational activities comply with noise regulations, under the Environment Protection Act 1993. No complaints received.	Yes	While the operation of the pipeline compression equipment contributes to the overall background noise levels, all sites meet statutory requirements for noise pollution. All maintenance activities performed during the reporting period did not contribute to any increased noise levels of pollution.

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
10. To minimise atmospheric emissions	**10.1** To eliminate uncontrolled atmospheric emissions	Incident reports.	No uncontrolled atmospheric emission.	No	Two minor uncontrolled gas emissions occurred during 2007 as a result of a regulator failure and over protection relief valves operating at a meter station and an insulation gasket leak.
	10.2 To minimise the generation of dust.	Incident reports. Compliance with EMS Procedures (vehicle movement, dust suppression, etc).	No complaints received. No dust related injuries recorded.	Yes	Prior to carrying out any excavation activities contractors, Epic civil staff and Epic site supervisors discuss measures designed to minimize the generation of dust as part of the standard toolbox meeting discussions. During 2007 excavations occurred in the far north of SA where some 580 metres of the pipeline was exposed., In all cases no dust over and above that which occurs normally for the area is considered to have been generated and no OH&S incidents were raised as a result of these excavations

OBJECTIVE	GOAL	Measure/how	OBJECTIVE ACHIEVED	OBJECTIVE ACHIEVED YES / NO	SUPPORTING COMMENTS
11. To adequately protect cultural heritage sites and values during operations and maintenance	**11.1** To ensure that identified cultural sites are not disturbed	Consultation with relevant heritage groups if operations occurring outside known surveyed areas. Surveys / Cultural heritage monitoring before / during excavations. Records of site locations on operations GIS. Use of Disturbance checklist prior to undertaking maintenance works. Site examined for cultural heritage material prior to work involving off-easement disturbance or in an area of archaeological potential or in an area identified as being of known medium to high archaeological sensitivity.	No impact to known sites. Any new sites identified are recorded in Land Management System and reported to appropriate authority.	Yes	Epic Energy's Environmental Management System has clear guidelines for identifying and protecting these sites.