PROJECT:	**PIPELINE LICENCE 2**																		
ACTIVITY:	**OPERATION AND MAINTENANCE**																		
ASSESSOR:	**BELINDA CLOSE**																		
Date:	**May 2006**																		

				PREDICTABILITY						MANAGEABILITY								
EIR REFERENCE	**ACTIVITY**	**POTENTIAL EVENT/IMPACT**	**POTENTIAL CONSEQUENCES**	SIZE	SCOPE	DURATION	FREQUENCY	STAKEHOLDERS	SIGNIFICANCE	AVOIDANCE	PROBABILITY	DURATION	SIZE AND SCOPE	CUMULATIVE EFFECTS	STAKEHOLDERS	SIGNIFICANCE	**COMMENTS**	**ENVIRONMENTAL SIGNIFICANCE**
		NATURAL ENVIRONMENT																
		Soil																
4.3, Appendix B (no 9)	Pipeline operation	Erosion along pipeline as a result of significant rainfall events or wind erosion	Loss of topsoil, loss of soil fertility, tunnel erosion	M	M	M	M	H	2	No	Med	Short				2	Epic have identified particularly erosion susceptible environmental regions. To identify erosion areas as they occur, Epic conduct inspections following significant rainfall events, which aims to minimise area impacted and facilitate prompt rehabilitation work. Also minimise work in highly erodable areas. Tunnel erosion is considered unlikely.	**Low**
4.3, Appendix B (no 9)	Pipeline maintenance	Soil inversion as a result of excavation work	Loss of soil fertility	H	H	H	M	H	2	No	Low					1	Topsoil and subsoil are separated and during excavation, and backfilled in the correct horizons.	**Low**
4.3, Appendix B (no 3)	Easement maintenance, pipeline maintenance	Soil compaction as a result of vehicle patroling, easement access	Loss of soil fertility	H	H	H	H	H	1	No	Low					1	Not considered an issue as formed tracks are generally used. Access to particular pipeline sections is only over cleared paddocks and not on a continuous basis.	**Low**
4.3, Appendix B (no 10)	Pipeline maintenance	Erosion/sedimentation as a result of water discharge during hydrotesting	Loss of topsoil, loss of soil fertility	H	H	H	H	H	1	No	Low					1	Water is discharged onto a suitable (stable or stabilised before discharge) area of ground and erosion and sediment controls are used whre there is the potential for sedimentaiton to occur.	**Low**
4.3, 4.11, Appendix B (no 11, 15, 16, 17, 20 & 21)	Pipeline maintenance	Chemical, fuel, oil or hydrocarbon spill/discharge resulting from pipeline maintenance (eg. pigging, MLVs, painting, replacement of pipeline section)	Localised soil contamination	M	H	M	H	H	2	No	Low					2	Facilities and work practices are designed to ensure that any discharge is fully contained. Mitigation measures include regular inspection and mianitenance of valves and facilities, use of containment measures during pigging, use of spill control and containment devices during maintenance, storage within containment facilities, disposal by licensed contractor, contingency plan in place for management of any spills. For replacement of pipeline section, a waster contractor is organised to remove any liquid hydrocarbon remaining in the line once it is isolated. Control methods are constantly reviewed to minimise risk of leak discharge.	**Low**
4.3, 4.10, Appendix B (no 8)	Pipeline operation, third party activities	Hydrocarbon release/spill resulting from pipeline leak or rupture	Soil contamination	M	M	M	M	H	2	No	Low					2	Pipeline is operated in accordance with AS2885. Risk assessment has been conducted and risks reduced to ALARP. Control measures in place to ensure pipeline integrity. Spill response system iin place to promptly manage any potential spill of hazardous material. Note that to date there has been no major leak of hydrocarbons from the pipeline.	**Low**
Appendix B (no. 22)	Facility operation and maintenance	Sewage tank overflow	Localised soil contamination	H	H	H	H	H	1	Yes						1	Sewage will be collected in septic system and disposed of on a continuous basis. Refuse removed by licensed contractor weekly.	**Low**
3.8, 4.11, Appendix B (no. 23)		Spread of existing soil contaminants	Increase in area of soil contaminated	H	H	H	M	H	2	No	Low					1	Previously contaminated soil is treated at and confined to soil farms. These soil farms are approximately 20m x 20m, and are located at CS2 and CS3. Likley to be operated for the duration of the operating life of the pipeline. Environmental assessments have monitored the level of contamination and concluded that there is no ongiong source of caontamination and that environmentalk risk is acceptabley low.	**Low**
		Surface Water																
4.5, Appendix B (no. 7)		Erosion along pipeline following major rainfall events	Increase sediment load of adjacent watercourses, altered drainage patterns	M	M	M	M	H	2	No	Med	Short				2	Erosion tends to occur as a result of soil type. The additional sediment laod from the pipeline is not considered to be significant. In case of erosion events repairs are effected immediately (due to regular inspections). In some cases permanent repaires are used to prevent further erosion. Usually affects sections of ROW within banks of a creek or drainage line, i.e. 10-20m length of pipeline. Events are seasonal. Erosion most frequently observed in specific 240km section of pipeline.	**Low**
4.5, Appendix B (no 5, 9)	Pipeline and easement maintenance	Redirection of surface water flow during pipeline excavation work, vehicle access and access construction	Altered drainage patterns, erosion	M	M	M	H	H	2	No	Med	Short				2	Vehicle access crossings have been designed to have minimal impact on the direction and flow of surface water. No permanently flowing creeks on the ROW. Avoid excavation and access track sconstruction when wet. Sediment traps are usually installed as part of standard management measures. Surface contours will be reinstated as part of the rehabilitation process.	**Low**
4.5, Appendix B (no. 9)	Pipelines maintenance	Temporary damming or diversion of creeks or waterways during excavations	Silt generation, sedimentation	H	M	H	M	H	2	No	Med	Short				2	Pipeline maintenance activities are usually planned, and are undertaken when conditions are dry (where possible). Sediment traps usually installed as part of standard management measures.	**Low**
4.3.2, 4.5, 4.11, Appendix B (no. 11, 15, 17, 18, 20, 21)	Pipeline maintenance	Chemical, fuel, oil or hydrocarbon spill/discharge resulting from pipeline maintenance (eg. pigging, MLVs, painting, replacement of pipeline section)	Water contamination	M	M	M	M	H	2	No	Med	Short				2	No permanently flowing waterways on ROW. Activities undertaken when dry where possible. Appropriate storage, handling and transport mechanisms in place to prevent an incident occurring. Underground storage tansk are regularly monitored to ensure integrity is maintained. Spill resoonse system in place to promptly manage any spill/discharge. Pigs removed within a contained area. See similar impact for soil contamination.	**Low**
4.3, 4.10, Appendix B (no 8)	Pipeline operation, third party activities	Hydrocarbon release/spill resulting from pipeline leak or rupture	Water contamination	M	M	M	M	H	2	No	Low					2	Pipeline is operated in accordance with AS2885. Risk assessment has been conducted and risks reduced to ALARP. Control measures in place to ensure pipeline integrity. Spill response system iin place to promptly manage any potential spill of hazardous material. Note that to date there has been no major leak of hydrocarbons from the pipeline.	**Low**
4.5, Appendix B (no. 22)		Sewage tank overflow	Water contamination	H	H	H	H	H	1	Yes						1	Sewage will be collected in septic system and disposed of on a continuous basis. Refuse removed by licensed contractor weekly.	**Low**
		Groundwater																
Appendix B (no 9)	Pipeline maintenance	Redirection of groundwater flow during pipeline excavation work	Altered drainage patterns	M	M	M	H	H	2	No	Med	Short				2	No impacts for aquifers greater than 2m deep (due to depth of pipeline). For very near surface groundwater, an area of 4 by 5 by 2m is disturbed, however to date pipeline has had no observed impact on these areas. It is considered that impacts to aquifers would be minimal as majority of aquifers present within operational area are unsuitable for use due to poor water quality.	**Low**
3.8, 4.11, Appendix B (no. 23)		Spread of existing soil contaminants from landfarms	Goundwater contamination	M	M	H	M	H	2	No	Low					1	Previously contaminated soil is treated at and confined to soil farms. These soil farms are approximately 20m x 20m, and are located at CS2 and CS3. Recent monitoring has shown that groundwater contamination is decreasing and the risk to the environment is considered to be acceptably low. Contamination will slowly degrade with time. Soil farms likley to be operated for the duration of the operating life of the pipeline.	**Low**
4.5, 4.10, Appendix B (no 8)	Pipeline operation, third party activities	Hydrocarbon release/spill resulting from pipeline leak or rupture	Shallow groundwater contamination	M	M	M	M	H	2	No	Low					2	Pipeline is operated in accordance with AS2885. Risk assessment has been conducted and risks reduced to ALARP. Control measures in place to ensure pipeline integrity. Spill response system in place to promptly manage any potential spil of hazardous material. Note that to date there has been no major leak of hydrocarbons from the pipeline.	**Low**

PROJECT:	**PIPELINE LICENCE 2**																	
ACTIVITY:	**OPERATION AND MAINTENANCE**																	
ASSESSOR:	**BELINDA CLOSE**																	
Date:	**May 2006**																	

				PREDICTABILITY						MANAGEABILITY								
EIR REFERENCE	**ACTIVITY**	**POTENTIAL EVENT/IMPACT**	**POTENTIAL CONSEQUENCES**	SIZE	SCOPE	DURATION	FREQUENCY	STAKEHOLDERS	SIGNIFICANCE	AVOIDANCE	PROBABILITY	DURATION	SIZE AND SCOPE	CUMULATIVE EFFECTS	STAKEHOLDERS	SIGNIFICANCE	**COMMENTS**	**ENVIRONMENTAL SIGNIFICANCE**
		Vegetation																
4.1, Appendix B (no. 7)		Erosion along pipeline following major rainfall events	Loss of vegetation cover	M	M	M	M	H	2	No	Med	Short				2	In case of erosion events repairs are effected immediately (due to regular inspections). In some cases permanent repaires are used to prevent further erosion. Usually affects sections of ROW within banks of a creek or drainage line, i.e. 10-20m length of pipeline. Events are seasonal. Erosion most frequently observed in specific 240km section of pipeline.	**Low**
4.1, Appendix B (no 2)	Easement maintenance	Maintaining pipeline line-of-sight	Loss of vegetation	H	M	H	H	H	2	No	Low					1	Removal of trees greater than 2m tall and vegetation control within 2m of the centreline. Trees usually cut at ground level and roots left in place. In some cases trimming of branches is sufficient. Likely to be short term and restricted to existing easements, and therefore not expected to impact any remnant vegetation.	**Low**
4.1, Appendix B (no 9 & 15)	Pipeline maintenance	Vegetation clearance prior to excavation during maintenance activities (scheduled and unscheduled)	Loss of vegetation	H	H	M	H	H	2	No	Med	Med	Small			3	Likely only to remove vegetation on previously disturbed easement. Revegetation activities undertaken as part of the excavation reinstatement process. Highly dependent on seasonal conditions and rainfall events and may take several years.	**Low**
4.4, Appendix B (no 3)	Pipeline maintenance	Spread of weeds via movement of maintenance vehicles and equipment along the easement	Weed infestation	M	M	H	H	H	2	No	Low					2	Procedures to define access routes to avoid areas of known infestation. Vehicle and equipment washdown and targeted weed eradication. An issue for inspection activities.	**Low**
4.4, Appendix B (no. 1, 19)	Easement and facility maintenance	Spraying of weeds along ROW	Loss of remnant vegetation adjacent to weed spray areas	H	H	H	H	H	1	No	Med	Short				2	Occurs as required. Expected to be minor and short term. May involve up to 100m either side of the ROW. Also in compunds. Known infestations of weeds are clearly marked.	**Low**
4.1, Appendix B (no 12)	Pipeline maintenance	Fire caused by welding activities and vehicle movement	Loss of remnant vegetation	M	M	M	H	H	2	Yes						1	Control measures in place regarding the restriction of potential ignition sources and welding activities. Likelihood of a fire resulting from these activities considered remote (demonstrated from previous experience of operation).	**Low**
		Fauna																
4.2, Appendix B (no. 9)	Pipeline maintenance	Vegetation clearance prior to excavation during maintenance activities (scheduled and unscheduled)	Loss of habitat	H	M	M	H	H	2	No	Low					1	Impact likely to be short term and restricted to existing easements. Land surface will be re-countoured consistent with the surrounding area to ensure localised habitats/niches are maintained. Time between clearing and rehabilitating easement will be minimised.	**Low**
4.2, Appendix B (no. 9)	Pipeline maintenance	Fauna entrapment during excavation work	Injury or loss of native fauna/stock	M	H	H	M	H	2	No	Low					1	Excavation work generally limited to 3 days. Time that trench is open will be minimised. Fauna escape means present in open trenches and regular inspection of open trenches for trapped fauna. Fences installed to prevent stock entrapment.	**Low**
4.2, Appendix B (no. 3)	Easement maintenance	Vehicle impact with fauna during patrol/inspection activities	Injury or loss of native fauna	M	H	H	M	H	2	No	Low					1	The likelihood is reduced by vehicles being restricted to designated access tracks and the ROW.	**Low**
4.1, Appendix B (no 2)	Easement maintenance	Vegetation clearance associated with maintaining pipeline line-of-sight	Loss of habitat	H	M	H	H	H	2	No	Low					1	Removal of trees greater than 2m tall and vegetation control within 2m of the centreline. In some cases trimming of branches is sufficient. Likely to be short term and restricted to existing easements. Vegetation removed is abundant in the areas adjacent the easement and therefore fauna habitat loss is mnor Fauna will only be temporarily disturbed while the activity is occurring.	**Low**
		SENSITIVE AREAS																
		National Parks,Regional Reserves, Conservation Areas																
3.5.2	Pipeline operation and maintenance, easement maintenance	Disturbance to significant geological features	Loss of geological value	H	H	H	H	H	1	Yes						1	Flinders Ranges, Wilpena Pound, Lake Frome Basin, Lake Callabonna Fossil Reserve.	**Low**
3.4.5, 3.6.5, 4.6.2	Pipeline operation and maintenance, easement maintenance	Disturbance to national parks and reserves	Loss of conservation value	H	H	H	H	H	1	Yes						1	Pipeline easement lies within the Gammon Ranges National Park. This park provides an important habitat for a wide variety of endemic arid zone plants and animals, including the vulnerable yellow-foot rock wallaby. Pipeline passes near Strzelecki Regional Reserve, Lake Frome Regional Reserve. National Parks and Wildlife Service will be contacted prior to commencing work in any of the National Parks.	**Low**
3.5.3, 3.6.5, 4.6.2	Pipeline operation and maintenance, easement maintenance	Disturbance to conservation areas	Loss of conservation value	M	M	H	M	H	2	Yes						1	Pipeline passes near two conservation zones in the Flinders Ranges National Park (incl Wilpena Pound) and the Dutchman's Stern Conservation Park. Both of these parks provide habitat for colonies of the vulnerable yellow-footed rock wallaby. Also near Whyalla Conservation Park. No impacts expected to conservation areas or tourism. National Parks and Wildlife Service will be contacted prior to commencing work in any of the National Parks.	**Low**
		SOCIAL ENVIRONMENT																
		Heritage																
3.7, 4.9, Appendix B (no 5, 9)		Damage to areas of Aboriginal/European heritage significance during excavation activities	Loss of cultural heritage	M	H	H	M	H	2	No	Low					1	Many areas along pipeline route prone to discovery of cultural sites, eg. coastal regions and dunes. Easement traverses a number of Native Title Claimant areas, cultural heritage areas and european heritage sites. All operational activities located wihtin existing easements. Potential for impact during excavation for borrow pits. Archaelogical surveys conducted prior to excavation activities. Known and new sites are recorded. Inductions program for personnel.	**Low**
		Community Health																
4.10, Appendix B (no 11)	Easement maintenance, third party interference	Hydrocarbon release/spill resulting from pipeline leak or rupture	Injury to or loss of third parties, fire if ignition source present	M	M	M	M	H	2	Yes						1	The pipeline is constructed, operated and maintained in acccordance with AS 2885. Risk Assessment conducted in late 2001 - risks to pipeline reduced to ALARP. Greatest threats to integrity identified as external corrosion, dam building, power pole hole boring and trenching operations. Mitigation measures include regular inspection plan, property contact program, dial before you dig service, community awareness program, pipeline warning signs, buried markers at areas of increased risk from excavation, eg. road crossings, vibration, fire and gas leak detectors, pigging. A leak would result in release of a mixed jet of gas and liquid hydrocarbons. Rate of release is dependent on size of rupture. Gas would tend to be denser than the surrounding air and therefore not readily disperse. Environmental impact would be dependent on the time taken to detect, isolate and repair the line. Risk to public safety would be dependent on the location of the rupture and proximity to residents/public areas. Note that there are very few residential areas in the immediate vicinity of the pipeline.	**Low**
4.7, Appendix B (no 2, 4, 5, 9, 13, 14)	Pipeline operation and maintenance, easement maintenance	Noise emissions from vehicle movement, heavy equipment/ machinery, operation of compressor stations and mainline valves, aerial patrols	Nuisance to third parties	H	M	H	H	H	2	No	Low					1	Operation of heavy equipment is occasional. Noise associated with mainline valves is generated during remote valve operation, which only occurs on an occasional basis. Very few residential areas in the immediate vicinity of the pipeline. Equipment is maintained with standard noise suppresion devices fitted. Considered that specific noise mitigation measures are not required. Noise from passing aircraft during aerial survey would be temporary and minor.	**Low**

PROJECT:	**PIPELINE LICENCE 2**																	
ACTIVITY:	**OPERATION AND MAINTENANCE**																	
ASSESSOR:	**BELINDA CLOSE**																	
Date:	**May 2006**																	

				PREDICTABILITY						MANAGEABILITY								
EIR REFERENCE	**ACTIVITY**	**POTENTIAL EVENT/IMPACT**	**POTENTIAL CONSEQUENCES**	SIZE	SCOPE	DURATION	FREQUENCY	STAKEHOLDERS	SIGNIFICANCE	AVOIDANCE	PROBABILITY	DURATION	SIZE AND SCOPE	CUMULATIVE EFFECTS	STAKEHOLDERS	SIGNIFICANCE	**COMMENTS**	**ENVIRONMENTAL SIGNIFICANCE**
4.8, Appendix B (no 14)	Pipeline and easement maintenance	Dust generation from vehicle movement, road maintenance, excavation activities, sand blasting	Reduced air quality, nuisance and/or injury to third parties	H	M	H	H	H	2	No	Med	Short				2	Impact is likely to be localised, short term and restricted to vehicle movement on unsealed roads, occoasional excavation and road maintenance activities. Dust generation will be minimised through minimising period between clearing and restoration, and limiting vehicle speeds on the ROW.	**Low**
4.8, Appendix B (no 11, 15, 17)	Pipeline operation and maintenance	Greenhouse gas emissions during operation and depressurising for maintenance activities	Reduced air quality	M	M	M	M	H	2	No	Low					1	Considered to be insignificant as adequate pollution control measures for plant and equipment are employed. Very minor release when vessel is depressurised for removal of pig, however facilities are designed to enable venting to a closed drain system.	**Low**
		ECONOMIC ENVIRONMENT																
		Existing Land Use Impacts																
4.6, Appendix B (no 12)	Pipeline maintenance	Soil inversion as a result of excavation work	Loss of soil fertility, reduction in income	H	M	H	H	H	2	Yes						1	Procedures for stockpiling topsoil and fill separately and returning priginal soil profile during reinstatement. Restoration is monitored.	**Low**
4.6, Appendix B (no 2, 3, 5, 9)	Pipeline and easement maintenance	Disruption to landowner activities	Reduction in farm productivity	H	H	H	M	H	2	No	Med	Short				2	Ocasional short term reduction in available pastoral grazing lor cropping land during excavations. As the impact will be contained to the existing, previously disturbed easement, it is expected that there will be minimal disturbance to existing land uses.	**Low**
4.6		Spills to ground on chemical free or organically certified properties	Significant reduction in farm income	M	L	M	M	H	4	Yes						1	Potential for such incidents is considered low, however spill response procedures in place including isolation of area and restoration in close liaison with landholder. Mitigation measures include regular maintenacena dn inspection etc (as for spills).	**Low**