

**Environmental Impact Classification**  
**Pursuant to Section 98 of the *Petroleum Act 2000***

**QSN Link Pipeline, Pipeline Licence 18, South Australia**

**18 March 2008**

**INTRODUCTION**

Pursuant to section 98 of the *Petroleum Act 2000* (the Act) the Minister must classify the regulated activities covered by a prepared Environmental Impact Report (EIR) as either of low, medium or high environmental impact.

The classification must be made on the basis of:

- The prepared EIR;
- Criteria established for classifying the level of environmental impact of regulated activities, a copy of which is found on the PIRSA Petroleum and Geothermal Group (PIRSA) web page:  
(<http://www.pir.sa.gov.au/dhtml/ss/section.php?sectID=437&tempID=8>); and
- Comment received from relevant Government departments in accordance with established administrative arrangements between these departments and PIRSA.

This document summarises the classification made by PIRSA on the construction and operation of Epic Energy's QSN Link (Ballera to Moomba) Pipeline within Pipeline Licence 18. This classification is based on information provided in the EIR dated December 2007, submitted to PIRSA on 23 December 2007.

**SUMMARY OF CLASSIFICATION**

- 1) From an analysis of the environmental significance of the various events and potential impacts associated with this activity against the classification criteria referred to above (assessment provided as Attachment 1), this regulated activity has been classified as low environmental impact.
- 2) All events associated with the proposed pipeline construction and operation activities were assessed to be of low environmental significance, as appropriate management measures will be implemented to avoid or mitigate any potential environmental consequences.
- 3) For a low environmental impact classification, PIRSA is required to consult with the Department for Environment and Heritage (DEH) and the Environment Protection Authority (EPA) in accordance with the administrative arrangements dated 11 November 2005 and 21 November 2003 respectively. Comments received from DEH, dated 6 February 2008, and the EPA, dated 4 February 2008, agreed with PIRSA's low environmental impact classification.

Pursuant to delegated powers, I hereby classify this regulated activity as **low environmental impact**.



**Barry A. Goldstein**  
Director Petroleum & Geothermal  
Delegate of the Minister for Mineral Resources Development

Environmental Significance Assessment																		
Project:		QSN Link - Epic Energy																
Assessor:		Belinda Close & Tim Flowers (PIRSA)																
Date:		27-Dec-07																
ABBREVIATIONS: H = High certainty; M = Medium certainty; L = Low certainty																		
REF	PIPELINE ACTIVITY	TYPE OF IMPACT	EVENT(S)	POTENTIAL CONSEQUENCES	PREDICTABILITY					MANAGEABILITY							Environmental significance	
					SIZE	SCOPE	DURATION	FREQUENCY	STAKEHOLDERS	SIGNIFICANCE	AVOIDANCE	PROBABILITY	DURATION	SIZE AND SCOPE	CUMULATIVE EFFECTS	STAKEHOLDERS		SIGNIFICANCE
<b>NATURAL ENVIRONMENT</b>																		
<b>Soil and Terrain</b>																		
5.2.2, 5.2.3	Clear and grade; trenching; borrow pit construction; camp construction		Removal of surface cover; soil exposure	Gully erosion of construction area; sedimentation of adjacent environments	H	H	H	H	H	1	No	Low				1	Ground disturbance will be minimised to the minimum extent necessary for safe construction. Rehabilitation of the easement to encourage plant growth and installation of control measures (eg. berms) will minimise erosion risk. Topsoil and trench spoil will be stockpiled separately and respread. Period between clear and grade and backfill will be limited. Erosion and sediment control structures will be implemented (refer CEMP). During periods of heavy rainfall, activities likely to result in erosion and sedimentation will be suspended, if their effects cannot be adequately controlled and they may result in pollution of the environment. Careful battering of borrow pit sides, recontouring of used pits and ripping to facilitate vegetation growth is required to minimise erosion potential. 3-4000 m3 of padding material may be required. Possible locations for sand extraction are in dunefields inside the Innamincka Regional Reserve. Sites would be selected away from public roads, minimising vegetation removal etc, in consultation with DEH.	LOW
5.2.2, 5.2.3	Clear and grade; trenching; borrow pit construction; backfilling; excavations during operation		Disturbance of soil profiles (inversion)	Loss of soil fertility; poor vegetation regrowth on easement	H	H	H	H	H	1	Yes					1	Topsoil and spoil will be stockpiled separately and will be returned in appropriate order during backfilling. Topsoil will be respread over easement at the completion of construction works. This will be covered in the CEMP and environmental inductions. Importance of stockpiling topsoil and trench spoil separately, and backfilling the trench in the appropriate soil horizon order will be identified in the Construction Environmental Management Plan (CEMP) and environmental inductions.	LOW
5.2.1; 5.2.2	Clear and grade; trenching; construction access		Disturbance of gibber surface	Erosion and sedimentation of construction area	H	H	H	H	M	2	No	Med	Short			2	Pipeline route traverses areas of undulating gibber plain South East of Innamincka in SA. In undisturbed state, gibber soils are highly resistant to erosion. When the protective crust and gribbers are removed severe erosion can occur, even on relatively gentle slopes (2 - 3 degrees). Gibber disturbance will be minimised. Careful stockpiling and subsequent respreading of gribbers on the construction ROW during rehabilitation will minimise erosion risk. Areas will be rolled rather than cleared where appropriate (eg. where traffic levels will be high). Erosion and sedimentation controls will be installed and maintained in accordance with the CEMP. Careful design and construction of any new access tracks will be required, and in gibber region a rolled gibber track or a raised rather than an incised track may be more suitable.	LOW
5.4.2	Clear and grade		Clearance of vegetation in sand dune communities	Loss of sand dune / plain stability	H	H	H	H	H	1	No	Low				1	Vegetation regrowth will be encouraged. Vegetation clearance will be minimised.	LOW
5.2.2, 5.2.3	Backfilling and reinstatement		Inadequate soil compaction	Alteration of local drainage patterns; trench subsidence; erosion; prevention of effective plant growth	H	H	H	H	H	1	No	Low				1	Activities that may cause soil compaction will be restricted to approved areas (eg. ROW and access tracks) and will be temporary, as will be rectified during rehabilitation by ripping or scarifying where appropriate. Trench will be compacted to a level consistent with surrounding soils. Easement will be regularly inspected during both construction and operation to identify areas of subsidence.	LOW
5.1, 5.2.3	Trenching; pipe laying		Trench open and soil stockpiled	Soil erosion caused by rainfall event; transportation and deposition of sediment to surrounding area during rainfall event	H	H	H	H	H	1	No	Med	Med	Confined		3	During periods of heavy rainfall, all activities likely to result in erosion and sedimentation will be suspended, if their effects cannot be adequately controlled. Region has low average rainfall. Rainfall is erratic, associated with thunderstorm activity and can be intense.	LOW
5.2.2	Trenching; pipelaying; personnel access		Trench collapse	Disturbance to soil profiles; increased area of soil disturbance	H	H	H	M	H	2	No	Low				1	This is not considered to be a potential event for most soils, however it may occur in some soils, particularly the deep sands on the dunes. In these areas, benching out or shoring of trench and bellholes and strict controls on personnel access to trench will be implemented to reduce likelihood of trench collapse.	LOW
5.2.2, 5.2.3	Vehicle movement and access		Inadequate soil compaction	Long term soil disturbance	H	H	H	H	H	1	No	Low				1	Access tracks and turn-around points for vehicles will be identified prior to construction. Number of planned tracks will be minimised. Existing tracks will be used as far as practicable. Compacted areas will be ripped or scarified where necessary to facilitate vegetation growth, with consideration of the soil time and land system.	LOW
5.2.2, 5.2.3	General construction activities; access		Soil contamination resulting from fuel/chemical spills	Loss of soil fertility	H	H	H	H	H	1	Yes					1	Small quantities of chemicals and therefore likely volume of spills extremely low. Construction equipment will be refuelled on the ROW from a standard fuel truck. Spill prevention, response and cleanup procedures (including refuelling techniques and chemical storage and handling requirements) will be included in the CEMP. Drip tray and spill mats will be used for each coupling during refuelling operations.	LOW
5.2.2, 5.2.3	Pressure testing, trench dewatering		Soil contamination resulting from leaking during hydrotesting, disposal of test water, trench dewatering	Loss of soil fertility	M	M	H	H	H	2	No	Low				1	Hydrotest water will preferably be fresh but may contain low levels of corrosion inhibiting chemicals or biocides, depending on the water sources and total time required for the test. Current industry treatment method is to remove solids by sedimentation and/or filtration, neutralise residual oxygen scavengers and restore dissolved oxygen levels by aeration. Disposal of trench water outside easement will have EPA and landholder approvals. Procedures for trench dewatering, hydrotest water disposal and management of contaminated water will be incorporated into the CEMP. Water will either be disposed of in accordance with ANZECC criteria, contained and treated on site or removed off site. Hydrotest volume is likely to be approx. 8,000 – 13,000 m3	LOW
3.4, 5.2.2	Pressure testing		Construction of hydrotest water holding pond	Disturbance to soil profiles	H	H	H	H	H	1	No	Low				1	If (existing) water bores are used to source hydrotest water a lined holding pond would need to be constructed to hold the (clean) water prior to the hydrotest. Vegetation clearance would be minimised by site selection (it is expected that no trees or long-lived vegetation would be impacted) and the site would be rehabilitated on completion. The pond size has not been determined, but it could be approx 100-200m x 100-200 m, and may be required to hold water for up to a month or more. The pond is likely to be sited within the Innamincka Regional Reserve, and therefore location will be selected and managed in consultation with DEH. The location for a potential holding pond may be located near the three-quarter point of the pipeline (near KP 150), on Gidgealpa Station.	LOW
3.4.1, 5.2.2, 5.2.3	Backfilling		Extraction of padding material	Erosion of sand dunes	M	H	H	H	H	2	No	Low				1	3-4000 m3 of padding material may be required. Possible locations for sand extraction are in dunefields inside the Innamincka Regional Reserve. Sites would be selected away from public roads, minimising vegetation removal etc, in consultation with DEH. Borrow pits and other excavations used for materials extraction will be recontoured to minimise erosion potential and encourage vegetation regrowth.	LOW
5.2.3; 5.8.2, 5.9.5	General construction activities		Soil contamination from inappropriate waste disposal	Loss of soil fertility	H	H	H	H	H	1	Yes					1	Relatively small amounts of domestic and industrial wastes will be generated. Easement will be kept free of consumable rubbish (such as lunch wrappers) and construction generated waste. Waste management hierarchy should be adopted. Appropriate treatment and disposal of sewage wastes will be implemented.	LOW
3.5, 5.2.2, 5.2.3	Operation; maintenance		Disturbance of soil profiles (inversion) during excavations	Loss of soil fertility; poor vegetation regrowth on easement	H	H	H	H	H	1	No	Low				1	Dig-ups during operation, to address coating defects, are likely to be infrequently required. May occur during the first year of operation to rectify defects, but expected to be very rare during the life of the pipeline. Dig-ups involve the excavation of material from around the pipeline (typically referred to as a bellhole), to allow sufficient room for operations technicians to safely undertake any remedial works that may be required. The excavation of material will be undertaken in accordance with management conditions implemented for construction (that is, topsoil will be stockpiled separately from trench spoil, and the site will be restored as soon as practical following completion of maintenance works).	LOW
<b>Air</b>																		
5.7	Earthmoving; vehicle movement during construction;		Dust generation	Reduced air quality	H	H	H	H	H	1	No	Low				1	Impacts of dust generation from construction phase will be short term and generally localised. Water trucks will be used as required during construction, particularly in high wind conditions and/or near sensitive areas. Exposed surfaces will be rehabilitated as rapidly as practicable.	LOW
5.7	Earthmoving; transport		Release of exhaust fumes from earthmoving and transport equipment	Reduced air quality	H	H	H	H	H	1	No	Low				1	Likely to be negligible in the context of existing pastoral, petroleum production and transport land uses of the project area. No measurable impact likely. All construction vehicles and equipment will be kept well maintained and fitted with appropriate exhaust systems and devices.	LOW
5.7	Operation; maintenance; monitoring		Dust generation due to light vehicle movement	Reduced air quality	H	H	H	H	H	1	No	Low				1	Minor dust generation from light vehicles and activities associated with the maintenance and monitoring of the pipeline will occur. Impact on air quality expected to be negligible.	LOW
3.5, 5.7	Operation		Gas emissions from mainline valves and/or metering and pressure reducing station	Reduced air quality	H	H	H	H	H	1	No	Low				1	Methane gas is released to the atmosphere as a result of pipeline and facility maintenance operations (i.e. unit blow downs/ venting, valve opening/testing). Small volumes are released. Occurs for duration of operational life. Fugitive emissions are extremely low from pipeline operations.	LOW
3.5, 5.7	Operation; maintenance		Gas venting during emergency situation	Reduced air quality	H	H	M	H	H	2	No	Med	Short			2	Risk of pipeline ruptures or leaks is extremely low due to the implementation of protection measures and the routine monitoring, inspection and maintenance that will be carried out. Air emissions associated with such events are therefore unlikely. Uncontrolled venting which is a result of equipment failure e.g. regulator failure. Duration would depend on type and duration of failure. Emergency response procedures in place. Given the isolated nature of potential emission generation, impacts on air quality associated with the proposed pipeline are expected to be low.	LOW
<b>Surface Water and Groundwater</b>																		
3.4.2, 5.2.2, 5.3.2, 5.3.3	Trenching; pipe laying		Trenching across the Strzelecki Creek Wetland System	Erosion and increased turbidity of the Strzelecki Creek Wetland System	H	M	H	H	H	2	No	Low				1	Conditions are expected to be dry when crossing the Strzelecki Creek. However pipe laying protocols must be amended for creek crossings to manage rainfall events, eg. ensure all the equipment necessary for creek crossing is on-site and in good working order prior to commencing work, complete watercourse crossings within the shortest period practicable to minimise the period of open trench and subsequent environmental disturbance.	LOW
5.3.1, 5.3.2, 5.3.3	Clear and grade; trenching; watercourse crossings		Presence of temporary linear stockpiles of topsoil and trench spoil	Impediment to natural overland flows	H	H	H	H	H	1	No	Low				1	At watercourse crossing locations, grade and trench immediately prior to pipe laying (i.e. weld pipe, then grade and trench, then lay pipe) to avoid open trenches. Material will be stockpiled in banded areas away from the watercourse banks during watercourse crossings. Impacts are not likely to be significant due to their short duration, the limited area that will be affected at any given time and the soil management and rehabilitation practices that will be implemented.	LOW

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5.3.2	Trenching		Intersection of surface water and shallow groundwater	Localised disturbance to groundwater and surface water flow regimes	H	H	H	H	H	1	No	Low				1	Impact on groundwater flows considered to be inconsequential. The shallow aquifers are unlikely to be intercepted by the pipeline trench due to the depth of the trench (1-1.5m) and the short period for which the trench is open (1-3 weeks, depending on location). The trench should be backfilled and compacted to pre-existing conditions to prevent the trench from acting as a horizontal conduit during rainfall events. Construction activities may result in physical disturbance to defined watercourses and to overland flow. Impacts to surface drainage patterns associated with overland flow away from watercourses are less noticeable. Surface contours will be reinstated as soon as reasonably practicable. No impacts to surface water or groundwater are expected during operation activities, following the successful restoration of surface contours and stability.	LOW
5.3.2	Backfilling, restoration		Inadequate compaction of returned trench spoil	Alteration of local hydrology; accumulation of groundwater up gradient of compacted surfaces	H	H	H	H	H	1	No	Low				1	If backfilled trench is less compacted than surrounding soils, creation of horizontal conduit to water could occur. If backfilled trench is more compacted, lateral flows of groundwater may be impeded, potentially resulting in accumulation of groundwater up gradient of compacted surfaces. However, this is unlikely to cause significant impacts due to the relatively shallow trenching depths. Also, aim to compact trench to a level approximately consistent with surrounding soils.	LOW
5.3.2	Backfilling, restoration		Inadequate reprofiling in floodplain areas	Impact to surface water hydrology	H	M	M	M	M	2	Yes					1	Appropriate reinstatement, auditing and monitoring should ensure detection and remediation of any issues associated with inadequate reprofiling.	LOW
5.3.2, 5.3.3	Trenching		Inappropriate disposal of saline groundwater pumped out of trench	Localised salinity increases in surface waters	H	H	H	M	H	2	No	Low				1	Only if brackish or saline groundwater is encountered during construction. Note that the likelihood of encountering saline groundwater is low. Water will be disposed of on site after assessment/analysis provided the water meets ANZECC criteria for the disposal site. Otherwise will be contained and treated on site prior to disposal or removed off site.	LOW
5.3.2	General construction activities		Oil/fuel/chemical spills	Contamination of water resources; reduced water quality	H	M	H	H	H	2	Yes					1	Risks to water associated with chemical spills extremely low due to small quantities of chemicals present. Equipment will be refuelled on the ROW from a standard fuel truck. These trucks typically hold up to 16,000 litres, however it is highly unlikely that a storage tank on a fuel truck would be breached and the entire contents be spilt. Vehicles will be prohibited to be refuelled within 50m of a watercourse or on a slope leading to a watercourse. Fuels, lubricants and chemicals will be stored within containment areas (eg. lined, bunded areas) in accordance with AS1940. Spill prevention, response and cleanup procedures will be in the CEMP, including refuelling techniques. Spill response and cleanup equipment will be on-site prior to commencing works.	LOW
5.3.2; 5.3.3	General construction activities; trench dewatering		Release of sediment into watercourses following erosion event or disposal of turbid trench water	Increased sediment load and turbidity of water; reduced water quality	H	H	H	M	H	2	No	Low				1	The major source of sediment is from erosion, transported by surface run-off, stream bank collapse and disposal of turbid water. Implementation of erosion control measures, appropriately designed watercourse crossings and appropriate trench water disposal will avoid significant impact. Surface water in the area generally has a high turbidity and is not highly sensitive to turbid runoff. During periods of heavy rainfall, all activities likely to result in erosion and sedimentation will be ceased if their effects cannot adequately be controlled. Erosion and sedimentation controls must be monitored, maintained and repaired to ensure they remain effective, particularly after heavy rain. Trench breakers should be installed to prevent longitudinal water flow within the trench on slopes approaching watercourses.	LOW
3.4.2, 5.3.2	Watercourse crossings		Release of sediment into watercourses	Increased sediment load and turbidity of water; reduced water quality	H	H	H	H	M	2	No	Med	Short			2	All watercourses expected to be crossed using standard open cut techniques. Trench will be dug immediately prior to pipe laying, and stockpiled material will be stored in bunded areas away from the watercourse banks. Dry conditions that are likely to occur during construction and the proposed mitigation measures will ensure that impacts are not significant or long term. Watercourses will be promptly reinstated following construction. Flow diversion techniques may be adopted if a rainfall event does occur. CEMP will detail watercourse crossing requirements.	LOW
5.3.2, 5.3.3	Pressure testing		Disposal of hydrostatic test water into surface waters	Localised contamination of water resources; reduced water quality	H	H	H	H	H	1	Yes					1	Fresh water is preferred, however may be treated prior with chemicals such as biocide, oxygen scavengers and corrosion inhibitors. If hydrotest water meets ANZECC water quality guidelines and has landholder/EPA approvals, it can be discharged to the surrounding environment. Alternatively it may be contained and treated on site or removed off site. Inappropriate disposal of this water (i.e. directly to a watercourse) may result in localised contamination of water resources.	LOW
		<b>Vegetation</b>																
3.4, 3.5, 5.4.2, 5.4.3	Clear and grade; access track construction; water holding pond construction; camp construction		Clearance of remnant vegetation	Loss of biodiversity	M	H	H	H	M	2	No	Med	Short			2	Alignment selection will minimise vegetation loss. Clearance will be compensated through the Native Vegetation Act SEB requirements. 25m ROW, reduced further through riparian vegetation, where large trees are present etc. ROW will be rehabilitated (with the exception of a strip several metres in width above the pipe). Loss of vegetation cover will be largely temporary. Some clearance of mature Coolibah trees and saplings likely to be required. Limbs will be trimmed in preference to clearing where possible. Clearance of vegetation in low lying floodplains is unlikely to cause significant impacts due to the widespread, scattered distribution of most species and the fact that bare patches occur naturally in these ecological systems. Hydrotest water holding pond size approx 100-200m x 100-200m. Temporary construction camp approx 300m x 200m will be located in clear or disturbed areas.	LOW
5.4.2	General construction activities		Presence of borrow pits	Reduced quality of vegetation	H	H	H	H	H	1	No	Low				1	Following local rainfall, borrow pits may provide a water source that attracts wildlife, stock and feral animals, which may lead to an increase in grazing pressure in an area resulting in a reduction in vegetation quality.	LOW
5.4.2, 5.4.3	Clear and grade; access track construction		Disturbance to endemic flora species	Loss of rare and threatened flora species; Disturbance to EPBC rated species; Loss of biodiversity	H	H	H	H	H	1	Yes					1	The DBBSA and DEWR databases indicated that 26 rare or threatened plant species have ranges that overlap within the ROW. During the field survey none of these species were observed. Therefore the likelihood of finding rare and threatened plants in the impact area is considered to be extremely low. The potential for significant negative effects from the pipeline construction is considered to be correspondingly low. Furthermore detailed flora assessment is required during the pipeline design stage to identify any specific management issues.	LOW
5.4.2, 5.4.3	General construction activities; earthworks		Movement of weed material and seeds on earthmoving equipment and vehicles and in imported padding material; soil disturbance	Introduction and/or spread of weeds and plant diseases; degradation of native vegetation	H	M	H	H	H	2	Yes					1	Unlikely that imported padding material will introduce weeds as sand pits are tested for noxious weeds and also buried at depth in the trench. Imported material such as stored pipes and used fencing material may result in weed infestation if not cleaned prior to use. Weed management procedures will be developed and incorporated into the CEMP. These will detail site specific requirements, including pre-construction controls, quarantine requirements, hygiene measures, screening for weeds, records management, monitoring, post-construction controls. All vehicles and plant will be inspected to ensure they are weed free prior to initial commencement of works. Washdowns conducted where required.	LOW
5.4.2, 5.8.2	Welding		Wildfire	Damage to vegetation and habitat; loss of biodiversity	H	M	H	H	H	2	Yes					1	Fire prevention procedures will be implemented and fire prevention and control equipment will be maintained on site for high risk activities	LOW
5.2.2	Backfilling, vehicle movement and access		Inadequate soil compaction	Poor vegetation regrowth on ROW	H	H	H	H	H	1	No	Low				1	ROW will be rehabilitated and any areas of soil compaction rectified by ripping or scarifying (where appropriate). Soil compaction following backfilling will be to a level consistent with surrounding soils.	LOW
		<b>Fauna</b>																
5.4.1.2, 5.4.2, 5.4.3	Clear and grade; access track construction; water holding pond construction; camp construction		Clearance of remnant vegetation	Loss of habitat; disturbance to movement corridors	H	M	H	H	H	2	No	Low				1	Unlikely to result in a significant long-term impact, as similar habitats are available in areas adjacent to the proposed alignment. The ephemeral floodplain lake at KP 153 with the fringing vegetation of Coolibah woodland and Queensland Bluebush and lignum could be impacted by loss of habitat (provided by hollows, branches and root systems on the edge of the lake). Tree loss will therefore be minimised and habitat trees avoided wherever possible (which will be achieved during detailed alignment selection). Clearance of large trees will be avoided. Trimming of tree limbs overhanging the ROW will be undertaken in preference to clearance where practicable. Clearance of large, hollow-bearing trees will be avoided. Pipeline easements generally narrow therefore are not considered to present a long-term barrier to wildlife movement or wide spread damage to habitat.	LOW
5.4.2	Clear and grade; access track construction; water holding pond construction; camp construction		Removal of mature vegetation and hollow-bearing trees (and therefore loss of nesting and foraging resources); disturbance to temporary and permanent wetlands	Loss of habitat	H	H	H	H	H	1	No	Low				1	Removal of mature vegetation and tree hollows reduces shelter, nesting and feeding resources. Large hollow-bearing trees are especially important in strips of riparian vegetation along watercourses. Clearance of trees will be minimised.	LOW
5.4.2, 5.4.3	Clear and grade; access track construction		Disturbance to rare and threatened fauna species	Loss of rare and threatened fauna species; Disturbance to EPBC rated species; Loss of biodiversity	H	H	H	H	H	1	Yes					1	21 rare or threatened species identified, however only the Dusky hopping mouse considered likely to be sensitive to potential impacts from the pipeline, from unerath and trenchfall. With successful implementation of the mitigation and rehabilitation measures it is not considered that the pipeline will result in significant adverse impact on any fauna species. It will be ensured that trench inspection and fauna retrieval is rigorous in areas of potential Dusky hopping mouse habitat. Epic will liaise with DEH regarding permitting requirements for fauna retrieval.	LOW
5.4.2	Presence of pipeline easement and tracks		Changes in hydrology	Loss of habitat for migratory waterbird species	H	M	H	H	H	2	No	Low				1	The temporary and permanent wetlands in the region are important habitat for numerous migratory waterbird species, including several rare or threatened species. These wetlands could be impacted by changes in hydrology resulting from pipeline easements and tracks (e.g. by forming a barrier to sheet flows or providing new routes for floodwaters, changing the patterns of wetland inundation). Construction will occur in dry conditions, so many direct impacts will not occur, however careful alignment selection and appropriate reinstatement of surface profiles will be required to ensure that other impacts are minimised.	LOW
5.4.2, 5.4.3	Trenching, pipelaying activities, construction of borrow pits		Entrapment of fauna in the open trench or borrow pit leading to fauna injury or mortality	Loss of rare and threatened fauna species; Disturbance to EPBC rated species; Loss of biodiversity	L	H	H	H	H	4	No	Low				1	Borrow pits will have ramps that allow fauna to escape. Trenchy plugs will be installed with slopes no greater than 50% at regular intervals to provide ramps for fauna to exit. Period of time trench is open will be minimised. Protocols to inspect trench and monitor construction activities for fauna will be developed.	LOW
5.4.2, 5.4.3	Clear and grade; Trenching		Barrier to fauna movement	Disruption to critical fauna lifestages	H	H	H	H	H	1	No	Low				1	Clearing of vegetation in areas of Riparian Woodland has the potential to disrupt and fragment movement corridors and refugia, as restoration of these woodlands can take many years. However sparse, discontinuous nature of the riparian woodland communities present along pipeline means that clearing is not likely to create significant additional fragmentation. The presence of an easement is not considered to present a long term barrier to wildlife movement as narrow and allowed to regenerate. ROW will be minimised through areas containing significant vegetation.	LOW

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5.4.3	General construction activities		Machinery operation, collision of fauna with vehicles leading to fauna injury or mortality	Loss of rare and threatened fauna species; Disturbance to EPBC rated species; Loss of biodiversity	H	M	H	H	H	2	Yes					1	Vast areas of open habitats suggest that risk of fauna mortality due to machinery operation of collision with vehicles is considered low. Vehicles will travel at safe speeds that minimise environmental risks and vehicle movements at night will be minimised.	LOW	
<b>Sensitive Areas</b>																			
5.8.1	General construction activities		Disturbance to Innamincka Regional Reserve	Loss of conservation value	H	H	H	H	H	1	No	Low					1	The proposed pipeline traverses the Innamincka Regional Reserve for approximately 55 km. This is a multiple use reserve, with the regional reserve category designed to enable areas to be managed under a conservation framework while permitting the sustainable use of resources (i.e. oil and gas production and grazing). Mitigation measures to be implemented for whole project will ensure that there are no impacts to the conservation value of the Innamincka Regional Reserve.	LOW
3.4.2, 5.2.2, 5.3.2, 5.3.3	General construction activities		Disturbance to Strzelecki Creek Wetland System	Loss of conservation value	H	H	H	M	M	2	No	Low					1	The pipeline traverses the Strzelecki Creek wetland system, which is listed in the Directory of Important Wetlands in Australia. This system is predominantly dry and flows very intermittently from Cooper Creek south to Lake Blanche during large Cooper floods (Strzelecki Creek flows are thought to occur with an average frequency of 1 in 10 years). When flooded, this wetland provides significant habitat for large numbers of waterbirds.	LOW
<b>SOCIO-ECONOMIC ENVIRONMENT</b>																			
<b>Cultural Heritage</b>																			
5.5.1	Clear and grade; earthworks		Damage to archaeological material (artefact scatters, subsurface material, significant vegetation)	Loss of indigenous heritage	H	H	H	H	H	1	Yes						1	An archaeologist and representatives from the Yandruwandha/Yawarrawarka Native Title Claimant Group completed an indigenous heritage and work area clearance of the pipeline corridor and gave clearance, with the exception of 70 areas recommended to be excluded from impact. Exclusion areas have been mapped and alignment modified to avoid these areas as far as possible. Where areas are unavoidable, further survey work will be undertaken to refine exclusion areas and alignment to avoid or minimise impacts. A search of the Register of Aboriginal Sites and Objects located no legally protected Aboriginal sites along the corridor. Approval will be sought from the State regulator authority to disturb sites if necessary. A formal briefing of pipeline construction personnel will be undertaken prior to commencement of construction. Signage, flagging, fencing or erosion control measures will be installed to protect any identified sites. Procedure exists for case that material discovered during construction.	LOW
5.5.2	Construction of access tracks; clear and grade; trenching		Damage to non-indigenous heritage sites (structures, buildings, monuments and significant trees)	Loss of historical heritage	H	H	H	H	H	1	Yes						1	A number of listed sites present in the region. Two are intercepted by the pipeline corridor: (1) Burke and Wills National Heritage Place - not actually intercepted by pipeline route and (2) Strzelecki Creek National Heritage Place - intercepted by the pipeline route. Both these areas will be avoided by detailed alignment selection and there will be no significant impact. Note that the majority of items of historical heritage significance are readily identifiable (eg. buildings, structures, cemeteries), and as such unintentional damage is less likely than for indigenous heritage items. Appropriate authorisation will be obtained for site disturbances. Induction will include instruction for historical heritage site identification and protection.	LOW
<b>Visual Amenity</b>																			
5.8, 5.9.2	General construction activities		Cleared vegetation, earthworks, presence of construction vehicles	Short term reduction to visual amenity, aesthetic disturbance to landholders, residents and tourists	H	H	H	H	H	1	No	High	Short				2	Loss of visual amenity will be temporary and of relatively short duration. Alignment will be selected to avoid areas of high visual impact, reduce line of sight clearances along easement in areas of high sensitivity (eg. public road crossings) and minimise extent of vegetation clearing. Stockpiled material and equipment will be in areas away from general public view, where practicable.	LOW
5.9.2	General construction activities		Waste disposal on easement / construction site	Loss of visual amenity	H	H	H	H	H	1	Yes						1	Easement will be kept free of consumable rubbish (such as lunch wrappers) and construction generated waste. Waste management practices will be adopted.	LOW
5.9.2	Reinstatement		Unsuccessful reinstatement and rehabilitation works	Loss of visual amenity, aesthetic disturbance to landholders, residents and tourists	H	H	H	H	H	1	No	Low					1	Easement will be restored, reinstated and rehabilitated as soon as practicable following backfill and consistent with the surrounding land.	LOW
<b>Existing Land Use</b>																			
5.8.2, 5.8.3	General construction activities		Disruption of land use activities	Restriction in stock movement, possible stress to livestock	H	H	H	H	H	1	No	Med	Short				2	Impacts on pastoral activity will be minor. A very small proportion of pasture will be temporarily lost along the right-of-way during construction, but this is considered negligible given the very large size of the pastoral properties on the pipeline corridor. Epic Energy will work closely with landholders and managers to minimise conflict with existing land use activities. Restriction in stock movement may not be avoidable, but will be short term. Breaks will be left in the trench to allow stock access across the trench, particularly near watering holes.	LOW
5.8.2, 5.8.3, 5.9.3	Access		Presence of ROW	Increased access to remote areas along ROW by the public	H	M	H	M	H	2	No	Low					1	Construction corridor will be rehabilitated to as near as practicable to pre-construction state. Impact therefore temporary. Use of ROW by tourists as an additional access through Innamincka Regional Reserve is not considered likely as access track will not be maintained and there are numerous other tracks in the region. Entry points will be disguised and installation of signage at road crossings to discourage public access. Temporary gates will be installed across easements at roads to reduce illegal entry.	LOW
5.4, 5.8.2, 5.8.3			Impact to Innamincka Regional Reserve	Loss of wilderness or conservation value	H	H	H	H	H	1	Yes						1	Unlikely to have any significant effect on conservation of flora and fauna given the management measures that will be implemented.	LOW
5.8.2, 5.8.3	Welding		Wildfire	Reduction in long-term crop productivity; detrimental effects on livestock	H	H	H	H	H	1	Yes						1	Procedures to minimise the risk of fire will be incorporated into the CEMP, including the provision of fire prevention. Response equipment will be on-site. Close liaison will be maintained with the CFS, forestry companies and landholders.	LOW
5.8.2, 5.2.2, 5.2.3, 5.9.5	General construction activities		Soil contamination	Impact to pastoral properties' certification for quality assurance or organic production	H	H	H	H	H	1	Yes						1	Refer to "Soil and Terrain" section for details of measures for avoiding soil contamination. Epic will work closely with landholders to ensure there are no negative impacts to pastoral activities.	LOW
<b>Third Party Infrastructure</b>																			
5.9.3	Vehicle Movement; transportation		Mobilisation of construction equipment; pipe delivery via semi trailers; open cut crossings of roads	Loss of road integrity	H	H	H	H	H	1	No	Med	Short				2	Preconstruction planning and appropriate consultation with relevant local and state authorities. Existing road network will be used where practicable. Major roads in the region are multiple use roads that carry relatively high traffic volume that is predominantly a mix of heavy vehicles, light industrial/pastoral vehicles and tourist vehicles. Station access roads and internal tracks (that will be used to access easement) are generally restricted to pastoral use and carry a low volume of traffic. Open cut road crossings will be used (unsealed roads).	LOW
5.9.3	Vehicle Movement; transportation		Mobilisation of construction equipment; pipe delivery via semi trailers; open cut crossings of roads	Localised traffic disruptions, disturbance to the local community	H	H	H	H	H	1	No	High	Short				2	Standard open cut road crossings typically take up to 6 hours. Traffic safety management plan will be implemented. Equipment and material transport routes will be planned in consultation with local and State authorities to minimise disruption to residents and industry. Deliver project related equipment during daylight hours where practicable. Address any damage caused to roads or bridges related to construction or associated activities.	LOW
5.9.3	General construction activities; trenching		Damage to cables, pipes or other utility services during construction	Short term disruptions to public utilities and buried infrastructure	H	H	H	H	H	1	Yes						1	Utilities will be identified prior to construction and incorporated onto the construction line lists, and appropriately flagged, earthed, protected and avoided during construction. Epic Energy will maintain close liaison with utility companies to identify existing overhead and buried cables, lines and pipes. Standard clearance for services will be obtained from various authorities. The proposed pipeline is not likely to result in significant impacts to public utility services and other buried infrastructure due to the remoteness of the pipeline and very few utilities present.	LOW
5.9.3	General construction activities		Impacts to private property eg. cutting fences, installing temporary gates, modifying existing gates and tracks	Inconvenience to landholders	H	H	H	H	H	1	No	High	Short				2	Damage will be avoided where practicable and reinstated on project completion if unavoidable. Activities will occur with the prior knowledge and approval of the landholder. Agreed impacts or modifications will be appropriately noted on the line list. Pre-construction agreement on the type and extent of impact to occur, strategies and responsibilities for rectification of, or compensation for, damage, will be obtained.	LOW
5.3.2	General construction activities		Disturbance to pastoral bores	Inconvenience and disruption to landholders	H	H	H	H	H	1	Yes						1	Impacts are highly unlikely as the alignment will be selected to avoid such infrastructure.	LOW
<b>Public Safety &amp; Health</b>																			
5.9.3	Vehicle movement; transportation		Increase in local traffic and use of roads; transportation of construction equipment and pipe via semi trailers	Increased risk of vehicle collisions, third party injuries	H	H	H	M	H	2	Yes						1	Equipment and material transport routes and storage areas will be planned in consultation with local and state authorities to minimise disruption to residents and industry. Project related equipment will be delivered during daylight hours, where practicable. Traffic safety management plan will be implemented. Where practical, use shuttle buses to transport personnel to worksites.	LOW
5.6, Table 4	Earthworks, vehicle and machinery movement, blasting		Increase in noise levels associated with heavy machinery	Disturbance to the public or landholders; hazard to human health	H	H	H	H	H	1	No	Med	Short				2	No residences near pipeline alignment. Generally low levels of background noise dominated by natural sources. Intermittent background noise from diesel power generators is present near Innamincka inhabited station dwellings. Intermittent noise from vehicle traffic adjacent to public roads. Noise expected to be of short duration and intensity. Blasting close to any station homesteads extremely unlikely. Construction will only occur 6.30am to 7pm. Mufflers will be fitted to earthmoving equipment and other vehicles on the site.	LOW
5.2.3, 5.7.3, 5.7.4	Clear and grade, trenching, backfilling, access, operation and maintenance		Dust generation during earthworks and vehicle movement	Hazard to human health	H	H	H	H	H	1	No	Low					1	Impacts of dust generation from construction phase will be short term. Extent and period of exposed soil surfaces will be minimised to reduce potential for dust generation. Use of dust suppression measures (eg. water trucks) as required during construction. Dust generation from light vehicles during patrolling activities is expected to be very low, and should not come into contact with the public.	LOW
5.7.4	Earthmoving, transport equipment		Release of exhaust fumes from machinery and equipment	Hazard to human health	H	H	H	H	H	1	No	Low					1	Quantity of greenhouse gases emitted considered to be very small and will not have a significant greenhouse impact. All construction vehicles and equipment will be kept well maintained and fitted with appropriate exhaust systems and devices.	LOW
5.7.3, 5.7.4	Operation, maintenance		Gas emissions from venting, mainline valves, metering stations and/or gas delivery stations	Hazard to human health	H	H	H	H	H	1	No	Low					1	Quantity of greenhouse gases emitted considered to be very small and will not have a significant greenhouse impact. Venting during routine maintenance is controlled.	LOW
5.7.3	Operation		High pressure gas venting during emergency situation	Disturbance to the public or landholders; Hazard to human health	H	H	M	H	H	2	No	Low					1	Risk of pipeline ruptures or leaks is extremely low due to the implementation of protection measures and the routine monitoring, inspection and maintenance that will be carried out. Air emissions associated with such events are therefore unlikely. The duration of the venting and the volume of gas vented would be dependent upon the nature of the emergency. As there are no residences in close proximity to the pipeline, no significant impacts are likely. Emergency response procedures in place.	LOW

Environmental Significance Assessment																		
Project:		QSN Link - Epic Energy																
Assessor:		Belinda Close & Tim Flowers (PIRSA)																
Date:		27-Dec-07																
ABBREVIATIONS: H = High certainty; M = Medium certainty; L = Low certainty																		
REF	PIPELINE ACTIVITY	TYPE OF IMPACT	EVENT(S)	POTENTIAL CONSEQUENCES	PREDICTABILITY					MANAGEABILITY					COMMENTS	Environmental significance		
					SIZE	SCOPE	DURATION	FREQUENCY	STAKEHOLDERS	SIGNIFICANCE	AVOIDANCE	PROBABILITY	DURATION	SIZE AND SCOPE			CUMULATIVE EFFECTS	STAKEHOLDERS
5.6.2, 5.6.3	Operation		Continuous noise emitted at mainline valve and/or Moomba meter station and pressure reducing station	Disturbance to the public or landholders; hazard to human health	H	H	H	H	H	1	No	Low				1	There are a number of station homesteads in reasonably close proximity to the pipeline corridors (Table 15). However mainline valve and Moomba metering and pressure reducing station distant from any residences and will not result in significant noise concerns. Some low-level noise will be generated at the metering stations at End of the pipeline at Moomba, however given the industrial location of these sites the noise will be insignificant compared to background noise. Facilities will be designed and located to meet EPA noise criteria.	<b>LOW</b>