WEST KIMBERLEY POWER PROJECT (WKPP)

BROOME PIPELINE - PL72

ENVIRONMENTAL PLAN

Version: 3.0

Owner: Tony Manning

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1. Introduction

This Environmental Plan (EP) is an updated version of the EP document number 2060-CMM-00-PZ-001 which included PL72 and PL74. PL74 is now being managed by a different operator and under a different EP.

EDL NGD (WA) Pty Ltd (referred to as EDL in this document) is responsible for the overall management and operation of the Broome Natural Gas Pipeline PL72. An Environmental Plan is required for all stages of petroleum activity including construction, operation, care and maintenance, decommissioning and rehabilitation.

This EP has been prepared in accordance with the relevant requirements contained in the following documents:

- *Petroleum and Geothermal Energy Resources (Environment) Regulations 2012*
- *Petroleum Pipelines (Environment) Regulations 2012*
- *Guideline for the Development of Petroleum and Geothermal Environmental Plans in Western Australia (November 2016)*
- *Pipeline Licence PL72 (dated 12 September 2005).*

Table 1: Operator for PL72

Licence Holder	EDL NGD (WA) Pty Ltd
Operator's Name	EDL NGD (WA) Pty Ltd
Operator's ABN	35 070 941 721 (ABN); 070 941 721 (ACN)
Permit Number	Pipeline Licence PL72
Site Address	McDaniel Road, Broome, Western Australia 6725
Postal Address	PO BOX 4046, Eight Mile Plains QLD 4113
Contact	Fuel Facilities Manager 08 9195 3302

1.1 Objective

The objective of this Environmental Plan is to identify potential impacts and risks associated with the Broome Natural Gas Pipeline PL72 and to establish management measures to minimise these risks as low as reasonably practical (ALARP).

1.2 Scope

This document applies to all activities associated with the operational, care and maintenance, decommissioning and rehabilitation phases of the Broome Natural Gas Pipelines from and including the Inlet Station to and including the Outlet Station for the Pipeline.

A detailed plan for decommission and rehabilitation will be submitted to the Department of Mines, Industry Regulation and Safety (DMIRS) prior to undertaking these activities.

1.3 Document Review Frequency

As per the *Petroleum and Geothermal Energy resources (Environment) Regulation* 2012 this EP will be reviewed and submitted to DMIRS for approval every five years. The Oil Spill Contingency Plan (OSCP) will be reviewed and submitted to DMIRS for approval every two and half years.

This EP will also be reviewed and submitted to DMIRS for approval in the following cases:

- A new activity is proposed which is not provided for in the EP

- Any significant modification of, change in, or new stage of an activity is proposed to commence which is not provided for in the EP
- There is a change in the instrument holder or operator of the activity
- New or increased environmental risks or impacts associated with the activity have been identified
- DMIRS formally requests a revised EP from the operator
- Material changes are made to environmental management systems, processes, standards, mitigation measures, environmental performance objectives, standards, measurement criteria, etc.

Administrative changes to the EP (eg correction of contact phone number(s)) do not require resubmission of the EP to DMIRS. These changes will be recorded in Table 2.

In case temporary or short term modifications to the activity are required, with no significant increase in environmental impacts or risks, DMIRS may agree to the submission of an amendment to an approved EP in the form of a Bridging Document or a Written Notification (refer to Section 2.3 Guideline for the Development of Petroleum and Geothermal Environmental Plans in Western Australia (November 2016)). This would first be discussed with a nominated DMIRS Environmental Officer prior to the development or submission of an amendment, to determine the most appropriate form for submission.

1.4 Document Control

EDL will manage this Environmental Plan as a controlled document. Future changes will be documented in the table below:

Table 2: Document Revision History

Operator Name	EDL NGD (WA) Pty Ltd
Document Title	West Kimberley Power Project (WKPP) Broome Pipeline - PL72 Environmental Plan
Document Type	Environmental Plan (EP)
EDL Document Reference Number	HSEQ-125008896-7
Current Version	3
Description of changes since DMIRS Approval	Updates required by DMIRS before document approval

2. Location and Description of the Activity

PL72 Broome Pipeline has a 12.2 km length and is located within the Broome Township as identified in

Figure ***1***. This pipeline incorporates the following components:

- **Inlet Station**: contained on the Broome Fuel Storage Facility located at Reserve 40813 – Lot 228 on Plan 216500, comprising of a shutdown valve and flange connections for fitting a temporary pig launcher. The approximate coordinates of the starting point of the pipeline are MGA94 Zone 51 419 081 E, 8 020 864N.
- **Underground** 12.2 km 315 mm OD HDPE pipeline: which runs in existing road reserves for the entire route, aside from a small section where it utilises Crown Reserve land within a Public Utility Services Corridor as below:
  - Buckleys Road Reserve (western side of road)
  - Fairway Road Reserve (southern side of road)
  - Magabala Road Reserve (western side of road to Tanami Drive, then eastern side of road to Gubinge Road)
  - Dalmation Street
  - Gubinge Road Reserve (southern side of road)
  - Cable Beach Road East Reserve (western side of road)
  - Port Road Reserve (northern side of road), and
  - Public Utility Services Corridor (Reserve 33720 – Lot 1193 on RP 213567).
- **Outlet Station**: contained within the Broome Power Station Facility (located at Reserve 22720 – Lot 1193 on Plan 213567 in McDaniel Road), comprising of a shutdown valve and flange connections for fitting a temporary pig receiver. The approximate coordinates of the Finishing Point of the pipeline are MGA94 Zone 51 415 844E, 8 011 719N.
- **Supervisory Control and Data Acquisition (SCADA) system**: for remote monitoring and control.
- **Metering**: flow meters are located downstream of the vaporiser discharge manifold and upstream of the pipeline inlet flange.

2.1 Operations Phase

2.1.1 Pipeline Operations

This pipeline has a 12.2km length and is used for the transport of natural gas from the Broome Fuel Storage Facility to the Broome Power Station. This pipeline has a design life of at least 30 years, it was constructed and commissioned in 2006 and the approval to operate was granted in 2007.

This pipeline is managed locally from the Broome Power Station and is in operation 24 hours per day, seven days per week providing natural gas to this Power Station for the generation of electricity for the Broome Township.

Chemical Storage

No oil is stored or used (apart from a component of a hand-held aerosol spray can) in relation to the PL72 natural gas pipeline (including its inlet and outlet points).

Mercaptan (commercial name Spotleak 1005) is used in the operation of the pipeline and is only permitted to be stored at the Broome Fuel Storage Facility. This chemical is managed as part of the conditions of the Dangerous Goods Permit (DGS 020247). The Broome Fuel Storage Facility is not part of the scope of this EP.

Stakeholder Communications

EDL undertakes regular communication with government agencies such as DFES &WAPOL, and local government agencies (shire councils) in regards to activities related to the pipeline, associated LNG transport activities, and emergency response preparedness. EDL also, undertakes regular communications with the landowners within the pipeline area in accordance with the Stakeholder Management Plan. This include safety brochures and updates about planned activities, among others.

Figure 1 PL 72 - Broome Pipeline Location

2.1.2 Inspections

A monthly HSE site inspection is completed using a light vehicle, only during daylight hours. The inspection is done to identify:

- Erosion
- Vegetation regrowth
- Weed spread
- Third party activity
- Pipeline signage integrity and line of sight

2.1.3 Care and Maintenance

Ongoing care and maintenance requirements of the pipeline are identified during the monthly HSE inspection, recorded on the inspection checklist and actioned as required. EDL maintenance may involve pipeline discharge, pigging, excavations and vegetation management as outlined below. Any maintenance requirements outside of EDL's responsibility, such as weed management and erosion within or adjacent to the pipeline Right of Way will be communicated to the relevant stakeholders (council or other utilities) for action.

Pipeline Discharge, Venting and Flaring

There is no allowance or provision for the venting or flaring of natural gas from the PL72 Natural Gas Pipeline. The gas pipeline is purged of natural gas before any planned maintenance involving access to the inside of the pipeline. Consequently, no natural gas is emitted to the atmosphere by this process.

Any discharge of natural gas to the atmosphere will come from a leak from, or damage to, the pipeline. EDL maintains an emergency shut-down system in the event of a possible leak or damage to the pipeline. This equipment is maintained as part of the Broome Power Station equipment maintenance program and tested as part of Emergency Scenario exercises.

EDL measures the volume of natural gas entering the inlet of the pipeline by a calibrated flow meter located prior to gas entering the pipeline. Monitoring and measurement is conducted continuously (24hr/day, 7 days/week). This flow meter is serviced annually.

Reconciliation of gas consumed versus LNG stored/delivered is calculated from the SCADA system. Pressure in the pipeline is monitored continuously with established alarm set points being used to identify low and high pressure points which can indicate a potential blockage (high pressure) or leak (low Pressure).

Pigging

EDL may use pipeline pigging for maintaining gas flow efficiency. The term "pipeline pigging' refers to the technique of inserting a specially built tool referred to as "pig" into the pipeline to perform different tasks associated with cleaning or inspecting. This activity is conducted using suitably qualified external contractors. This contractor is responsible for the provision of a Work Program to address all environmental issues relevant to the work to be undertaken. Wastes from pipeline pigging are collected as hazardous substances and disposed of by a licensed waste disposal company.

Excavations

Excavations may be required in case of a major maintenance event. Any excavation within the pipeline easement will require a risk assessment and Safe Working Instruction (SWI) which includes soil management (eg silt fencing around excavated soil) and the requirement for the excavation to be backfilled and compacted at the end of the day as preference. In developing an operational control document, the need for an approval (eg road closure) will be assessed and addressed.

Vegetation Maintenance

Periodic maintenance to maintain firebreaks, pipeline integrity as well as the line of sight between pipeline signs and access to ROW is undertaken. This maintenance consist on trimming of vegetation or removal of vegetation that has root systems assessed as causing interference, or with the potential to interfere, with the integrity of the pipeline. Note that before any clearing is done the presence of *Glycine pindanica* is verified as non-present.

2.2 Decommissioning and Rehabilitation Phase

EDL will decommission the pipeline when no longer required. A detailed decommissioning and rehabilitation plan will be submitted for approval to DMIRS prior to these activities being undertaken. In general terms, these decommissioning and rehabilitation activities will include:

- The existing pipeline will be purged of all gas
- All signage identifying the pipeline will be removed
- Reference to the pipeline on Dial-Before-You- Dig will be updated
- In consultation with local and State authorities, applicable property owners and other stakeholders, a decision will be made on the recovery of the pipeline and level of rehabilitation of the ROW
- If the pipeline is recovered, the pipeline material will be reused or disposed of to a recycler as a first option or to general waste when no option for recycling is locally available
- Where ground disturbance occurs, it will be reinstated to a standard found in the surrounding area.

3. Description of the Existing Environment

The low-pressure underground pipeline is in road reserves, aside from a small section of crown land, in a Public Utility Services Corridor.

- **Climate**: The Broome Pipeline lies in the Shire of Broome. Broome has a tropical climate of hot, humid summers and warm, dry winters. The “wet” season typically exists for the November to April period. Broome is in a high wind region. During summer, winds are dominated by easterlies and south easterlies, while westerlies are dominant in winter. Tropical cyclones develop to the northwest of the coastline and track down the coast mainly in the second half of summer, often producing extremes of wind and rain.
- **Land**: The soils along the pipeline route predominantly comprise of Pindan sand, typically suitable for structure support of a pipeline. Pindan soils are susceptible to erosion if not compacted. Potential Acid Sulphate Soil (PASS) is not encountered at the depth or location of the pipeline. PASS is typically encountered in coastal waterlogged silt less than 5 metres Australian Height Datum (AHD). The pipeline is located along a road reserve in the vicinity of the Broome town for the majority of the route, aside from a small section of crown land, in a Public Utility Services Corridor.
- **Water**: The pipeline is between 770 metres and 2.5 kilometres from the coastline along its route. Areas in the vicinity of the pipeline are zoned “prone to flooding” on the Town Planning Scheme. The flood prone areas are typically those below 10.5 metres Australian Height Datum (AHD).
- **Vegetation**: Studies conducted prior to construction identified that priority three flora species Glycine pindanica may be present in the vicinity of the pipeline. With increasing development along the pipeline route, in particular the recent Broome North housing development, vegetation now also includes residential landscaped/beautification along the easement.
- **Fauna**: 27 rare or endangered fauna species were recorded within a 50 km radius of the pipeline prior construction, these bird species are likely to inhabit the nearby conservation areas of Roebuck Bay and not the pipeline corridor which has no topographical or vegetation features likely to attract any fauna species.

- **Ecosystems**: The pipeline is almost entirely in a public road reserve, the plant community along the entire route of the pipeline is highly disturbed and local development has occurred along the full length of the pipeline route.
- **Community**: The pipeline is in the existing road reserve, aside from a small section utilising Crown Reserve land in a Public Utility Services Corridor. The location of the pipeline is identified by above ground warning markers and registered "as built" with "Dial-Before-You-Dig". Residential development is adjacent to pipeline has significantly increased with the Broome North Residential Development. As a result, there is a potential increase in community awareness of the pipeline and interactions associated with the inspection and maintenance of the pipeline.
- **Heritage and Culture Values:** The Work Clearance Survey Report completed during May 2005 identified that no sites of Aboriginal cultural or heritage value were going to be disturbed as a result of the pipeline. No Aboriginal cultural or heritage issues were experienced during the construction of the pipeline.

4. Risk Assessment and Management

EDL uses the international standard ISO 31000 process to identify and assess environmental risks relevant to its activities. The process of risk identification and assessment aims to:

- Identify the environmental issues relevant to its activities.
- Identify and consider legal and other obligations in relation to those issues.
- Identify the risk(s) associated with the issue.
- Determine those risks that have or can be significant in terms of actual or potential impact.

The EDL risk matrix tool and the environmental assessment for PL72 is located in Appendix A. With all operational control measures in place, it is determined that all identified aspects and impacts associated with these pipelines can be managed as low as reasonably practical (ALARP).

5. Environmental Objectives, Standards and Measurement Criteria

This section identifies environmental performance objectives (objectives), environmental performance standards (standards) and measurement criteria related to all potential environmental impacts and risks associated with PL72 required to minimise these risks as low as reasonably practical (ALARP).

These objectives, standards and measurement criteria are presented in such a way that performance in protecting the environment can be measured.

For the purposes of this Plan, the following definitions apply:

- **Objective**: A general statement or principal to which EDL subscribes for preventing, avoiding or minimising environmental impacts and protecting the environment.
- **Standard or management controls**: The specific performance required of persons, equipment and procedures, in relation to the management of environmental risks and impacts for PL72.
- **Measurement criteria**: Auditable and measurable criteria for each objective and related set of standards. The measurement criteria must be based on relevant standards and enable determination of whether the objectives and standards have been met.

It should be noted that any incident arising during an activity that causes a breach of an objective or standard constitutes a recordable incident and must be reported monthly to DMIRS. (Refer to Sections 8 and 9 of this EP for additional detail regarding incidents and reporting).

5.1 Air Quality Management

Risk	**Natural gas leak**
Objective	**Prevent occurrence of natural gas leak**
Management Controls (Standard)	• EDL conducts a HSE monthly inspection of the pipeline route to ensure signage (which includes contact details) is in good condition, to be aware of any work by a third party that has the potential to impact on the pipeline, and if any maintenance is required. • Pressure in the pipeline is monitored continuously. Alarm set points established for low and high pressures to detect a potential blockage (high pressure) or leak (low Pressure). EDL maintains an emergency shut-down system in the event of a possible leak or damage to the pipeline. This equipment is maintained as part of the Broome Power Station equipment maintenance program and tested as part of Emergency Scenario exercises. Mercaptan odourant (Product Commercial Name – Spotleak 1005) is used to assist in the detection of any leak. • A register is maintained to document any odour complaint and actions taken to resolve are progressed as a matter of urgency. • Maintenance associated with this pipeline is scheduled in PRONTO (software). In case repairs are required this is completed using the Safe Work Instruction (SWI): "2003-PPL-00-SWI-012 Broome Pipeline Repairs".
Measurement Criteria	• EDL's monthly inspection identifies any required maintenance and verify pipeline signage is in place. The action register shows any maintenance task required is closed within the required timeframe. • Monitoring of the pressure in the pipeline shows no leaks (low pressure). • Complaint register (eWIRF system) shows that no odour complaints have been received. • In the case of repairs: a work order raised within PRONTO shows that the relevant SWI has been used.
Person Responsible	• Facility supervisor and facility manager
Records	• Monthly HSE checklist inspection • Action register • Complaint register (eWIRF system) • Work orders - PRONTO

Risk	**Dust generation during vehicle and machinery transit**
Objective	**Minimise dust generation during vehicle and machinery transit**
Management Controls (Standard)	• Vehicles drive on sealed public road as far as practical, reduce speed if required to drive at 20km/hr within the ROW. Monthly HSE checklist includes an item to document the dust conditions during site visit.
Measurement Criteria	• Complaint register (eWIRF) shows that no dust complaints were received. • HSE checklist documents that dust generation was kept at minimum during site inspection.
Person Responsible	• Facility supervisor • Contractors
Records	• Complaint register (eWIRF system)

5.2 Land Management

Risk	**Erosion**
Objective	**Monitor, identify and address evidence of soil erosion.**
Management Controls (Standard)	• EDL conducts HSE monthly pipeline inspections, which include monitoring any signs of soil erosion on the ROW. Additional inspections may be initiated after significant weather events (eg prolonged heavy rain) where there may be impact on the ROW. • EDL communicates early stages of soil erosion in ROW to Council for their information and agreed responsibilities, sediment control measures (eg silt fencing) and remediation actions (eg grading or backfill and compaction) to be implemented. Note: The pipeline is in areas where the Council (along the full length of the ROW) and other utilities (in the case of the Public Utility Services Corridor) are stakeholders. EDL do not have exclusive responsibility for maintaining these areas and are required to consult and work with Council. In some cases, it may be one of the other stakeholders that have primary responsibility for responding to issues (eg soil erosion arising from road works or other utility maintenance work). Soil erosion that has the potential to expose or impact on the gas pipeline will be addressed as a matter of urgency in consultation with Council by backfill and compaction or other appropriate and agreed action.
Measurement criteria	• EDL's HSE checklist monthly inspection documents erosion checking within the pipeline. • If erosion is found the EDL Action Register shows related action that is raised and which is then tracked to completion. • Complaint register (eWIRF) shows that no complaints were received due to erosion.
Person responsible	• Facility supervisor and facility manager
Records	• Monthly HSE checklist inspection • EDL action register • Complaint register (eWIRF system)

Risk	**Erosion and soil disturbance due to excavation works**
Objective	**Minimise erosion and soil disturbance due to excavation in close proximity to pipeline assets**
Management Controls (Standard)	• EDL will ensure that their contractors undertaking activities involving any excavation within the pipeline easement work under the SWIs: Broome Pipeline Excavation (2003-PPL-00-SWI-029), Broome Pipeline and Broome Pipeline Backfill (2003-PPL-00-SWI-013) and a risk assessment. Management measures include: Silt fencing around excavated soil; topsoil, subsoil and vegetation stockpiling separately and backfilled in the same sequence after work completion; all approved control measures (eg silt fencing) will be required to remain in place and be maintained in good condition until the area is stabilised. • EDL will monitor any activities conducted by a third party that involve any excavation within the pipeline easement. Communications will be established with the third party to ensure any risks to the pipeline are identified and addressed. Note: the need for trenching is rare but, if needed, the work is almost always completed within the day and the trench refilled. The measures above, in respect to trenching take the most extreme cases into account.
Measurement Criteria	• Work order raised within PRONTO for excavation works shows that the relevant SWI has been used. • EDL HSE checklist monthly inspection documents erosion checking within the pipeline. • EDL HSE checklist monthly inspection documents any third party works. • Complaint register (eWIRF) shows that no complaints were received due to erosion.
Person Responsible	• Facility supervisor • Contractor
Records	• Complaint register (eWIRF system) • Monthly HSE checklist inspection

Risk	**Spills or leaks of chemicals onto land**
Objective	**Minimise spills or leaks of chemicals onto land** **All spills or leaks of chemicals are cleaned**
Management Controls (Standard)	• Any equipment (eg excavators or vehicles) required for pipeline maintenance or reinstating the ground following pipeline maintenance will have available a spill kit in the event of an oil hose or hydraulic hose discharge. • Any spill is reported internally and if required externally as per Section 9 of this EP. • The clean-up of any leak or spill of these substances must not allow the spill/leak to be washed into any stormwater drain or water body. • The waste collected from any leak or spill of these substances must be disposed of in a manner consistent with the most hazardous component of the spill.

	Note: There is no storage or use of oil or chemicals, other than spray paint occasionally (at the Inlet Skip, at any point along the Natural Gas Pipeline, or at the Outlet Skip. The only potential leak is from vehicle and maintenance machinery. In case chemical substances are required in the future the following will be required: • Any chemical to be used by EDL and its contractors will require approval using the ChemAlert System. This system includes a current Safety Data Sheet (SDS) for any dangerous good or hazardous substance. For these substances, they will be stored on self bunded pallets and used in full compliance with the SDS (and AS1940 where applicable).
Measurement Criteria	• HSE checklist inspection documents any observed spill • Spill incident is reported in the eWIRF system and description of incident documents that spill was cleaned as soon as possible. • No complaints received related to oil spills (recorded in eWIRF). • In case of chemical substances are required: ChemAlert shows that an assessment was completed, a SDS is stored and accessible and the substance is stored as per SDS. • Substances required by EDL and its contractors will be stored on self bunded pallets and used in compliance with the SDS (and AS1940 where applicable).
Person Responsible	• Facility supervisor • Contractor
Records	• Complaints register (eWIRF system) • Monthly HSE checklist inspection • eWIRF register (EDL incident register) • ChemAlert system

5.3 Vegetation Management

Risk	**Disturbance of vegetation including conservation status vegetation during line of sight and fire break maintenance**
Objective	**Minimise vegetation disturbance** **Avoid impact to the conservation status vegetation**
Management Controls (Standard)	• In compliance with *AS2885.3 -2012 Pipeline Gas and Liquid Petroleum Operation and Maintenance*, the monthly HSE inspection shall monitor any vegetation encroaching the pipeline for limitation of signage visibility or root systems threatening the pipeline. • Above ground maintenance of line-of-sight will be restricted to trimming to the minimum extent necessary to re-establish line-of sight between pipeline signage. Clearing (removal of whole plants) for line of sight maintenance will occur when the vegetation has root systems assessed as causing interference, or having the potential to interfere, with the integrity of the pipeline. This is undertaken under an exemption from the requirement to hold a permit to clear vegetation along the pipeline under item 15 of Regulation 5 of the *Environmental Protection (Clearing of Native Vegetation) Regulation* 2004. The original clearing permit was granted on 11 August 2006 (area permit number: 1166/1, file number: 22718). The permit exemption under

	this regulation will expire September 2028. Clearing will also occur to maintain existing firebreaks. • Clearing will only be done with the authority of the owner or occupier of the land in which the clearing is taking place. Therefore in the event clearing is required EDL will communicate appropriately with the local council. • In the case of an emergency response that involves the removal of native vegetation, the Native Vegetation Contact Officer of the DMIRS will be contacted within 1 working day to provide details of the actions taken. • Note: *Glycine pindanica* is the only known species in the area of the pipeline with a priority three conservation status. A description of *Glycine pindanica* is provided at the site induction and the presence of this species is checked monthly during the monthly HSE inspection (a picture of this species is included in this checklist). Should this priority flora species be identified or sighted, care should be taken not to interfere with the flora. No clearing of *Glycine pindanica* will be undertaken without a permit.
Measurement Criteria	• As per AS2885.3 -2012 the HSE monthly checklist documents the requirement for clearing due to maintenance of line of sight or firebreak along the Right of Way. • The Quarterly Emissions Report submitted to DMIRS documents quantity of waste generated by clearing of vegetation. • The incident report associated to emergency response documents that communication with DMIRS was established within 1 working day to provide details of the action taken. • HSE monthly checklist identifies *Glycine pindanica* location or documents that search during the monthly inspection was conducted and none was found. • Induction register shows new employees and contractors completed the induction for PL72. • Any clearing of vegetation is conducted under the requirements of the exemption of item 15 of Regulation 5 of the *Environmental Protection (Clearing of Native Vegetation) Regulation* 2004.
Person Responsible	• Facility supervisor
Records	• HSE monthly checklist • Induction register

5.4 Weed Management

Risk	**Weed introduction and spread caused by EDL**
Objective	**EDL manages weed spread within Broome Pipeline**
Management Controls (Standard)	• All EDL and contractor vehicles will avoid driving through any observed areas of declared weeds. • EDL conducts monthly HSE inspections, which include sighting of weeds along the pipeline. • As the pipeline is in areas where the Council (along the full length of the ROW) and other utilities (in the case of the Public Utility Services Corridor) are stakeholders, EDL do not

	have exclusive responsibility for maintaining these areas and are required to consult and work with Council. • If any Weeds of National Significance are found along the pipeline EDL will coordinate with the local Council to address weed eradication. Note: EDL does not authorise or conduct any weed spraying along the pipeline route outside the boundaries of the Broome Bulk Storage Facility and Broome Power Station. • If any weeds are found within the inlet and outlet stations EDL may use a commercial weed control substance (eg roundup). The spray will be used in accordance with product directions. The unused product will be removed from the area after use. Assurances are obtained from any landscaper or other company engaged by EDL to introduce any soil or fill material along the pipeline route that the material is weed and pathogen free.
Measurement Criteria	• Site induction includes weed awareness. • The monthly HSE inspection documents sights of weed presence and actions are raised and tracked to completion. • When fill or soil is required to be imported a weed free certificate/document shows fill or soil is free of weed.
Person Responsible	• Facility supervisor • Contractor
Records	• HSE monthly checklist • Action register • Complaint register (eWIRF system)

5.5 Fauna Management

Risk	**Injury or death of fauna during site inspections and maintenance.**
Objective	**EDL minimises injury to native fauna.**
Management Controls (Standard)	• Vehicle speed will be restricted to 20 km/hr by EDL and contractor vehicles along ROW. Preference for vehicles to use public roads as far as practical. • Where injured fauna is found on site, a vet or other animal care professional will be contacted to assist in the provision of care. • In case fauna is injured or killed as a result of monthly inspections or maintenance, this will be raised as an environmental incident in the eWIRF system. In case of excavation works: • The contractor will have a qualified fauna handling person on call to relocate any fauna that is found trapped in the trench. • Any trench will be checked for fauna before refilling the trench • In cases where a trench is left open overnight, the trench will be inspected for fauna presence at the end of the day and first thing at the commencement of the next day. Note: the need for trenching is rare but, if needed, the work is almost always completed within the day and the trench refilled. • Where a trench is left open overnight, barrier fences and signage will be erected to provide warning of and restriction to the excavated area.

	Note this information is also made available to contractors during the site induction (as detailed in Section 7 Environmental Awareness and Training).
Measurement Criteria	• Vehicle speed restrictions are contained in the site induction which is completed by all EDL and contractors that require to work in PL 72. • In case of fauna injury, the incident report in eWIRF demonstrate that a vet or other animal care professional was contacted to assist. • In case of excavations works: the induction register shows that the contractor completed the site induction. • In the event that fauna is located within any trench the fauna spotter catcher will relocate any fauna. Records of fauna handling will be recorded as a hazard in the eHazard system • No complaints related to fauna management recorded in complaints register (eWIRF)
Person Responsible	• Facility supervisor • Contractor
Records	• HSE checklist • Complaint register (eWIRF) • Hazard register (eHazard)

5.6 Waste Management

Risk	**Incorrect waste disposal causing soil, groundwater, surface water contamination and odour generation.**
Objective	**EDL maintains high level of housekeeping through waste collection and disposal in order to avoid generation of odour and contamination of soil groundwater, surface water contamination.**
Management Controls (Standard)	Note: waste is not generated during the normal operation of the pipeline. Waste may be generated during the pigging process. Where any maintenance activity is conducted, there is the potential to generate a limited waste stream, typically non-hazardous solid material such as connection and gasket materials or trimmed vegetation. • Any general waste generated during the maintenance or inspection are disposed as general waste. Trimmed vegetation will be removed from site and disposed of as green waste or general waste. • All regulated waste will be removed by a company who holds a current authority to transport such wastes. A record of the collection of the waste will be maintained in accordance with regulatory requirements. Regulated waste includes: wastes from pipeline pigging, waste oil and oily rags • Wastes are disposed of in accordance with the most hazardous component of the waste. The preferred options for disposal are: - Non-Hazardous and Recyclable: Recycled (Preferred subject to availability – otherwise treat as non-hazardous and non-recyclable). - Non-Hazardous and Non-Recyclable: On-site or off-site landfill or other user.

	- Hazardous and Recyclable: Recycler licensed to recycle this waste stream (Preferred subject to availability – otherwise treat as hazardous and non-recyclable). • Hazardous and Non-Recyclable: Controlled disposal to a licensed disposal agency. • Prior to off-site disposal, all wastes shall be in nominated and identifiable waste containers. These containers shall be labelled, stored and maintained to restrict any access by stormwater and contain any leak or spill of contents. • Where wastes are noted as coming from a third party onto EDL managed land, discussions will be held with the third party (where they can be identified) to minimise this occurring. This may result in reporting these activities to a local authority or regulator.
Measurement Criteria	• Visual observation during site inspections shows high level of housekeeping, including no odour or presence of soil, water contamination caused by waste produced by EDL. HSE monthly checklists documents this. • Controlled waste tracking form demonstrates that controlled (regulated) waste was collected by a licenced waste transporter and disposed of to a licenced waste facility. • Controlled Waste tracking form (CWTF) details recorded in the Waste Register saved on SharePoint • Any third party waste generation is communicated and documented in the HSE monthly checklists.
Person Responsible	• Facility supervisor • Contractor
Records	• Waste transport receipts • HSE monthly checklists • WKPP Waste Tracking Register

5.7 Cultural Heritage Values Management

Risk	**Disturbance to cultural heritage values**
Objective	**EDL manages any sites of cultural heritage significance that may be found.**
Management Controls (Standard)	Note: no items of heritage value were identified during survey prior to construction and during the construction of the pipeline. • If an item of potential Aboriginal heritage or cultural value is discovered, the area will be restricted as far as it is safe to do so and the discovery assessed by a suitably qualified person. This event will be raised as an incident in the eWIRF system. If bones are discovered and there is a possibility that they are human, the police will be contacted.
Measurement Criteria	• Incident report demonstrate that works were stopped, the area was restricted as far as it was safe, and the police was contacted if bones were found.
Person Responsible	• Facility supervisor • Contractor
Records	• HSE checklist

5.8 Fire Management

Risk	**Fire of vegetation and surroundings of PL72 caused by EDL operations**
Objective	**EDL undertake measurements to reduce risk of fire within surroundings of Broome Pipeline caused by EDL operations.**
Management Controls (Standard)	• Hot works are managed through the Permit of Work of the EDL Occupational Health and Safety Manual. • EDL undertakes monthly inspections to determine fire breaks maintenance requirements.
Measurement Criteria	• A work order raised within PRONTO for hot works shows that a JSEA was completed for these works in compliance with the Permit of work of the EDL Occupational Health and Safety Manual. • HSE monthly checklist documents fire break maintenance requirements.
Person Responsible	• Facility supervisor • Contractor
Records	• HSE checklist • Work order - PRONTO

6. Environmental Policy, Organisational Responsibilities and Implementation Strategy

EDL maintains a corporate Environmental Policy. This is a controlled document within the EDL document management system. The current copy is maintained on the Global EDL SharePoint Site. This Policy is reviewed and reissued every two years. Appendix B shows the Environmental Policy valid at the time of issuing this report.

A copy of this Policy is on display at manned EDL Facilities to allow it to be communicated to and viewed by staff and visitors to those facilities. It is communicated to staff as part of the induction package named SAFER.

The Environmental Policy is authorised by the EDL Chief Executive Officer. It is a statement of corporate intent for environmental management within EDL and documents a commitment to:

- Alignment with the requirements of ISO 14001
- Continual improvement and prevention of pollution
- Comply with applicable legal requirements and with other requirements to which the organization subscribes which relate to its environmental aspects, and
- Setting and reviewing environmental objectives and targets.

For EDL Environmental Plans, the following organisational responsibilities apply.

Table 3 Organisational Environmental Responsibilities

Role	Responsibilities
Chief Executive Officer	Corporate responsibility for EDL's Environmental Policy
Chief Operating Officer	Corporate responsibility for the environmental compliance of EDL Australian Operations

Role	Responsibilities
Global HSE and Compliance Manager	Corporate responsibility to ensure the availability of environmental resources essential to establish, implement, maintain and improve the EDL Corporate and local Environmental Plans
HSE and Compliance Team	Corporate responsibility for supporting EDL management in ensuring that Corporate and local Environmental Plans are established and maintained; and environmental performance and improvement opportunities are reported on a regular basis to senior management for review
Regional/State Operations Manager	Corporate responsibility for implementing and maintaining Environmental Plans for their area
Facilities Manager	Operational responsibility for implementing Environmental Plans for their area.
Facility Supervisor	Operational responsibility for implementing this Environmental Plan
Facility Staff	Operational responsibility for working within the requirements of this Environmental Plan
All other EDL Staff, Contractors and Visitors	Conduct activities in accordance with Facility directions and the relevant aspects of this Environmental Plan

The **implementation strategy** for this Environmental Management Plan will use the following systems. The implementation of these systems ensures the reduction of the identified risks in Appendix A to as low as reasonably practical (ALARP):

- Specific environmental objectives, standards and measurement criteria for each risk identified as per section 5.
- Applicable procedures from the EDL Occupational Health & Safety Manual (ie Incident Response Procedure, Complaint procedure, etc), as stated among this Environmental Plan (Section 5 and 9).
- Internal audits and monthly checklists to identify improvements as part of continuous improvement as per Section 8 and in order to reduce the identified impacts to ALARP.
- Monthly legislation review for updates applicable to this scope of work.
- Induction and training as per section 7.
- Environmental monitoring, audit and reporting as per section 8.
- Incident management as per section 9.
- Stakeholder consultation as per below.

Stakeholder Consultation

EDL has identified key stakeholder and 3rd party groups associated with the PL 72 pipeline. PL72 stakeholders include:

- Horizon Power
- Shire of Broome
- Main Roads WA (MRWA)
- Kimberley Land Council (KLC):
- Department of Mines, Industry Regulation and Safety (DMIRS)

- Adjoining Landowners to pipeline route
- Third parties and Contractors

Initial communication protocols were established between EDL and Horizons Power, Shire of Broome, WRWA and KLC (Construction phase of PL72 2006). These communications are maintained by regular contact by EDL and the arrangement of periodic meetings to discuss any future plans either party may have that would require approval before commencement of activities. Notice period is outline in table below. DMIRS have been consulted regarding the development and approval of this PL72 EP. A third party or contractor wanting to perform work on the pipeline easement will contact the EDL free call number located on the pipeline mark signs or via the Dial Before You Dig network.

Ongoing communications with council and other utilities are undertaken when required regarding maintenance and operational activities of the pipeline, issues such as erosion, utility maintenance work, weed control, associated LNG transport activities and emergency response preparedness. In addition, future stakeholder consultation will be required during the decommissioning and rehabilitation phase as outlined in section 2.2

All stakeholder interactions (previous and ongoing) are completed in accordance with the Stakeholder Management Plan for PL 72. This plan has been in place since the construction phase and is updated periodically. As part of this plan the following communications are held, among others:

Timeframe	Company	Communication Required
ASAP	Dial Before You Dig	Pipeline location details or changes to be added to database.
1 week prior to planned work	DIMRS / Shire Broome	All relevant regulatory approvals to be issued.
	Shire of Broome	Pipeline location details and pipeline awareness. Letter notifying any major operational activity 1 week prior to activity being carried out.
	Kimberley Land Council	Pipeline location details and pipeline awareness.
	MRWA	Pipeline location details and pipeline awareness. Letter notifying any major operational activity 1 week prior to activity being carried out.
	Adjoining Landowners to Pipeline Route	Pipeline location details and pipeline awareness. Letter notifying any major operational activity 1 week prior to activity being carried out.
	Broome Waste Management Facility	Letter notifying any major operational activity 1 week prior to activity carried out.
As required	Horizon Power	Notice to be provided in writing to Horizon Power prior to any significant works to be performed by EDL that may impact on Horizon infrastructure

All stakeholder interactions and consultation will be reported in the 'Ongoing Consultation' section of the annual report submitted to DMIRS. Any community or stakeholder complaints will be recorded in eWIRF system.

7. Environmental Awareness and Training

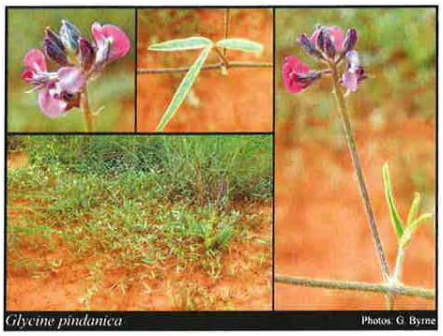
Personnel conducting work for on behalf of EDL at any point along the pipeline will be provided with information on the specific environmental obligations in respect to the pipeline before commencing work as part of the site induction.

The following training is conducted by EDL and applicable to the PL72 pipeline:

- SAFER: All EDL staff and contractor are required to complete this induction package which includes a module in environmental awareness. A course refresher must be completed every two years.
- EDL spill response training course: depending on their roles and responsibilities.
- EDL Broome Power Plant and Broome Pipeline induction required for EDL staff and contractors

Records of training and awareness are maintained for as long as the person is an employee of EDL and then archived. The EDL Training Coordinator is responsible for maintaining staff training records and training status.

The below table contains the environmental section of the EDL Broome Power Plant and Broome Pipeline induction, current at the time of publishing this EP.

BGP Easement Environmental	
❑	Identification of weeds on the Easement must be reported and all EDL and contractor vehicles must avoid driving though any observed areas of declared weeds.
❑	A **priority species** - *Glycine pindanica* (Priority Class Three) has been identified on the Easement. This species must be protected and not disturbed
❑	Erosion on or adjacent to the pipeline easement must be reported and works conducted along the pipeline managed to prevent erosion.
❑	In case of excavation works the below fauna controls are required: • A qualified fauna handling person on call to relocate any fauna that is found trapped in the trench. • Any trench must be checked for fauna before refilling the trench • Trenches left overnight must be inspected for fauna presence at the end of the day and first thing at the commencement of the next day. • Where a trench is left open overnight, barrier fences and signage must be erected to provide warning of and restriction to the excavated area.  *Glycine pindanica* Photos: G. Byrne
❑	Reduce speed to **20km/hr** within the ROW to minimise dust generation and likelihood of fauna strike.
❑	Any waste generated during operation or maintenance of the pipeline must be correctly disposed of.
❑	Spill kits must be present for any works conducted on the pipeline. Spills must be cleaned up immediately and not allowed to wash into any storm water drain or water body.
❑	All staff and contractors have a responsibility to report any environmental concern or incident (including oil spills and any fauna injury or death) to the Facility Supervisor or Facility Contact immediately.

8. Environmental Monitoring, Audit and Reporting

8.1 Environmental Monitoring

The environmental monitoring is completed via monthly environmental inspection of the Broome Pipeline using the EDL HSE Monthly Checklist. This task is completed by the facility operator and it is verified by the supervisor and facility manager.

This checklist contains specific fields to verify the objectives set in Section 5 and it is stored within the EDL SharePoint system. Any actions are recorded and tracked in the EDL action register.

8.2 Environmental Audit

EDL will conduct an internal audit of compliance with this EP, as a minimum, once every 3 years in order to review the current practices and contribute to the continuous improvement of the environmental management practices. The scope of the audit will be determined with consideration for:

- The results of previous audits;
- Incidents, complaints and other contributing factors.
- The triggers for more frequent internal compliance audits include, but are not limited to:
- An environmental incident or emergency relating to the Pipeline;
- A recommendation from another internal audit conducted by EDL; and/or
- A change in legal or other obligations in relation to the Pipeline;
- A direction from an environmental regulator.

Any non-conformance from an audit will be documented in the EDL action register and tracked to completion of the related action. In case of a non-conformance that is a reportable incident for a government agency this non-conformance is also recorded in the eWIRF system as an incident.

8.3 Reporting

The Table 4 summarises the reporting requirements for PL72 to DMIRS and the Department of Water and Environmental regulation (DWER).

8.4 Record Keeping

The following records will be stored and maintained electronically for a minimum of five years.

- Induction and training records
- Emissions reports
- Waste disposal receipts
- Audits and inspections
- Any other record that may be used to demonstrate compliance

Table 4 Reporting Requirements

Item	Requirement	Government Department	Timing
Annual Activity Report	As per Regulation 16, an annual report is submitted to DMIRS to demonstrate compliance with the objectives set out in Section 5 of this plan. This report is submitted by 30 September every year (within 3 months of the end of the financial year). The content submitted is in accordance with Section 3.8.2 of the *Guideline for the Development of Petroleum and Geothermal Environment Plans in Western Australia* and the guideline for preparing annual reports: http://www.dmp.wa.gov.au/Documents/Environment/ENV-PEB-187.pdf	DMIRS	Annually By 30 September
Emissions and Discharge Report	As per Regulation 33 of the PP(E)R and regulation 34 of the PGER(E)R and PSL(E)R, EDL reports emissions and discharges to any land, air, marine, seabed, sub-seabed, groundwater, sub-surface or inland waters environment that occur in the course of the activity. EDL submits this information on the nominated form located at http://www.dmp.wa.gov.au/Documents/Environment/ENV-PEB-088.doc	DMIRS	Quarterly Within 15 days of the end of the reporting period
Recordable incident	Any incident arising from the activity that breaches an environmental performance objective or standards set out in Section 5 of this plan (and is not a reportable incident) will be reported by EDL. Nil report is submitted if no recordable incident occurred during the month. The form used is: http://www.dmp.wa.gov.au/Documents/Environment/ENV-PEB-190.doc	DMIRS	Monthly (on or prior to the 15th day after the end of the month)
Reportable incident	EDL will notify to DMIRS of any unplanned event identified as having a "moderate or more serious than moderate" consequence level. A reportable incident is: • A spill of hydrocarbon in inland waters exceeding 80L. • A spill in other areas exceeding 500L. • A significant quantity of petroleum in gaseous form exceeding 500m^3. • Uncontrolled escape or ignition of petroleum or other flammable or combustible material causing a potentially hazardous situation. • Spill of hydrocarbons or hazardous materials that affect a ground surface area greater than 100m^2 This initial notification may be verbal (via 0419 960 621) or written notification (preferred by DMIRS) via the Submissions Portal or email to petroleum.environment@dmirs.wa.gov.au). Including preliminary information on the nature, scope and scale of the incident.	DMIRS	Notification: Not later than 2 hours after becoming aware of the incident Report: within 3 days

Item	Requirement	Government Department	Timing
	A report is required to be submitted within 3 days after the reportable incident notification, using the form: http://www.dmp.wa.gov.au/Documents/Environment/ENV-PEB-189.docx		
Reportable Incident	In case an incident causes or threatens to cause serious or material environmental harm EDL will notify DER. • Pollution Watch Hotline: 1300 784 782 (24 hours) • Online reporting form: http://www.der.wa.gov.au/your-environment/reporting-pollution/report-pollution-form Definitions as per the Environmental Protection Act 1986 - Sec3A: *Material environmental* harm means environmental harm that: (a) is neither trivial nor negligible; or (b) results in actual or potential loss, property damage or damage costs of an amount, or amounts in aggregate, exceeding the threshold amount; *Serious environmental harm* means environmental harm that: (a) is irreversible, of a high impact or on a wide scale; or (b) is significant or in an area of high conservation value or special significance; or (c) results in actual or potential loss, property damage or damage costs of an amount, or amounts in aggregate, exceeding 5 times the threshold amount.	DWER	Not later than 2 hours after becoming aware of the incident

9. Environmental Incident Management

For all incidents and emergencies, the health and safety of people is the first priority.

An **environmental incident** can be:

- Recordable incident: Any incident arising from PL72 activities that breaches an environmental performance objective or standard set out in Section 5 of this plan including complaints (except reportable incident).
- Reportable incident: Any unplanned event identified as having a "moderate or more serious than moderate" consequence level (see Table 4 for reportable incident examples)

An **environmental emergency** is when, in addition to the above criteria for an environmental incident:

- EDL activities are a potential serious breach of legal or other environmental obligation that have a likelihood to cause significant environmental impact; and/or
- Conditions, either natural or other, which have the likelihood to cause significant environmental impact on EDL activities.

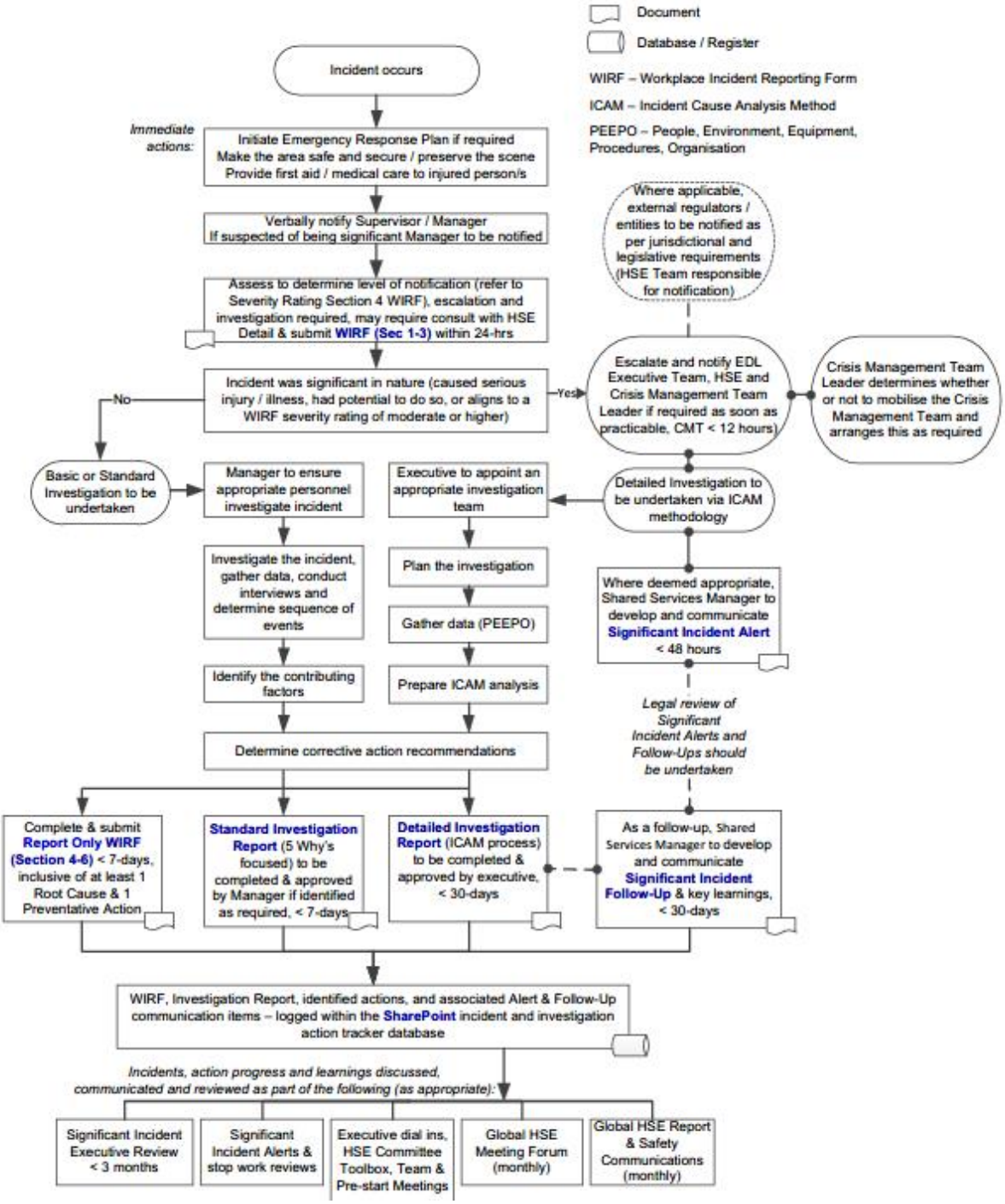
Table 5: Environmental Incident and Emergency Responsibilities

Role	Responsibilities
Global HSE and Compliance Manager or Environmental Manager	Responsibility to investigate an environmental emergency. Investigation of an environmental incident (including oil spills) may be initiated if considered appropriate. Responsible to report and communicate a reportable incident to the regulator agencies.
HSE and Compliance Team	Provides environmental support to State Operations Manager, Facility Supervisor and/or Manager as delegated, directed or requested.
Regional/State Operations Manager	Responsibility to respond to an environmental emergency at a State Level. Response to an environmental incident (including oil spills) may be initiated if considered appropriate.
Facilities Manager	The Facilities Manager will initially classify whether it is a minor or major incident or emergency (including oil spills). Responsible for investigation of environmental incidents.
Facility Supervisor	The Facility Supervisor is responsible for first response to a Facility environmental incident/emergency (including oil spills). For the purposes of this Plan, a first response means implement immediate measures to contain the incident and prevent it from causing additional harm.
Facility Staff	Responsible for reporting any environmental concern or incident (including oil spills) to the Facility Supervisor. Responsible for following Facility Supervisor directions.
All EDL Staff, Contractors and Visitors.	General Responsibility to report any environmental concern or incident (including oil spills) to the Facility Supervisor or their Facility Contact. Responsible for following Facility Manager/Supervisor directions.

9.1 Environmental Incident Response

For all incidents and emergencies, the health and safety of people is the first priority. Section 9 of the EDL Occupational Health & Safety Manual details the EDL incident response procedure. The diagram below is an extract. In case of oil spill follow Section 9.3. In case of gas leak or release of >500 m^3 follow Section 9.2.

Incident Reporting & Investigation Process



9.2 Environmental Response to a Gas Leak or Release of >500 m^3

Personal safety and the safety of others must be the first priority. Section 9 of the EDL Occupational Health & Safety Manual applies. The following are steps to address the response in case of a gas leak or release of >500m3.

- Restrict access to the affected area to authorised persons (as determined by the Facility Manager or a person of higher authority within EDL or emergency response group (police, fire brigade). The support of emergency services may be sought to assist depending on the extent of areas impacted and the need for any areas to be evacuated.
- Stop the discharge using the emergency shut-down system.
- Arrange for repairs to be conducted as a matter of urgency.
- At the end of any repairs, verify assurances are received that the leak has been fully repaired before resuming normal operation. The Facility Supervisor (their nominee or a person of higher authority in EDL) will determine that repairs are completed and normal operations can be recommenced.
- Maintain a documented record of the incident using the EDL eWIRF process.
- Note this incident will be notified to DMIRS as a reportable incident to DMIRS (within 2 hours) and a written report will be prepared and submitted to DMIRS in relation to the incident/emergency within 3 days in accordance with the requirements of Section 8 of this EP.

9.3 Oil Spill Contingency Plan (OSCP)

9.3.1 Introduction

This section has been completed in compliance with Regulation 15(10) of the PGER(E)R and regulation 15(8) of the PP(E)R.

This plan is applicable to all oil spills that may occur during the operation of PL72.

EDL shall be responsible for all costs related to clean up and rehabilitation for oil spills caused by EDL during the Broome Pipeline operations.

9.3.2 Spill Sources

The only spill source identified for this pipeline is the potential oil spill from vehicles and machinery undertaking site inspections and maintenance. Given this, no oil spill modelling was deemed required.

There is no oil stored at the PL72 Natural Gas Pipeline Inlet Point, Outlet Point or any location of the pipeline. EDL does not use oil for the operation or maintenance of the PL72 Natural Gas Underground Pipeline (the only exception may be a can of touch-up oil-based paint).

9.3.3 Immediate response

In the event of an oil spill:

- If leak is controlled, contain the spill using and spill kit. In case of close proximity with drains or waterways containment barriers should be installed (eg using absorbent booms) to prevent contamination. A licenced contractor with a vacuum truck may be required depending on the size of the spill.
- If not controlled, notify your supervisor and emergency services on 000. Advise relevant neighbours and advise of the situation.
- Truck rollovers may require external assistance, depending on location or earthmoving machinery may require larger containment controls such as earth bunds.
- Do not allow product to enter drains, sewers or watercourses. Inform supervisor if this occurs.
- Supervisor is to contact the HSE team to inform them of the spill.

- Place used absorbent materials in suitably sealed containers, disposal of this waste must be done by a company who holds a current authority to transport such wastes.
- Contact supervisor when situation is under control
- Spill to be cleaned up as soon as safely possible, with contaminated soil (if any) to be segregated and disposed of appropriately
- HSE team to contact relevant government agencies if required.

9.3.4 Preparedness

Any equipment (eg excavators or vehicles) required for pipeline maintenance will have available a spill kit in the event of an oil hose or hydraulic hose discharge.

Personnel involved in the maintenance and inspection activities will be trained in spill response.

The roles and responsibilities for this section is as per Table 5 of this EP. The table below shows contact details to be used during an oil spill emergency.

Table 6: Contact Directory

Type	Name	Telephone
Control room (in case supervisor is not available)		07 3275 5661
Regulated waste contractor	Toxfree	08 9192 1169
Vacuum truck contractor	Toxfree	08 9192 1169
Local council	Shire of Broome	08 9191 3456
Emergency and Police		000
SES		132 500
Note: DMIRS and DWER contacts are located in Table 4 of this EMP		

9.4 Incident Review and Emergency Investigation

The response to an environmental incident/emergency will:

- Determine and implement actions, where necessary to control the situation and mitigate environmental impacts.
- Reviewing the effectiveness of any actions.
- Document the incident/emergency and response actions.
- The review of an environmental incident will:
- Determining the cause.
- Evaluate the need to take action in order to avoid a recurrence. Any actions taken shall be appropriate to the magnitude of the problems and the environmental impacts encountered. Actions taken may include review of documents.
- Reviewing the effectiveness of any actions taken.
- Documenting the investigation and any actions taken.
- The status of all incidents.

All environmental emergencies will be investigated.

- The scope of the investigation will be determined by the Global HSE and Compliance Manager in consultation, as appropriate, the Chief Executive Officer, Chief Operations Officer, Regional Manager, HSE and Compliance Team Facility Manager and Regulator (where applicable).
- The Global HSE and Compliance Manager will conduct or facilitate the conduct of the investigation (unless otherwise directed).
- Any corrective, preventive or improvement action identified by the investigation and approved by the Chief Operations Officer and will have an identified action, responsibility and target date identified.
- Progress will be monitored and reported by the Global HSE and Compliance Manager to the Chief Operations Officer, Regional Manager, Facility Manager and Regulator (where applicable) on a monthly basis until completed.

The EDL action tracker will be used to document and track all actions arising from environmental findings (from inspections and audits), incidents and emergencies to completion. Progress in addressing actions is reported as part of environmental reporting to senior management.

9.5 Emergency Drill/Scenario

EDL conducts an emergency response drill/scenario for the pipeline annually. Any environmental action from an emergency drill/scenario will be documented and tracked in the action register to completion.

10. Reference Documents

Western Australia Legislation that may apply to the Broome Pipeline

Legislation	Link to activity
Aboriginal Heritage Act 1972	Possibility of finding an Aboriginal heritage item during pipeline maintenance works. Section 5.7 Risk – Disturbance to Cultural Heritage Values
Biodiversity Conservation Act 2016	Section 5.3 Risk – Vegetation Management Disturbance of vegetation including conservation status vegetation during line of sight and fire break maintenance
Biosecurity and Agriculture Management Act 2007	Management of declared pest species within the pipeline corridor. Section 5.4 Weed management Risk – Weed introduction and spread caused by EDL
Bush fires Act 1954	Section 5.8 Fire management Risk - Fire of vegetation and surroundings of PL72 caused by EDL operations
Conservation and Land Management Act 1984	May be applicable to activities occurring on the section of pipeline that runs through Crown Land or reserves.
Contaminated Sites Act 2003 Contaminated Sites Regulations 2006	Spills or leaks of chemicals onto land. Section 5.2 Land management
Environmental Protection Act 1986 *Environmental Protection Regulations 1987*	Environmental incident reporting requirements.

Legislation	Link to activity
Environmental Protection (Controlled Waste) Regulations 2004	Section 5.6 Waste management
Environmental Protection (Noise) Regulations 1997	Potential for noise generated by maintenance works to contravene the Environmental Protection Act 1986.
Environmental Protection (Unauthorised Discharges) Regulations 2004	Lists materials that must not be discharged into the environment. Section 5.6 Waste management Section 5.2 Spills or leaks of chemicals onto land Section 5.1 Air quality management - Dust
Heritage of Western Australia Act 1990	PL72 does not travel through any heritage locations of state significance (according to Heritage Council State Registered Place mapping).
Land Administration Act 1997	May be applicable to activities occurring on the section of pipeline that runs through Crown Land.
Litter Act 1979	Prohibits the depositing of litter on any land or into any waters. Section 5.6 Waste management
Main Roads Act 1930	EDL employees and contractors to utilise sealed public roads where possible. Maintenance excavation works on the pipeline may require approvals surrounding road closures.
Petroleum Pipelines Act 1969	Applies to petroleum pipelines on land within WA.
Petroleum Pipelines (Environment) Regulations 2012	Environmental approvals granted in accordance with this regulation. Details the requirements of the approval, contents, revision and withdrawal of approval, of the Environmental Management Plan.
Rights in Water and Irrigation Act 1914	Pipeline is not within close range to a waterbody and does not irrigate.
Rights in Water and Irrigation Regulations 2000	Pipeline is not within close range to a waterbody and does not irrigate.
Soil and Land Conservation Act 1945	May apply to soil and land conservation along the PL72 pipeline including issues such as soil conservation, land degradation and land drainage. Section 5.2 Land management
Waterways Conservation Act 1976	Pipeline is not within close range to a waterbody.
Wildlife Conservation Regulations 1970	Glycine pindanica is a priority three listed plant under the Wildlife Conservation Act.

Commonwealth Legislation that may apply to the Broome Pipeline

Legislation	Link to activity
Natural Heritage Trust of Australia Act 1997	The pipeline does not travel through any Natural Heritage Trust locations.
Aboriginal and Torres Straits Islander Heritage Protection Act 1984	Protects areas and objects that are of particular significant to Aboriginal people. Section 5.7 Risk – Disturbance to Cultural Heritage Values
Environmental Protection and Biodiversity Conservation Act 1999	Glycine pindanica is not listed on the EPBC Act list of threatened flora. As the list is frequently updated flora and fauna known in the area may in the future be listed.
National Greenhouse and Energy Reporting Act 2007	Outlines reporting requirements for greenhouse gas emissions, energy production and energy consumption under the national framework.
Native Title Act 1993	Native titles are associated with the Broome township and surrounds.

Guidelines

Guideline	Link to activity
Guideline for the development of petroleum and Geothermal Environment Plans in Western Australia – November 2016	Provides guidance for the development of current and future versions of PL72 Environmental Plans.
Guideline for the Development of An Onshore Oil Spill Contingency Plan – July 2016 (OSCP Guidelines)	Provides guidance for the development of current and future version of Oil Spill Contingency Plan included in this Environmental Plan.

Standards

Standard	Link to activity
AS2885 Pipelines - Gas and liquid petroleum	Overarching standard that applies to the pipeline industry in Australia.
AS1940:2004 The storage and handling of flammable and combustible liquids	Where applicable, chemicals required for works on PL72 will be stored in compliance with this standard.

Codes

Code	Link to activity
Australian Pipeline Industry (APIA) Code of Environmental Practice	Outlines development and management guidelines and principles for pipelines in Australia.
Australian Dangerous Goods Code	Sets out the requirements for transporting dangerous goods by road.
ANZECC (1992) Guidelines for Fresh and Marine Water Quality	Water quality monitoring onsite – if required.

Principal Internal References Relevant to Broome Pipeline

- Pipeline Licence PL 72
- Pipeline alignment sheets: 2003-PPL-00-DCV-040, 2003-PPL-00-DCV-003 to 2003-PPL-00-DCV-019
- Pipeline Gas Inlet Skid layout: 2003-PPL-00-DCV-041
- Pipeline Gas Outlet Skid layout: 2003-PPL-00-DCV-042
- Pipeline P&ID: 2003-PPL-00-DBV-001
- Pipeline Crossing Details: 400-09260-00-PL-DW-031 & -032
- PL 72 Safety Case – 2003-PPL-00-RZ-004
- Stakeholder Management Plan – 2003-PPL-00-PZ-003
- Broome Fuel Storage Facility Dangerous Goods Permit (DGS 020247)
- EDL Occupational Health & Safety Manual

Safe Work Instructions

- Broome Pipeline Vegetation Control: 2003-PPL-00-SWI-007
- Broome Pipeline Landowner Liaison: 2003-PPL-00-SWI-008
- Broome Pipeline Repairs to Pipeline: 2003-PPL-00-SWI-012
- Broome Pipeline Backfill: 2003-PPL-00-SWI-013

No international agreements applicable to this scope

11. APPENDIX A: Broome Pipeline Environmental Risk Register

RISK MATRIX

		CONSEQUENCES							LIKELIHOOD				
		People	Process Safety	Environment	Business Financial Loss/ Gain[1]	Legal	Image/ Reputation	Project Schedule[2]	A	B	C	D	E
									Common or occurs frequently	It is known to occur or "it has happened"	Could occur or I've heard of it happening	Not likely to occur	Practically impossible
									Likely to occur several times per year	Has or could occur in the past 1-3 years	May have occurred in the past 3-10 years	Once every 10-100 years	Not likely to occur >100 years
SEVERE	**5**	Permanent Disability/ Fatality/s	Catastrophic Loss of Containment/ Energy Release	Unplanned Irreversible/ Severe Environmental Damage (>5 Years)	>$25m	Fines/ Prosecution Relating to Criminal Breaches	Serious National Media Issue	Delays >6 months >10%	**Very high 1**	**Very high 2**	**High 6**	**High 7**	**Medium 11**
MAJOR	**4**	Lost Time Injury	Major Loss of Containment/ Energy Release	Unplanned Serious Environmental Harm (1 – 5 years)	$5-$25m	Major Litigation	Major Public Attention	Delays 2 – 6 months 7-10%	**Very high 3**	**High 5**	**High 8**	**Medium 12**	**Medium 16**
MODERATE	**3**	Medical Treatment Injury	Loss of Containment/ Energy Release	Unplanned Material Environmental Impact (3 months – 1 Year)	$500k-$5m	Breach of Regulation Resulting in Fine	Media Attention, High Local Community Concern	Delays 2 weeks – 2 months 5-<7%	**Very High 4**	**High 9**	**Medium 13**	**Medium 17**	**Low 20**
MINOR	**2**	First Aid Injury	Process Safety Exception	Unplanned Minor Environmental Impact (<3 months)	$50k-$500k	Breach of Regulation No Fine	Adverse Local Media Attention or Public Formal Complaint	Delays 2 days – 2 weeks 2-<5%	**High 10**	**Medium 14**	**Medium 18**	**Low 21**	**Low 23**
NEGLIGIBLE	**1**	Report Only – No treatment	Process Safety Hazard/ Behavioural Issue	Unplanned Low Impact/Spill	<$50k	Low Level Legal Issue	Verbal Complaint/ Negligible Impact	Delays <2 days, 2%	**Medium 15**	**Low 19**	**Low 22**	**Low 24**	**Low 25**

[1] One off EBITDA or Approximate NPV

[2] % $ overrun after all available contingencies have been absorbed (Capex and Opex) – Projects only

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Activity	Risk description	Cause of Risk How can it happen?	Potential Impact (Consequence)	Potential Likelihood	Potential Consequence	Potential Risk	Mitigation Measures	RESIDUAL Risk
Pipeline Operation	Erosion	Heavy/prolonged rain events	Loss of soil stability Loss of soil Community concerns	C	3	Medium	Monthly inspections are completed to investigate and remediate any erosion issue. Vehicle drive on sealed public roads as far as practical and do not drive on wet ROW soil.	Low

Activity	Risk description	Cause of Risk How can it happen?	Potential Impact (Consequence)	Potential Likelihood	Potential Consequence	Potential Risk	Mitigation Measures	RESIDUAL Risk
	Natural gas leak	Pipeline damage Third Party access to Inlet and Outlet Stations	Community complaints Greenhouse emissions	D	3	**Medium**	Gas pipeline is constructed to Australian Standards in a stable environment The pipeline is registered with Dial-before-you-dig to minimise potential for accidental damage Signage is used to identify location of pipeline There is an emergency shut-down system Odorant is used for early leak detection Purging of pipeline is completed prior to planned maintenance where discharge of pipeline natural gas likely to occur. EDL reports any discharge from the Pipeline to DMO (>500 m^3 immediately; < 500m^3 in monthly and three monthly and annual reports Monitoring any works (including third-party works) that may impact on pipeline *Comment: Inlet within the boundaries of the Bulk Fuel Depot. Outlet within the boundaries of the Broome Power Station.* Pipeline Inlet and Outlets inside secure gated and fenced areas. Security surveillance of areas.	**Low**

Activity	Risk description	Cause of Risk How can it happen?	Potential Impact (Consequence)	Potential Likelihood	Potential Consequence	Potential Risk	Mitigation Measures	RESIDUAL Risk
Pipeline Operation	Oil leak	NA	Soil contamination Surface and groundwater contamination	E	1	**Low**	*Comment: No oil is transported via pipeline (exclusively for natural gas).* *No oil or oil products stored at any point along the Pipeline (including inlet and outlet points).* *No water body in the vicinity of the pipelines.* *Comment: No known groundwater reserves in the vicinity of the pipeline and there is no potential for impact to occur.*	**Low**
	Use of fresh water resources	NA	Depletion of natural resources	E	1	NA	*Comment: Water use is not associated with the pipeline*	**NA**
Maintenance	Disturbance of vegetation	Vegetation trimming to prevent vegetation interference Fire break maintenance	Unnecessary loss or damage to vegetation Damage/clearing of protected species: *Glycine pindanica* Loss of habitat Bushfire	D	3	**Medium**	*Comment: No record of protected species along the pipeline route* Clearing is undertaken under an exemption from the requirement to hold a permit to clear vegetation along the pipeline under item 15 of Regulation 5 of the Environmental Protection (Clearing of Native Vegetation) Regulation 2004. The original clearing permit was granted on 11 August 2006 (area permit number: 1166/1, file number: 22718). Awareness of *Glycine pindanica* (that may be present in the area) is provided during the site induction and any sightings recorded for reference. No clearing of *Glycine pindanica* is undertaken.	**Low**

Activity	Risk description	Cause of Risk How can it happen?	Potential Impact (Consequence)	Potential Likelihood	Potential Consequence	Potential Risk	Mitigation Measures	RESIDUAL Risk
Maintenance	Spills or leaks of chemical onto land	Vehicle/machinery loss of oil or lubricant	Soil Contamination Environmental Pollution Clean-up and remediation costs Regulator notification	C	2	Low	*Comment: Vehicles typically travel along adjacent public roads* Vehicles are maintained regularly Any oil spill or leak is cleaned up immediately. The spill or leak is reported internally. Notifications to regulator are initiated where necessary No chemicals stored at Inlet or Outlet Points, No chemicals stored along any part of the pipeline.	Low
	Bush fire	Hot works	Community complaints Damage to assets	D	3	Medium	Hot works are managed through the Permit of Work of the EDL Occupational Health and Safety Manual.	Low
	Waste generation	Pipeline pigging Vegetation trimming Fire break maintenance	Legal Compliance Community complaints due to wastes left in road reserves Bushfires	C	3	Medium	Collect and dispose of all wastes associated with pipeline pigging. No waste is to be burnt. No EDL wastes left along pipeline route. Maintain high housekeeping standards at all times All wastes including green waste disposed in accordance with legal obligations	Low
Maintenance	Disturbance of fauna	Open trenches (in case excavation works are required)	Fauna injury or death in open trenches	D	3	Medium	Any excavation, if required, is backfilled the same day as preference. Where a trench is left open overnight, barrier fences and signage will be erected to provide warning of and restriction to the excavated area. The trench will be inspected for evidence and removal of any fauna prior to work re-commencing.	Low

Activity	Risk description	Cause of Risk How can it happen?	Potential Impact (Consequence)	Potential Likelihood	Potential Consequence	Potential Risk	Mitigation Measures	RESIDUAL Risk
	Erosion and soil disturbance	Excavation (in case of required)	Sediment generation Soil loss Community concern	C	3	**Medium**	Before any excavation a risk assessment will be completed and erosion and sediment controls will be put in place based on the activity. Topsoil, subsoil and vegetation need to be stockpiled separately in order to preserve the soil profile.	**Low**
	Dust generation during machinery transit	Vehicles transit in dry windy conditions in unsealed roads	Community complains Air quality decreases	D	2	**Low**	Vehicles drive on sealed public road as far as practical.	**Low**
	Disturbance of heritage Values	Excavation	Impact on Heritage and Cultural areas of significance	E	3	**Low**	*Comment: No sites of Aboriginal heritage and culture have been identified on or in the vicinity of the Pipeline. Provisions in place in the event of accidental discovery* *Comment: No significant sites of Western heritage and culture have been identified on or in the vicinity of the Pipeline*	**Low**

Activity	Risk description	Cause of Risk How can it happen?	Potential Impact (Consequence)	Potential Likelihood	Potential Consequence	Potential Risk	Mitigation Measures	RESIDUAL Risk
Maintenance	Natural gas leak	Pipeline damage during excavation or maintenance works	Community complaints Greenhouse emissions	C	3	**Medium**	The pipeline is registered with Dial-before-you-dig to minimise potential for accidental damage Signage is used to identify location of pipeline There is an emergency shut-down system Odorant is used for early leak detection Purging of pipeline is completed prior to planned maintenance where discharge of pipeline natural gas likely to occur. EDL report any discharge from the Pipeline to DMO (>500 m^3 immediately; < 500m^3 in monthly and three monthly and annual reports Monitoring any works (including third-party works) that may impact on pipeline	**Low**
Monthly inspection (completed using a vehicle)	Disturbance of vegetation	Vehicles movement outside sealed public roads	Unnecessary loss or damage to vegetation Damage/clearing of protected species: *Glycine pindanica* Loss of habitat	D	3	**Medium**	*Comment: No record of protected species along the pipeline route* Vehicles drive on sealed public road as far as practical. Awareness of *Glycine pindanica* (that may be present in the area, however never found to date) is provided and any sightings recorded for reference	**Low**

Activity	Risk description	Cause of Risk How can it happen?	Potential Impact (Consequence)	Potential Likelihood	Potential Consequence	Potential Risk	Mitigation Measures	RESIDUAL Risk
Monthly inspection (completed using a vehicle)	Disturbance of fauna	Vehicles lights Vehicles movement	Injury to native or protected species Death of native or protected animals	D	3	**Medium**	*Comment: Native animals rarely sighted along the pipeline* Drive on sealed public roads as far as practical. Restrict vehicle speed to 20 km/hr on sound ground by EDL and contractor vehicles along ROW Do not interact with any native animals Seek assistance (vet or animal care group) if an injured native animal is encountered Complete inspections during day light	**Low**
	Introduction/spread of declared weeds/pest species	Vehicle transit in unsealed roads.	Spread of declared and pest plants	C	3	**Medium**	Vehicles drive on sealed public road as far as practical. Any sighting of pest species reported and addressed (weed control)	**Low**
	Spills or leaks of oil / chemical onto land	Vehicle poorly maintained	Soil Contamination	C	2	**Low**	*Comment: Vehicles typically travel along adjacent public roads* Vehicles are maintained regularly Any oil spill or leak is cleaned up immediately. The spill or leak is reported internally. Notifications to regulator are initiated where necessary No chemicals stored at Inlet or Outlet Points, No chemicals stored along any part of the pipeline.	**Low**

12. APPENDIX B: Environmental Policy

Environmental Policy

EDL is a leading provider of sustainable and innovative energy and environmental solutions. EDL's focus includes:

- Remote Energy
- Liquefied Natural Gas (LNG) and Compressed Natural Gas (CNG) energy solutions
- Wind Turbine Power Generation
- Waste Coal Mine Gas Power Generation and Abatement
- Landfill Gas Power Generation and Abatement.

EDL operates in Australia, the United Kingdom, Europe and the United States of America. This Environmental Policy is applicable to all activities conducted by EDL.

EDL recognises the requirements of the international standard ISO 14001 as the framework for environmental management and EDL is committed to:

- Identifying and managing the environmental issues associated with its activities
- Complying with all applicable legal and other environmental obligations
- Taking reasonable and practical measures to appropriately limit pollution
- Identifying and implementing environmental improvements that are aligned with EDL's Business Plan
- Communicating the content and intent of this Environmental Policy to persons working for and on behalf of EDL.

EDL will communicate externally on aspects of its environmental performance through its legal reporting obligations and Corporate Annual Report.

EDL will review this Environmental Policy on a timely basis to ensure that it remains relevant and appropriate to the nature of the activities conducted by EDL.

James Harman, Chief Executive Officer
Issued: February 2017 (Review Date: February 2018)
Scope: this policy applies to all EDL employees, contractors, directors and officers at all EDL locations.

Energy Developments

Energy Developments Pty Limited ABN 84 053 410 263 and subsidiaries (**EDL**)