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ENERGY DEVELOPMENTS LIMITED (EDL)

PIPELINE PL48

ENVIRONMENT PLAN

Rev	Status	Reference	Orig	Review	Approve	Date
1	Final	Operations Environmental Management Plan – EnGen Pty Ltd Leonora Gas Pipeline (PL48) Document LNR – EMP – 891	Shahn Nestor	David Allan	David Harrington	2007
2	Final	Operations Environmental Management Plan – EnGen Pty Ltd Leonora Gas Pipeline (PL48) Document LNR – EMP – 891	Peter White	Tim Ramsay	Gavin Blakeman	Mar 2013
2.1	Final	Energy Developments Limited (EDL) Pipeline PL48 Environmental Management Plan V2	Peter White	Tim Ramsay	Gavin Blakeman	August 2013
2.2	Final	Energy Developments Limited (EDL) Pipeline PL48 Environmental Management Plan V2.1	Peter White	Tim Ramsay	Clive Oxley	September 2013
2.3	Final	Energy Developments Limited (EDL) Pipeline PL48 Environmental Management Plan V2.2	Peter White	Tim Ramsay	Clive Oxley	September 2013
2.4	Final	Energy Developments Limited (EDL) Pipeline PL48 Environmental Management Plan V2.3	Peter White	Clive Oxley	Gavin Blakeman	November 2013
2.5	Final	Energy Developments Limited (EDL) Pipeline PL48 Environmental Management Plan V2.3	Peter White	Clive Oxley	Gavin Blakeman	December 2013
3	Final	Revision of Compliance Timelines	-	RU	AF	Nov 2014
4	Final	Energy Developments Limited (EDL) Pipeline PL48 Environmental Management Plan	Avril Francis	Todd Tate	Samuel Christie	June 2016
4.1	Final	Energy Developments Limited (EDL) Pipeline PL48 Environmental Management Plan 4.1	Avril Francis	Todd Tate	Samuel Christie	September 2016

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1. INTRODUCTION

Energy Generation Pty Ltd is the registered sole title holder and operator of the Leonora Pipeline PL 48.

Energy Developments Pty Ltd (EDL) purchased Energy Generation Pty Ltd (Engen) in mid-2011 from Wesfarmers. The acquisition by EDL of the Engen business had no impact on the existing contractual and licensing arrangements of Engen. On that basis, EDL confirms that ownership and operation of PL 48 is unchanged and Engen remains the party registered as the holder and operator of the pipeline. Neither function has been transferred to another entity within the EDL group.

Energy Generation Pty Ltd is now trading under the name Energy Developments Remote Energy.

This Environment Plan has been prepared by EDL on behalf of Energy Developments Remote Energy. EDL is authorised by Energy Developments Remote Energy to fulfill the legal obligations under this EP.

The Leonora Gas Pipeline is located within a dedicated easement traversing Sturt Meadows and Clover Downs pastoral stations, the Mt Ida Road reserve and the Leonora aerodrome. The easement provides for access to the pipeline for maintenance and operation.

Construction of the 16.5km Leonora Gas Pipeline was completed in 2000. The Pipeline License granted by the then Department of Industry and Resources (DoIR) for the Leonora Gas Pipeline is current to 2020. The pipeline is expected to operate for the full life of the pipeline license; no changes to the existing structure are expected at this stage.

The pipeline commences at the off-take facility on the GGT Gas Pipeline at KP1142 (kilometer point measured from Yaraloola Compressor Station on the GGT gas pipeline) approximately 16km west of Leonora (refer to Figure 1). References to “kp” points indicate the number of kilometers along the Leonora Gas Pipeline from the GGT off-take facility.

From the GGT off-take the pipeline tracks east within the Mt Ida Rd road reserve and passes under the Leonora aerodrome before terminating at the Leonora delivery station located less than 1km from the center of the town of Leonora. The Leonora Gas Pipeline feeds gas to the Leonora Power Station, providing energy for the township of Leonora.

The pipeline area comprises the pipeline easement, metering stations and communication systems, as summarised below.

Table 1: Pipeline Off-take and Delivery Stations

Facility	Location	Resources
Leonora Off-take	Clover Downs Station, kp 0 (GGT KP1142)	Hot Tap Valve Metering Filters Emergency Shut Down (ESD)
Leonora delivery station	Leonora Power Station Cnr. Mt Ida Rd and Rajah Street Leonora	Heating Pressure reduction Filtering Pressure relief ESD

There are Pipeline warning markers at 250m intervals and cathodic protection posts at approximately 2km intervals along the pipeline. APA has been engaged by EDL to inspect and maintain the Leonora Gas Pipeline.

The Leonora Pipeline is managed locally from the EDL Offices in Osborne Park, Perth. The APA Group are contracted to inspect and maintain the pipeline easement.

Table 2: Environment Plan Contacts

EDL CONTACT	RE Operations Manager	
	ADDRESS	57 Guthrie Street, Osborne Park, Perth, WA., 6017
	TELEPHONE	+61 8 9365 4959
EDL ENVIRONMENTAL CONTACT	Environment and Compliance Advisor	
	ADDRESS	Bldg 17, 2404 Logan Road/PO BOX 4046, Eight Mile Plains, QLD 4113
	EMAIL	compliance@edl.com.au
	TELEPHIONE	+61 7 3275 5620

This Environment Plan is required to be developed and maintained to the satisfaction of the Director of the Department of Mines and Petroleum (DMP). Any review will be conducted in consultation with the DMP.

1.1 Scope of this Environment Plan

A pipeline activity is any operations or works carried out under a pipeline instrument; or any other operations or works carried out in relation to a pipeline which may have an environmental impact, and includes:

- construction and installation of a pipeline; and
- operation of a pipeline; and
- modification of a pipeline; and
- decommissioning, dismantling or removing a pipeline; and
- storage, processing or transport of petroleum using a pipeline.

For the purposes of this Environment Plan, Pipeline PL48:

- Has been constructed and installed;
- Is not planned to be modified;
- Is not being decommissioned, dismantled or removed;
- Does not involve the storage, processing or transport of liquid petroleum.

This Environment Plan applies to all activities associated with the operational phase of the Leonora Natural Gas Pipeline from and including the Inlet Station to and including the Outlet Station for each Pipeline. This Environment Plan addresses activities associated with:

- The ongoing operation of the Pipeline (operation of inlet and outlet station controls and valves);
- The monitoring of the Pipeline Route - the ROW Patrol to visually inspect of the physical condition of the route of the pipeline, including erosion, signage etc.;
- The maintenance of the Pipeline - the contact with the inlet station, outlet station and/or pipeline to repair (e.g. a leak) or correct an operating condition (e.g. maintain a line-of-sight between signage) for the pipeline;
- The venting of the Pipeline - actions resulting in the controlled release of the gas in the pipeline to the atmosphere such a line purging for valve maintenance;

- The pigging of the Pipeline - actions of cleaning and waste management associated with the use of a pig);
- Any other action that may be required in the event of an incident or emergency associated with or likely to impact on the Pipeline. This includes any response to a fault or damage to the inlet or outlet station and/or the pipeline including temporary and permanent repair works.

This Environment Plan documents:

- The roles and responsibilities for environmental management;
- The intent and availability of the Corporate Environmental Policy;
- The environmental aspects and impacts relevant to these Pipelines;
- The regulatory and other environmental requirements applicable to these Pipelines;
- The training and awareness of environmental issues;
- The operational controls required to achieve effective and efficient environmental management and in accordance with its legal and other obligations;
- The monitoring and reporting of environmental performance;
- The response to environmental incidents and emergencies;
- The review process to maintain a current Environment Plan.

2. ORGANISATIONAL RESPONSIBILITY

For this Environment Plan, the following organisational responsibilities apply.

Table 3: Company Environmental Responsibilities

ROLE	RESPONSIBILITIES
Managing Director	Corporate responsibility for EDL's Environmental Policy
General Manager, Australian Operations and Compliance	Corporate responsibility for the environmental compliance of EDL Australian Operations
Manager, Shared Services	Corporate responsibility to ensure the availability of environmental resources essential to establish, implement, maintain and improve the EDL Corporate and local Environment Plans
Environmental Group	Corporate responsibility for supporting EDL management in ensuring that Corporate and local Environment 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 Environment Plans for their area
Facilities Manager	Operational responsibility for implementing Environment Plans for their area
Facility Supervisor	Operational responsibility for implementing this Environment Plan
Facility Staff	Operational responsibility for working within the requirements of this Environment Plan
All other EDL Staff, Contractors and Visitors	Conduct activities in accordance with Facility directions and the relevant aspects of this Environment Plan

NOTE: APA is classified as a Contractor in this Environment Plan.

3. DOCUMENT AND RECORDS MANAGEMENT

EDL will manage this Environment Plan as a controlled document within the Energy Developments Limited third-party ISO-9001-certified quality system. (NOTE: The scope of certification does not include the Leonora activities; however, this Environment Plan is managed from EDL Brisbane which is covered within the scope of certification.)

Key internal and external references used in the preparation and maintenance of this document are presented in the references section of this Plan.

4. ENVIRONMENTAL POLICY

EDL maintains a corporate Environmental Policy. This is a controlled document within the EDL document management system. The current copy is maintained on the EDL Intranet Site. This Policy is reviewed and reissued every two years.

A copy of this Policy will be 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 corporate Orientation Program.

The Environmental Policy is authorised by the EDL Managing Director. 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.

5. ENVIRONMENTAL ASPECTS AND IMPACTS

The Leonora Pipeline Location is described below.

Diagram 1: Pipeline Off-take Point (Yaraloola Compressor Station)

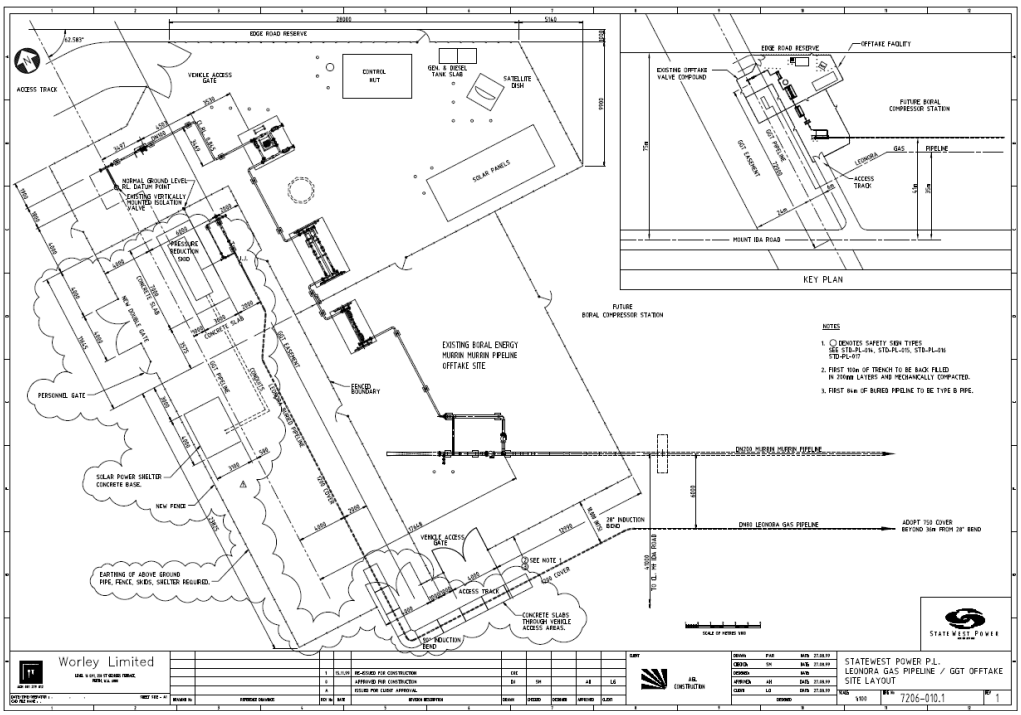

Diagram 2: Pipeline Route

Photograph 1: Pipeline Off-take Point (Yaraloola Compressor Station)

Photograph 2: Pipeline in road reserve adjacent to Mt Ida Road

Photograph 3:

Signage along Pipeline Route

Photograph 4

Cathodic Protection along Pipeline Route

Photograph 5: Leonora Power Station Gas Receival Station

5.1 Description of Existing Environment – Leonora Pipeline (PL 48)

The Australian town of Leonora is located in the Western Desert (which covers the Gibson Desert, the Great Sandy Desert and the Little Sandy Desert of Western Australia). Its western foundation and existence since the 1890s have been strongly dependent on the mining opportunities linked to the abundance of natural resources such as gold, silver, nickel and lead. Leonora's natural settings have also been attractive to pastoralists and farmers who have made this place home. The town is situated on a crossroad in the desert attracting many tourists interested in experiencing Australia's outback. (Marinova et al, 2010)

CLIMATE: The Leonora Gas Pipeline is located in the Murchison Region of Beard (1976). The Murchison Region is considered to have a desert climate of hot summers and mild winters. Mean temperatures range between 6°C and 38°C. Rainfall is low and relatively evenly spread throughout the year (Dames and Moore, 1994).

Regional wind patterns consist of morning north-easterly, easterly and south-easterly winds of up to 40km/hr throughout the year. Afternoon wind patterns vary seasonally from east to south-easterly winds in the summer and autumn, and more varied northwest to south-easterly winds in the winter and spring (Dames and Moore, 1994).

To date there have been no instances of meteorological and atmospheric conditions impacting on the operational ability of the pipeline.

LAND: The surficial geology of the Murchison Region includes Proterozoic sediments of Glengarry Sub-basin and Archaean Yilgarn Craton of granites and metamorphosed greenstones. Sediments of the Glengarry Sub-Basin include sandstones, shale's and greywacke, with few banded iron formations. The Yilgarn Craton comprises Archaean metamorphosed, igneous and sedimentary assemblages (greenstone belts) and intrusive granitic, gneissic magmatic terrains (Dames and Moore, 1994).

Soils of the Murchison region in the Leonora area consist of silty sands and gravely loam with shallow colluvial and alluvial deposits. Areas in and around salt lakes often contain alluvial clay and silt as well as zones of calcareous and gypsiferous material (Dames and Moore, 1994).

WATER: The surficial hydrology of the east Murchison Region consists of internally draining, intermittent rivers. Infrequent surface runoff (resulting from low, unreliable rainfall rates) forms ephemeral drainage lines which feed into salt lake systems experiencing high evaporation rates. Dry river and creek beds predominate, which flood in heavy rain events (Dames and Moore, 1994).

Hydrogeology of the Murchison region consists of three main aquifer types containing groundwater of ranging salinities. The internal drainage system is dominated by calcrete aquifers located in ancient river channels which feed salt lakes with groundwater containing between 1000 and 10,000mg/L total dissolved salts (TDS). In addition, colluvial aquifers located at the base of outcrop hills hold groundwater of around 500 parts per thousand (ppt) TDS and alluvial aquifers are present in ephemeral drainage lines (Dames and Moore, 1994).

There are no major rivers crossing the Leonora pipeline route. The pipeline route crosses several locally draining ephemeral creeks.

VEGETATION: Leonora pipeline route does not traverse conservation reserves, ESA's or priority 1 areas.

The Leonora gas pipeline is located within the Austin Botanical District (roughly corresponding with the Murchison Region) and the Laverton Sub region of Beard (1976). The vegetation of the Laverton Sub region consists of low mulga woodland on loamy plains and Acacia scrub on

rocky hills. Acacia communities comprise of *A. aneura* and *A. quadrimarginea*, *Eremophila leucophylla* and *Ptilotus obovatus* with an understorey of *Eremophila*, *Cassia*, various ephemeral species and *Stipa* sp (Dames and Moore, 1994).

The sandplains of the Laverton Subregion consist of *Triodia basedowii, Eucalyptus gongylocarpa, E.* youngiana and E. oleosa. In addition to this Acacia aneura and A. ramulosa can be found on linear sand ridges (Dames and Moore, 1994).

Minor vegetation control is undertaken on the Leonora Gas Pipeline for safety reasons. This requires line of sight between pipeline warning markers. This is a mitigation method for risks associated with third party activity as per AS2885. The pipeline is not within an Environmentally Sensitive Area (ESA). Vegetation control is undertaken through exemptions under Regulation 5, Items 2 and 15 of the Environmental Protection (Clearing of Native Vegetation) Regulations. Annual pruning is restricted to above ground vegetative material and hence root stock is maintained.

Original native vegetation clearing for construction was carried out under the Pipeline Licence (PL48) and an Operational Safety Case submitted to, and approved by DoIR.

Typically Western Australia's (WA) bushfire season in the south west starts in November and continues through to April. As climate and seasonal conditions change, bushfires in WA are becoming more common and the risks are increasing. The Department of Fire and Emergency Services (DFES) (formerly the Fire and Emergency Services Authority of WA) is Western Australia's leading hazard management agency. It performs a critical role coordinating emergency services for a range of natural disasters and emergency incidents threatening life and property. DFES works with the community and government to prevent, prepare for, respond to and recover from a diverse range of emergencies. It operates 24 hours a day, every day of the year and provides emergency services across the State.

FAUNA: The Leonora gas pipeline traverses previously disturbed pastoral land, road reserve and the Leonora Aerodrome. Kangaroos and feral goats are common in the general area. Goat musters are conducted from time to time in the Region. There are no species of conservation significance in the area of the pipeline. In the wider Leonora Region, there are three species of conservation significance. (*Reference to Study conducted for St Barbara Leonora Operations and referenced in their 2008-2009 Annual Environmental Report, P46*)

Photograph 6: Malleefowl (*Leipoa ocellata*), Bush Stone-curlew (*Burhinus grallarius*), and Rainbow Bee-eater (*Merops ornatus*).



Activities associated with pipeline operations are non-intrusive and do not constitute disturbance to native fauna i.e. through loss of habitat, direct physical disturbance or otherwise. Previous experience in pipeline operations indicates that operational and maintenance activities will not impact on the habitat or the distribution of native fauna

COMMUNITY ISSUES: The Leonora Gas Pipeline is located within a dedicated easement traversing Sturt Meadows and Clover Downs pastoral stations, the Mt Ida Road reserve and the Leonora aerodrome. The easement provides for access to the pipeline for maintenance and operation.

HERITAGE AND CULTURE ISSUES: There are four Aboriginal language groups in the area, namely the Kuwarra, Tjupan, Ngalia and Waljen people. Leonora is also often visited by the neighbouring Martu, Ngaanyatjarra and Pitjatjantjarra people. While the northern Goldfields has many of the dreaming tracks or Tjukurrpa connecting with these neighbours, the people who follow the law in Leonora are charged with the responsibility of looking after the sacred landscape associated with the Tjukurrpa" (Muir, 1998, p. 4).
EDL acknowledge the presence of two (2) Registered Heritage Sites through or adjacent to PL48 (Department of Aboriginal Affairs (WA) 'Aboriginal Heritage Inquiry System').

ID	Name	Status	Type	Additional Info
20014	WLN01 Creek	Registered Site	Mythological, Historical	Camp, Natural Feature
2708	Lake Reyside	Registered Site	Mythological, Historical	-

Both Sites have limited interaction with the existing pipeline which is just inside the claim boundaries. The 2708 boundary includes that part of the pipeline between the power station and airfield. The 2014 boundary includes a length of pipeline near the 5 km point.

Ethnographic and Aboriginal heritage surveys were undertaken prior to pipeline construction in order to avoid heritage sites. The pipeline route was located in a road reserve and adjacent to another gas pipeline (both highly disturbed areas) to avoid any potential areas of potential heritage significance.

No Aboriginal cultural or heritage issues were identified or encountered during the construction of the pipeline. No areas are fenced off or restricted because of Aboriginal Heritage. No areas of potential significance have been brought to the attention of Energy Developments.

EDL recognise the Katampul Aboriginal Corporation, Nambi Road Drive, Katampul Village, Leonora as the stakeholders to contact in relation to aboriginal heritage matters in the Leonora Shire.

5.2 Pipeline Aspects and Impacts

In preparing this matrix of environmental aspects and impacts, the corporate risk methodology, consistent with the process and principles of ISO 31000. detailed in Section 5 of the EDL Occupational Health and Safety Manual has been used. That procedure 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 risk assessment for the Leonora Pipeline considered the Pipeline Licence PL 48 Operations Environmental Management Plan – EnGen Pty Ltd Leonora Gas Pipeline (PL48) - Document LNR – EMP – 891 (2007) and a site inspection conducted in February 2013.

The risk assessment process is based on the following likelihood and consequences model used by EDL.

		CONSEQUENCES					LIKELIHOOD				
		Approved Project Schedule	People	Environment	Image/ Reputation	Financial Loss/Gain	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 very 10-100 years	Not likely to occur >100 years
CATASTROPHIC	1	Delays > 6 months	Fatality/s	Irreversible / severe environmental damage (prosecution by EPA)	National impact	>$500k	Extreme 1	Extreme 2	Extreme 4	High 7	Medium 11
MAJOR	2	Delays 2 – 6 months	Permanent Disability	Serious environmental harm, high impact	State wide impact	$100-$500k	Extreme 3	Extreme 5	High 8	Medium 12	Medium 16
MODERATE	3	Delays 2 weeks – 2 months	Lost Time Injury	Material environmental harm, small to medium impact	Local area impact	$50-$100k	High 6	High 9	Medium 13	Medium 17	Low 20
MINOR	4	Delays 2 days –2 weeks	Medical Treatment Injury	Incident reportable to EPA, easily remediated / no pollution	Limited impact	$5-$50k	High 10	Medium 14	Low 18	Low 21	Low 23
NEGLIGIBLE	5	Delays <2 days	First Aid Treatment	Non reportable occurrence, no risk of pollution / easy cleanup	Slight impact	<$5k	Medium 15	Low 19	Low 22	Low 24	Low 25

Environmental Significance is assigned to a category of "High" or "Extreme".

In the following risk assesment:

- This **ISSUE** is the environmental topic;
- The **ASPECT** is the action that may occur and could result in an environmental impact;
- The **IMPACT** is the potential environmental concequences of that action;
- The **LIKELIHOOD** and **CONSEQUENCE** is the score for the "Impact" using the matrix above;
- The **POTENTIAL RISK** is the risk without control measures in place;
- The **RESIDUAL Risk** is that risk associated with the implementation of mitigating measures as documented in this Environment Plan.

LEONORA PIPELINE ENVIRONMENTAL RISK ASSESSMENT

Issue	Aspect of that Issue	Potential Impact of that Aspect	POTENTIAL Likelihood	POTENTIAL Consequence	POTENTIAL Risk	Comment and Mitigation Measures	RESIDUAL Risk
Emissions to Air	Damage to Pipeline	Natural gas discharge to the environment	**C**	**3**	**Medium**	*Comment: Gas pipeline is constructed to Australian Standards in a stable environment* Signage used to identify location of pipeline Pipeline Works Approval Process Emergency shut-down system Monitoring of Pipeline (Cathodic Protection)	**Low**
Land Management	Soil Stability	Localised soil erosion in events such as heavy/prolonged rain	**C**	**3**	**Medium**	Minimise vehicular traffic on easement – use adjacent public road as far as practicable. Restrict vehicle speed to 30 km/hr by EDL and contractor vehicles along ROW Address early signs of erosion (see Section 8.1.3)	**Low**
	Spills or leaks of chemical onto land	Soil Contamination Environmental Pollution Clean-up and remediation costs Regulator notification	**D**	**4**	**Low**	*Comment: The use of chemical along the pipeline route is limited to use as part of a maintenance program* Pipeline Works Approval Process Any spill likely to result in pollution is cleaned up immediately. The spill or leak will be reported internally. Notifications to regulator are initiated where necessary Pipeline operation does not contribute to contamination as a result of decommissioning	**Low**
Water Management	Surface Water	Water contamination	**D**	**5**	**Low**	*Comment: No water body in the vicinity of the pipelines. Inlet and outlet stations elevated to minimise surface water during heavy or prolonged rain*	**Low**
	Groundwater Quality	Groundwater contamination	**D**	**5**	**Low**	*Comment: No known groundwater reserves in the vicinity of the pipeline and there is no potential for impact to occur*	**Low**
	Water Use	Use of natural resources	**D**	**5**	**Low**	*Comment: Water use is not associated with the pipeline*	**Low**

Issue	Aspect of that Issue	Potential Impact of that Aspect	POTENTIAL Likelihood	POTENTIAL Consequence	POTENTIAL Risk	Comment and Mitigation Measures	RESIDUAL Risk
Fauna Management	Presence of Native and Protected Animals	Injury to native and protected species	**D**	**4**	**Low**	Minimise vehicular traffic on easement – use adjacent public road as far as practicable. Restrict vehicle speed to 30 km/hr by EDL and contractor vehicles along ROW Do not interact with any native animals. As far as is practicable, seek assistance (vet or animal care group) if an injured native animal is encountered	**Low**
	Declared Animals and Vermin	Spread of declared animals and vermin	**D**	**4**	**Low**	*Comment: Pest animals/vermin not sighted along the pipeline route. Feral goats known to exist in the general area* Minimise vehicular traffic on easement – use adjacent public road as far as practicable. Restrict vehicle speed to 30 km/hr by EDL and contractor vehicles along ROW Do not interact with any fauna	**Low**
Vegetation Management	Native and Protected Plants	Impact on viability of native and protected plants in area	**D**	**5**	**Low**	*Comment: Leonora pipeline route does not traverse conservation reserves, ESA's or priority 1 areas*	**Low**
	Declared and Pest Plants	Spread of declared and pest plants	**C**	**4**	**Low**	Minimise vehicular traffic on easement – use adjacent public road as far as practicable. Restrict vehicle speed to 30 km/hr by EDL and contractor vehicles along ROW Any imported soil or fill is pathogen and weed free	**Low**
Fire Management	Fuel load	Fire	**C**	**4**	**Low**	Restrict any venting of gas Emergency shut-down system Work with local emergency services with respect to pipeline protection and integrity Inlet and Outlet Stations are fenced and kept neat and tidy to reduce fire risk	**Low**

Issue	Aspect of that Issue	Potential Impact of that Aspect	POTENTIAL Likelihood	POTENTIAL Consequence	POTENTIAL Risk	Comment and Mitigation Measures	RESIDUAL Risk
Chemical Management	Potential for leak or spill	Land Contamination	**C**	**4**	**Low**	**NO CHEMICALS (INCLUDING DIESEL AND HYDROCARBONS) WILL BE STORED OR REFUELLING TO OCCUR AT PIPELINE FACILITIES** Any hazardous or dangerous goods used as part of any pipeline activity will have a current Safety Data Sheet (SDS). That substance must be used in accordance with the SDS Any leak or spill of a hazardous or dangerous good must be contained and cleaned up as a matter of urgency (to a minimal level where no land contamination results) and disposed of via a licensed disposal agency	**Low**
Waste Management	Type of Waste	Legal Compliance Community complaints re wastes left in road reserves. Spills and leaks of liquid/solid wastes causing land contamination Pigging of line	**D**	**4**	**Low**	Collect and dispose of all wastes associated with pipeline activities No EDL wastes left along pipeline route. Maintain high housekeeping standards at all times Any spill or leak of that can reasonably expected to gain access to any portion of the environment; and would in gaining access be likely to result in pollution is cleaned up immediately. The spill or leak will be reported internally. Notifications to regulator are initiated where necessary All wastes disposed on in accordance with legal obligations	**Low**

Issue	Aspect of that Issue	Potential Impact of that Aspect	POTENTIAL Likelihood	POTENTIAL Consequence	POTENTIAL Risk	Comment and Mitigation Measures	RESIDUAL Risk
Natural & Cultural Heritage	Heritage Values	Impact on Heritage and Cultural areas of significance	**E**	**4**	**Low**	*Comment:* *EDL acknowledge the presence of two (2) Registered Heritage Sites through or adjacent to PL48 (Department of Aboriginal Affairs (WA) 'Aboriginal Heritage Inquiry System'). Ethnographic and Aboriginal heritage surveys were undertaken prior to pipeline construction in order to avoid heritage sites. The pipeline route was located to avoid all areas of potential heritage significance. No Aboriginal cultural or heritage issues were identified or encountered during the construction of the pipeline* Provisions in place in the event of future accidental discovery. The Katampul Aboriginal Association to be used for guidance in the event of significant ground disturbance in registered areas *No significant sites of Western heritage and culture have been identified on or in the vicinity of the Pipeline*	**Low**
Community Citizenship	Governance	Legal obligations for the operation of the pipeline	**A**	**3**	**High**	Pipeline licence (PL 48) maintained EDL Environment Plan implemented Monthly pipeline patrols. Minimise vehicular traffic on easement – use adjacent public road as far as practicable. Restrict vehicle speed to 30 km/hr by EDL and contractor vehicles along ROW EDL Internal Environmental Audit Schedule	**Low**
	Sustainability	Environmental footprint of pipeline	**A**	**5**	**Low**	*Comment: Pipeline underground. Pipeline in road and utility reserves*	**Low**
	Energy Use	Generation of Greenhouse Gases	**C**	**5**	**Low**	*Comment: Energy use is minimal in relation to the WKKP pipelines. Natural Gas allows local electricity supply to reduce its greenhouse gas emissions* EDL report greenhouse emissions to the Federal Government as part of its NGERS reporting obligations	**Low**

Issue	Aspect of that Issue	Potential Impact of that Aspect	POTENTIAL Likelihood	POTENTIAL Consequence	POTENTIAL Risk	Comment and Mitigation Measures	RESIDUAL Risk
	Potential for Complaints	Dust, odour or noise complaints	**C**	**5**	**Low**	*Comment: Environmentally sensitive places do not exist along pipeline easement in relation to the potential for community nuisance (principally odour) complaint* Minimise vehicular traffic on easement – use adjacent public road as far as practicable. Restrict vehicle speed to 30 km/hr by EDL and contractor vehicles along ROW	**Low**
	Decommissioning	Pipeline Route Rehabilitation	**E**	**5**	**Low**	*Comment: There is no current plan to decommission this pipeline* Any future decommissioning will identify, consider and mitigate any environmental impact	**Low**

6. ENVIRONMENTAL COMMUNICATIONS

EDL will maintain records of communications with stakeholders associated with these Pipelines. The roles and responsibilities for communication in relation to these Pipelines are given in the Table below.

Table 4: Environmental Communication Responsibilities

ROLE	RESPONSIBILITIES
Managing Director	Overall responsibility for internal and external communication on environmental matters
General Manager, Australian Operations and Compliance	Corporate responsibility for internal and external communication on environmental matters at an Australian level
Manager, Shared Services	Corporate responsibility for internal and external communication on EDLs environmental agenda
Environmental Group	Provides environmental support to Managing Director, Regional/State Operations Manager, Facility Manager/Supervisor and/or Manager- Shared Services as delegated, directed or requested
Regional/State Operations Manager	Corporate responsibility for internal and external communication on environmental matters at a Regional/State level
Facilities Manager	Responsible for internal communication of environmental matters across their Facilities
Facility Supervisor	Responsible for internal communication of environmental matters at a Facility level
Facility Staff	Responsible to be aware of and comply with internal environmental communications brought to their attention. Responsible to direct environmental enquiries to the Facility Supervisor in the first instance
All other EDL Staff, Contractors and Visitors	General Responsibility to be aware of and comply with internal environmental communications brought to their attention. Responsible to direct external environmental enquiries to the Facility Supervisor in the first instance

NOTE: APA is classified as a Contractor in this Environment Plan.

The principal Stakeholders for the pipeline are:

- **APA** (contracted to inspect and maintain the pipeline) 19 Broadwood St., (P.O. Box 5535), Kalgoorlie. Telephone (08) 9091 8017.
- **Leonora Airport** The pipeline is on airport land at the Mt Ida Road edge of the property. The main runway (04/22) is completely sealed and has a length of some 2018 metres whilst the secondary runway (12/30) is of good gravel construction and 1140 metres in length. Mains power operates fixed runway lighting to the main runway 24 hours a day as well as fuel dispensing facilities. A new passenger terminal was constructed by the Shire of Leonora in 1997 together with sealed apron extensions to cater for increases in passenger numbers. Telephone (08) 9037 6044, fax (08) 9037 6295 or email admin@leonora.wa.gov.au. The pipeline Right of Way (ROW) is a gazetted easement registered under the *Land Administration Act 1997* which allows for legal access for maintenance, operation and emergency response. **Department of Fire and Emergency Services (DFES):**
    - 000 for fire or life threatening emergencies
    - 132 500 for SES assistance

- 1300 657 209 for emergency information

Emergency	Phone
Ambulance	000
Doctors Surgery	08-90376238
Fire Brigade	08-90376046
Hospital	08-90804300
Police	08-90376100
Royal Flying Doctor	08-94141200 (enquiries) 1800 625800 (emergency)

7. ENVIRONMENTAL AWARENESS AND TRAINING

EDL staff and contractors are required to complete environmental awareness training as part of the SAFER induction package. The level of detail in the induction is determined by the work that will be undertaken by the staff or contractor. The aim of this induction training is to provide basic awareness of:

- The EDL Environmental Policy;
- The significant environmental issues associated with EDL activities;
- Environmental responsibilities; and
- How EDL monitors its environmental performance.

A Course refresher is completed every two years.

Depending on their roles and responsibilities, staff may also be required to complete an EDL Spill Response Training Course in their first year of employment.

Additional environmental training and awareness is conducted on a case-by-case situation.

Records of training and awareness are maintained for as long as the person is an employee of EDL and then archived.

Contact the EDL Training Coordinator for staff training records and training status. Training records should be able to be used to determine training that has not yet been undertaken, training that has been conducted, training that is coming up for expiry, and training that has expired. For all training that is not current, actions should be initiated to address the issue in a timely manner.

Records for contractors are maintained at the Leonora Power Station as applicable.

8. ENVIRONMENTAL OPERATIONAL CONTROLS

This section identifies a “Standard”, “Objective” and “Measurement” for each of the principal environmental issues relevant to these pipelines. EDL use a range of processes in the implementation of these operational controls, including, but not limited to Position Descriptions, Procedures, Work Instructions, Training, Awareness, Communication and Inspections as relevant.

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

- **Objective:** A general statement or principal to which EDL subscribes.
- **Standard:** The specific outcome being sought by EDL in the management of the pipelines. This statement is consistent with the EDL Environmental Policy and applicable legal obligations.
- **Measurement:** Criteria against which the Standard can be assessed for compliance.

In setting Standards and Measurement criteria, EDL acknowledges:

- The **EDL Environmental Policy** as a statement of corporate intent for environmental management within EDL.
- The **Western Australia Department of Environment Regulation** website (http://www.der.wa.gov.au/) as a source of current regulatory information, including email subscription to an email alert when DER publishes its quarterly performance reports.
- The ***Environmental Protection Act 1986*** **(WA)** as the principal legislation to provide for an Environmental Protection Authority, for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing.
- EDL will take all reasonable and practicable measures to prevent or minimise environmental harm. For the purpose of this Environment Plan:
  - ***environmental harm*** means direct or indirect harm to the environment involving removal or destruction of, or damage to native vegetation; or the habitat of native vegetation or indigenous aquatic or terrestrial animals; or alteration of the environment to its detriment or degradation or potential detriment or degradation; or alteration of the environment to the detriment or potential detriment of an environmental value; or alteration of the environment of a prescribed kind.
  - ***material environmental harm*** means environmental harm that is neither trivial nor negligible; or results in actual or potential loss, property damage or damage costs of an amount, or amounts in aggregate, exceeding $20,000;
  - ***serious environmental harm*** means environmental harm that is irreversible, of a high impact or on a wide scale; or is significant or in an area of high conservation value or special significance; or results in actual or potential loss, property damage or damage costs of an amount, or amounts in aggregate, exceeding $100,000.

The **Hierarchy of Environmental Controls** as provided in the following Table.

Table 5: Hierarchy of Environmental Controls

1. Elimination	If you eliminate an environmental hazard you eliminate the associated risk
2. Substitution	You can substitute something else (a substance or a process) that has less potential to cause a negative environmental impact
3. Isolation/engineering	You can make a structural change to the work environment or work process to interrupt the path between the environmental hazard and the environment (e.g. bunding)
4. Administrative	You may be able to reduce risk by upgrading training, increased inspections or other administrative actions
5. Environmental protective equipment	When you can't further reduce the risk to the environment, operational procedures are implemented consistent with the likelihood and consequences of the environmental risk

The **waste and resource management hierarchy**:

- **REDUCE** unnecessary resource consumption and waste generation;
- **REUSE** waste resources without further manufacturing;
- **RECYCLE** waste resources to make the same or different products;
- **RECOVER** waste resources, including the recovery of energy;
- **TREAT** waste before disposal, including reducing the hazardous nature of waste;
- **DISPOSE** of waste only if no viable alternative.

8.1 Leonora Pipeline (PL 48) Operational Controls

EDL have a contract with the APA Group to inspect and maintain the pipeline.

APA are contracted to conduct Right of Way (ROW) patrols. The pipeline owner has a gazetted easement registered under the *Land Administration Act 1997* which allows for legal access for maintenance, operation and emergency response. Pipeline ROW vehicle patrols of various sections of the pipeline occur regularly. Vehicle patrols are completed by pipeline technicians and involve visual inspections of the pipeline corridor from a light vehicle. Patrols may identify issues such as:

- Third Party encroachments;
- Vegetation growth;
- Presence of weeds;
- Erosion;
- Exposed pipe;
- Condition of signage and aerial markers.

Vehicle patrols require use of a vehicle, no other equipment is required. The entire ROW of each pipeline is patrolled monthly through an aerial patrol. Any issues are reported by exception in Monthly Reports to EDL.

APA is classified as a Contractor in this Environment Plan.

8.1.1 Induction

OBJECTIVE	**Staff, contractors and visitors to the Pipeline receive a site induction with relevant environmental content.**
STANDARD	A register is maintained of persons receiving inductions. The sign-in, sign-out register (for visitors) and the Permit to Work Register (for contractors performing work) may be used where provision of an induction is a condition of signing.
MEASUREMENT	• All staff, contractors and visitors conducting activities related to the operation of the pipeline receive an APA Group induction. • Other persons may also require inductions at the discretion of the Facility Manager/Supervisor or the APA Group depending on the nature of their visit. • The format of the Induction will depend on the activity being undertaken. It should include environmental information specific to the Leonora pipeline and relevant to the activity.

8.1.2 Air Quality

OBJECTIVE	**EDL minimise social and air quality impacts from releases to atmosphere.**
STANDARD	Minimise venting or discharge of gas to atmosphere.
MEASUREMENT	• Signage is maintained along the pipeline route to identify the presence of an underground gas pipeline • Emission to air from plant and equipment used for pipeline maintenance minimised e.g. plant and equipment only being operated as needed and suitable for use (e.g. road worthy, within test). • A Work Permit System exists for any planned work on the pipeline. When planned inspection or maintenance involves venting, then: o Prior to venting, the activity will be assessed and include considerations such as the urgency and nature of the work, wind speed and direction. o Venting will be controlled. o Advance notification will be provided to potentially affected person. • The Leonora pipeline has a cathodic protection program to monitor and maintain the integrity of the pipeline.

8.1.3 Land Management

OBJECTIVE	**Soil erosion is monitored, identified and addressed.**
STANDARD	Soil erosion control and remediation measures are in place along the Pipeline ROW where erosion has been identified.
MEASUREMENT	• APA provides a monthly pipeline report that includes environmental matters. • Minimise vehicular traffic on easement – use adjacent public road as far as practicable. Restrict vehicle speed to 30 km/hr by EDL and contractor vehicles along ROW. • Evidence of minor soil erosion will be monitored along the pipeline route. This will be addressed through appropriate sediment control measures (e.g. silt fencing) and remediation actions (e.g. grading or backfill and compaction) at a time based on cost and availability of resources, plant and equipment. • Soil erosion that has the potential to expose or impact on the gas pipeline will be addressed as a matter of urgency by backfill, sediment control and compaction*. • All sediment control measures (e.g. silt fencing) will remain in place and be maintained in good condition until the area is stabilised.

***NOTE:** Pipeline easement is on flat land with some vegetation cover. This limits the potential for soil erosion.*

OBJECTIVE	**EDL set controls for excavation in close proximity to its assets.**
STANDARD	Excavation is controlled and does not result in environmental impact or impact on the integrity of the pipeline.
MEASUREMENT	• APA provides a monthly pipeline report that includes environmental matters. • EDL maintain above-ground signage for the full length of the pipeline. Signage is maintained so as to be legible. Maximum spacing between signs is 250 m and there should be a line of sight maintained between signage. • EDL-managed activities that involve any excavation within the pipeline easement will require a risk assessment and Safe Working Instruction (SWI) and include soil management (e.g. silt fencing around excavated soil) and the requirement for the excavation to be backfilled and compacted at the end of the maintenance activity. • All approved control measures (e.g. 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.

8.1.4 Fauna Management

OBJECTIVE	**EDL pipeline activities do not impact on local or native fauna.**
STANDARD	EDL maintain awareness for fauna present along the pipeline route and actively avoid interaction.
MEASUREMENT	• Minimise vehicular traffic on easement – use adjacent public road as far as practicable. Restrict vehicle speed to 30 km/hr by EDL and contractor vehicles along ROW. • Where fauna is observed, proceed cautiously to avoid any interaction. • Do not interact with any native animals. As far as is practicable, seek assistance (vet or animal care group) if an injured native animal is encountered. • Maintain fencing around Inlet and Outlet Stations to restrict access of fauna.

8.1.5 Vegetation Management

OBJECTIVE	**EDL pipeline activities do not contribute to the introduction or spread of weed species.**
STANDARD	EDL maintain access to information on weed species in the Pilbara Region.
MEASUREMENT	• 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. • Avoid driving through any areas of weeds. • Monitoring of weeds in monthly pipeline inspections, and action taken where weeds are identified. Report to and work with Council to address any sightings of these weeds on the ROW.

OBJECTIVE	**EDL maintain the pipeline free from vegetation interference.**
STANDARD	EDL minimise native vegetation clearance.
MEASUREMENT	• Minimise vehicular traffic on easement – use adjacent public road as far as practicable. Restrict vehicle speed to 30 km/hr by EDL and contractor vehicles along ROW. • Off-take and Receival points are kept free of vegetation that may impact on the integrity of the Pipeline. • Where a permit is required for clearing, the Permit will be obtained in advance of planned works from the Native Vegetation Branch of the DMP.

***NOTE:** Emergency actions are not planned works and are required to be conducted immediately to protect public safety and/or the integrity of the pipeline.*

OBJECTIVE	**EDL minimise the potential for fire to impact on its assets.**
STANDARD	EDL minimise fuel load and work with local emergency services in the event of fire in the vicinity of the pipeline (**Prepare. Act. Survive**).
MEASUREMENT	• **Prepare:** Restrict any gas venting in the area. • **Prepare:** Inlet and Outlet Stations are fenced and free of vegetation/waste that could otherwise contribute to a fire risk. • **Prepare:** Maintain fire breaks around Inlet and Outlet Stations • **Prepare:** Fire extinguishers available at facilities. • **Act:** Work with local emergency services to maintain and protect the integrity of the pipeline. This may include shutdown of the pipeline.

8.1.6 Chemical Management

OBJECTIVE	**EDL store and use chemicals in accordance with legal and SDS* obligations**.**
STANDARD	Chemicals used as part of the operation and maintenance of the pipeline are clearly labelled and stored and used in accordance with legal and SDS obligations.
MEASUREMENT	• **NO CHEMICALS (INCLUDING DIESEL AND HYDROCARBONS) WILL BE STORED AT PIPELINE FACILITIES.** • **NO REFUELLING TO OCCUR AT PIPELINE FACILITIES.** • There will be a current Safety Data Sheet (SDS) for hazardous and dangerous goods associated with the operation and/or maintenance of the pipeline. • The label of these substances will remain legible. A replacement label is available in ChemAlert in the event of the legibility of any chemical label being compromised. • A spill kit, suitable for the containment and clean-up of a limited spill or leak, will be available in the area where these solid and/or liquid substances are stored. • Any spill or leak of that can reasonably expected to gain access to any portion of the environment; and would in gaining access be likely to result in pollution is cleaned up immediately. The spill or leak will be reported internally. Notifications to regulator are initiated where necessary. • 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.

NOTES:

- ** EDL subscribe to ChemAlert for information relating to labelling, SDS, storage, use and disposal of approved chemicals.*
- *** Section 50(2) of the Environmental Protection Act 1966 states:* ***A person who causes or allows waste to be placed in any position from which the waste - (a) could be reasonably expected to gain access to any portion of the environment; and (b) would in gaining access be likely to result in pollution, commits an offence.***
- ****** Waste*** *oil and oily rags are classified as a regulated waste and must be disposed of into nominated bins for the collection disposal by a licensed disposal company.*

8.1.7 Waste Management

OBJECTIVE	**EDL maintain high level of housekeeping through waste collection and disposal.**
STANDARD	Collect and disposed of waste associated with EDL pipeline activities in accordance with legal obligations*.
MEASUREMENT	• Efforts are made to separate wastes to minimise the generation of hazardous waste and non-recyclable wastes. • Wastes are disposed of in accordance with the most hazardous component of the waste. The options for disposal are: o Non-Hazardous and Recyclable: Recycled (Preferred subject to availability – otherwise treat as non-hazardous and non-recyclable). o Non-Hazardous and Non-Recyclable: On-site or off-site landfill or other user. o Hazardous and Recyclable: Recycler licensed to recycle this waste stream (Preferred subject to availability – otherwise treat as hazardous and non-recyclable). o 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. • All regulated waste removed 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.

NOTES:

- ** Section 50(2) of the Environmental Protection Act 1966 states**: A person who causes or allows waste to be placed in any position from which the waste - (a) could be reasonably expected to gain access to any portion of the environment; and (b) would in gaining access be likely to result in pollution, commits an offence.***
- *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 soil material such as connection and gasket materials.*
- *Waste oil and oily rags are classified as a regulated waste and must be disposed of into nominated bins for the collection disposal by a licensed disposal company.*
- *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.*

8.1.8 Cultural Heritage

OBJECTIVE	**EDL respect items and areas of indigenous and western cultural significance**.
STANDARD	Items and/or areas of indigenous or western culture are not impacted.
MEASUREMENT	• The Katampul Aboriginal Association to be used for guidance in the event of significant planned ground disturbance in registered areas. • As a prudent measure, if an item of potential Aboriginal heritage or cultural value is discovered during the operation or maintenance of this pipeline, the area will be restricted as far as it is safe to do so and the discovery assessed by a suitably qualified person.

NOTES: *EDL acknowledge the presence of two (2) Registered Heritage Sites through or adjacent to PL48 (Department of Aboriginal Affairs (WA) 'Aboriginal Heritage Inquiry System'). Ethnographic and Aboriginal heritage surveys were undertaken prior to pipeline construction in order to avoid heritage sites. The pipeline route was located to avoid all areas of potential heritage significance. No Aboriginal cultural or heritage issues were identified or encountered during the construction of the pipeline.*

8.1.9 Pipeline Pigging*

OBJECTIVE	**EDL may use pipeline pigging for maintaining gas flow efficiency.**
STANDARD	Wastes from pipeline pigging will be collected and disposed of in accordance with legal obligations.
MEASUREMENT	• Pigging will be conducted using suitably qualified external contractors. • See Section 8.1.6 for reference to any chemicals used in the pigging process and Section 8.1.7 for reference to any wastes produced from the pigging process.

NOTE: *The term 'Pipeline Pigging' refers to the technique of inserting a specially built tool into the pipeline to perform different tasks. This 'tool' is commonly referred to as a 'PIG'.*

8.1.10 Decommissioning and Rehabilitation

OBJECTIVE	**EDL will decommission the pipeline when no longer required**.
STANDARD	The decommissioned pipeline will not present an environmental impact.
MEASUREMENT	• When no longer required, the existing pipeline will be purged of all gas and all signage identifying the pipeline will be removed. • 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. • Where ground disturbance occurs, it will be reinstated to a standard found in the surrounding area. See Section 8.1.3 for reference to land management practices. • EDL will prepare and submit to DMP a Decommissioning and Rehabilitation Plan, prior to these works being undertaken.

9. ENVIRONMENTAL MONITORING AND REPORTING

Environmental monitoring provides the opportunity to:

- Identify matters in need of attention; and/or
- Act early to prevent a possible incident; and/or
- Improve current practices.

Environmental monitoring formally occurs as:

- Environmental ROW Patrols on a monthly basis;
- Compliance audits to assess the currency and implementation of this Environment Plan at a minimum frequency of every three years;
- An annual emergency drill/scenario;
- Incident/complaint recording using the WIRF form and register.

9.1 Environmental Inspection

APA are contracted to conduct Right of Way (ROW) patrols. The pipeline owner has a gazetted easement registered under the *Land Administration Act 1997* which allows for legal access for maintenance, operation and emergency response. Pipeline ROW vehicle patrols of various sections of the pipeline occur regularly. Vehicle patrols are completed by pipeline technicians and involve visual inspections of the pipeline corridor from a light vehicle. Patrols may identify issues such as:

- Third Party encroachments;
- Vegetation growth;
- Presence of weeds;
- Erosion;
- Exposed pipe;
- Condition of signage and aerial markers.

This Environment Plan as the key reference for determining environmental compliance. APA is provided with a current copy of this Environment Plan to assist them in the scope of their inspection.

Any report of a non-compliance with this Environment Plan or other environmental action as a result of this Patrol will be recorded by the EDL Environment and Compliance Group and tracked to completion.

9.2 Emergency Drill/Scenario

EDL will conduct emergency response drills/scenarios for the pipeline at specified intervals as per the below

- Desktop review every 3 years;
- Field exercise as required but no later than every 5 years;
- Ad-hoc in the instances that significant changes to the pipeline have been made.

Any environmental action from an emergency drill/scenario will be documented in the EDL Environment and Compliance Group and tracked to completion. Progress in addressing actions is reported as part of environmental reporting to senior management.

9.3 DMP Reporting

The *Petroleum Pipelines (Environment) Regulations 2012* (the Regulations) provides the following definitions:

- ***recordable incident,*** for an operator of a pipeline activity, means an incident arising from the pipeline activity that breaches an environmental performance

objective or environmental performance standard in the environment plan for the pipeline activity; and is not a reportable incident.

For the purpose of this Environment Plan, an example of a "Recordable Incident" is if EDL did not store and use chemicals in accordance with the criteria documented in Section 8.1.6 of this Environment Plan.

- ***reportable incident,*** for an operator of a pipeline activity, means an incident that is classified as a reportable incident under the environment plan for the pipeline activity; or an incident arising from the pipeline activity if the incident has caused, or has the potential to cause, an adverse environmental impact; under the environmental risk assessment process described in the environment plan for the pipeline activity, that environmental impact is categorised as moderate or more serious than moderate.

For the purposes of this Environment Plan, a "Reportable Incident" is ANY environmental incident related to the pipeline that has caused, or has the potential to cause, an adverse environmental impact that can be categorised as moderate or more serious (as determined from the Appendix B matrix as being "Medium" or higher). Reportable incidents potentially relevant to these pipelines include:

- A pipeline-related maintenance incident resulting in a spill of liquid hydrocarbon exceeding 80L into stormwater drains or entering a waterbody;
- A pipeline-related maintenance incident involving a spill of liquid hydrocarbon exceeding 500L;
- Pipeline failure or damage where greater than 500m3 of gas is released to the surrounding environment;
- Pipeline failure or damage resulting in the release of pipeline gas with odourant resulting in public odour nuisance complaint being received;
- A significant soil erosion event where the underground section of the pipeline is exposed and has the potential to be damaged;
- Uncontrolled escape or ignition of petroleum or other flammable or combustible material causing a potentially hazardous situation.

EDL will notify DMP verbally as soon as practicable and within 2 hours of the first occurrence of a reportable incident or EDL first becoming aware of the reportable incident. The notification will specify all material facts and circumstances concerning the reportable incident that EDL knows or is able to find out by reasonable search or inquiry, and any action taken to avoid or mitigate any adverse environmental impacts of the reportable incident.

EDL will provide a written report to DMP within 3 days of the first occurrence of a reportable incident. The written report will specify all material facts and circumstances concerning the reportable incident that EDL knows or is able to find out by reasonable search or inquiry, any action taken to avoid or mitigate any adverse environmental impacts of the reportable incident, and any action taken or proposed to be taken, to prevent a similar reportable incident.

9.3.1 Monthly Reporting of Recordable Environmental Incident Report

EDL prepare and submit a Monthly Incident Report by day 15 of the following month. EDL will use the nominated DMP Form (currently Form ENV-PEB-190) to make these monthly submissions.

9.3.2 Quarterly Reporting of Environmental Incidents and Discharges Report

EDL prepare and submit a Quarterly Incident and Discharge Report for the September – November; December – February, March – May; and June – August periods by the day 15 of the following month. EDL will use the nominated DMP Form for Quarterly Emissions and Discharges to make this submission.

Under the *Petroleum Pipelines (Environment) Regulations 2012* (the Regulations), Regulation 33, EDL recognise the following obligations with respect to monitoring and reporting emissions and discharges:

- The ***reporting period,*** in relation to a pipeline activity, means the period of 3 months commencing when the environment plan for the pipeline activity is approved; and each subsequent period of 3 months.
- As the operator of a pipeline activity, EDL must monitor all emissions and discharges to the environment that occur in the course of the pipeline activity (whether during normal operations or otherwise) that are specified in this environment plan. They must be accurate; and can be audited against the environmental performance standards and specified measurement criteria.

For the purposes of this Environment Plan, pipeline related emissions and discharges can occur from:

- **Planned venting of a pipeline.** Prior to venting, the pipeline gas pressure will be reduced as far as practical to atmospheric pressure. **Measurement criteria:** Emission from of the pipeline will be calculated from the length of pipeline being vented and the volume of gas in the pipeline (taking account of temperature and pressure).
- **Damage to a pipeline:** This type of discharge is unplanned. As soon as being aware of (or being notified of) damage to the pipeline, the gas flow will be stopped (relevant valves closed). **Measurement criteria**: the difference between meter readings at the inlet and outlet stations (where meters exist). Where meters do not exist or readings are not available, the volume of the discharge will be calculated from the length of time between the damage occurring and the estimated rate of discharge.
- **Waste associated with the Pipeline.** As a result of any work associated with the pipeline, any waste generated (including general waste) is to be included as a related emission or discharge. This includes the volume of green waste associate with any trimming or removal of vegetation along the pipeline ROW. **Measurement criteria:** the type and quantity of any waste associated with the operation or maintenance of the pipeline is to be recorded and reported in Quarterly Reports.
- **Fuel used in vehicles for the inspection of a pipeline.** This type of emission is not from the pipeline but from the vehicles in conducting inspections and other monitoring of the pipeline. This emission may be from regular inspections, planned venting of the pipeline or responding to reported damage to the pipeline. This activity is essential in fulfilling the obligations of this Environment Plan and ensuring the safe and efficient operation of the pipeline. **Measurement criteria:** Emissions will be calculated from the length of the pipeline, the number of inspections conducted in the reporting period, the fuel type in the vehicle (diesel or unleaded petrol) and a vehicle fuel efficiency of 10 l/100km.

9.3.3 Annual Compliance Report.

Unless otherwise required by DMP, the due date for the submission of an Annual Environmental Compliance Report will be 30 September (3 months from the end of the financial year). EDL recognise the guidance document *entitled DMP Notice to WA Operators Regarding Annual Reports - State Jurisdictions* to determine the content of the annual report and the standard against which all future reports will be assessed.

9.4 Environmental Internal Audit

EDL will conduct an internal audit of compliance with this EMP on a minimum of once every three years. The scope of the audit will be determined with consideration for:

- The status and importance of the processes and areas to be audited;
- The results of previous audits;

- Incidents, complaints and other contributing factors;
- Records and databases relevant to EP commitments.

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 significant review of this Environment Plan as a result of a change in legal or other obligations in relation to the Pipeline;
- A direction from the Managing Director, General Manager, Operations and Compliance, Manager, Shared Services and/or Regional Operations Manager;
- A direction from an environmental regulator.

All actions from an internal audit will be documented by the EDL Environment and Compliance Group and tracked to completion. Progress in addressing actions is reported as part of environmental reporting to senior management.

10. ENVIRONMENTAL INCIDENT OR EMERGENCY

Table 6: Environmental Incident and Emergency Responsibilities

ROLE	RESPONSIBILITIES
Managing Director	Personal responsibility in the event of a significant environmental emergency
General Manager, Australian Operations and Compliance	Overall responsibility for response and investigation into environmental incidents/emergencies
Manager, Shared Services	Responsibility to investigate an environmental emergency. Investigation of an environmental incident may be initiated if considered appropriate
Environmental Group	Provides environmental support to Managing Director, State Operations Manager, Facility Supervisor and/or Manager, Shared Services 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 may be initiated if considered appropriate
Facilities Manager	The Facilities Manager will initially classify whether it is a minor or major incident or emergency. Responsible for investigation of environmental incidents
Facility Supervisor	The Facility Supervisor is responsible for first response to a Facility environmental incident/emergency. 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 to report any environmental concern or incident to Facility Supervisor. Responsible for following Facility Supervisor directions
All other EDL Staff, Contractors and Visitors	General Responsibility to report any environmental concern or incident to the Facility Supervisor or their Facility Contact. Responsible for following Facility Manager/Supervisor directions

NOTE: APA is classified as a Contractor in this Environment Plan.

An environmental incident is when:

- EDL activities do not comply with the requirements of the Environment Plan; and/or
- Conditions, either natural or other, that have the likelihood to cause material environmental impact on EDL activities and/or
- When there is a complaint about EDL's environmental performance and/or
- There is a reportable environmental incident to the Department of Environment Regulation, Department of Mines and Petroleum or other local, State or Federal government regulator. Reportable incidents potentially relevant to these pipelines include:
  - 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 500m3;
  - Uncontrolled escape or ignition of petroleum or other flammable or combustible material causing a potentially hazardous situation.

An environmental incident may be minor (can be addressed at a Facility level) or significant (needs the involvement of a least the State Operations Manager to resolve).

An environmental emergency is when, in addition to the above criteria for an 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, that have the likelihood to cause significant environmental impact on EDL activities.

This Environment Plan as a reference for determining environmental compliance.

An EDL WIRF (Workplace Incident Report Form) will be used to report, document and track actions in relation to an environmental incident or emergency.

The Department of Environment Regulation (DER) contact information in the event of a pollution incident is:

- Pollution Watch Hotline: 1300 784 782 (24 hours)
- Online reporting form: http://www.der.wa.gov.au/your-environment/reporting-pollution/report-pollution-form

The Department of Mines and Petroleum contact Information is:

- 24 Hour Petroleum Environment Duty Officer mobile phone number 0419 960 621
- Petroleum Environment email address petroleum.environment@dmp.wa.gov.au.

See Section 6 of this Plan for responsibilities in relation to notification to the DMP and DER.

10.1 Environmental Response to a Gas Leak or Release

During the operation or maintenance of the pipelines, a gas leak or release may occur. In responding to a leak, personal safety and the safety of others must be the first priority. With this achieved the following then applies:

- Report to Site Supervisor.
- Access to the affected area is restricted to authorised persons (as determined by the Site Supervisor).
- The discharge is stopped. If the leak cannot be stopped, the affected areas are restricted/evacuated. The support of emergency services may be sought to assist depending on the extent of areas impacted.
- Maintain a documented record of the incident using the WIRF or other communication for minor issues.

10.2 Incident Review and Emergency Investigation and Response

The response to an environmental incident/emergency will:

- Determine and implement actions, where necessary to control the situation and mitigate environmental impacts;
- Review the effectiveness of any actions;
- Document the incident/emergency and response actions.

The review of an environmental incident will:

- Determine the cause;
- Evaluate the need to taking actions, where necessary 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;
- Review the effectiveness of any actions taken;
- Document the investigation and any actions taken;
- Determine the status of all incidents.

All environmental emergencies will be investigated.

- The scope of the investigation will be determined by the Manager Shared Services in consultation with the General Manager, Operations and Compliance, Regional Manager and Regulator (where applicable).

- The Environmental Group 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 General Manager, Operations and Compliance and will have an identified action, responsibility and target date identified.
- Progress will be monitored and reported by the Environmental Group to the General Manager, Operations and Compliance, Manager Shared Services and Regional Operations Manager on a monthly basis until completed.
- Reporting to the Regulator (where required) will occur within agreed timeframes.

The EDL WIRF database 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.

11. ENVIRONMENTAL REVIEW

This Environment Plan is required to be developed and maintained to the satisfaction of the Director of the Department of Mines and Petroleum (DMP).

Any review will be conducted in consultation with the DMP. The currency of this Environment Plan (EP) will be reviewed within the Quality Management System to ensure its currency. That review will be conducted:

- Within a five year period; or
- When legal or other obligations change and required amendments to this Plan; or
- When an environmental incident occurs at this Facility or other Facility and there is an identified opportunity to review the content of this Plan; or
- When advised or directed to review the Plan by the Department of Mines and Petroleum (DMP); or
- At the discretion of EDL.

The review of this EP shall consider (as relevant):

- Changes in the external and internal environment, including legal and other obligations;
- Previous reviews and their recommendations;
- Whether the Plan is operating effectively;
- Communication(s) from its interested parties, including complaints;
- Results of audits, compliance assessments, inspection and monitoring activities;
- Environmental incidents and emergencies;
- Status of corrective and preventive actions and timeliness of resolution;
- Adequacy of resources, structure and personnel;
- Opportunities for environmental objectives and targets for continual improvement in overall environmental performance.

12. REFERENCE DOCUMENTS

Principal International Standards relevant to the Leonora Pipeline

- 9001 Quality Management Systems—Requirements
- 14001 Environmental Management Systems – Requirements
- 31000 Risk Management – Principles and Guidelines

Principal Australian Standards, Codes and Reports relevant to the Leonora Pipeline Environment Plan

- Australian Standard AS 8000 Corporate Governance (for guidance only)
- Australian Standard AS 2885.3: Pipelines – Gas and Liquid Petroleum – Part 3
- APIA Code of Environmental Practice
- AS 1726-1993 Geotechnical Site Investigations
- AS 1940-1993 Storage and Handling of Flammable and Combustible Liquids
- AS 2436-1981 Guide to noise control on construction, maintenance and demolition sites
- AS 2885.1-1997 Pipelines - Gas and Liquid Petroleum - Design and Construction

Principal Legislation relevant to the Leonora Pipeline

- Petroleum Pipelines (Environment) Regulations 2012
- Petroleum Act (WA) 1967
- Petroleum Pipelines Act (WA) 1969
- Petroleum Pipeline Regulations (WA) 1970
- Environmental Protection Act (WA) 1986
- Environmental Protection Regulations (WA) 1987
- Conservation and Land Management Act (WA) 1984
- Conservation and Land Management Regulations (WA) 2002
- Wildlife Conservation Act (WA) 1950
- Wildlife Conservation Regulations (WA) 1970
- Dangerous Goods Safety (WA) Act 2004
- Pipeline Licence PL 48

http://www.slp.wa.gov.au/legislation/agency.nsf/dec_menu.htmlx - The DER website listing and providing access to the legislation administered by the Department of Environment Regulation.

Principal Internal References relevant to the Leonora Pipeline

- Energy Developments Limited Environmental Policy
- Energy Developments Limited Australian Environment Plan.
- EDL OHS Manual. Section 5 specifically used for risk identification and assessment methodology used for Sections 5 and Appendix A of this Environment Plan.
- Operations Environmental Management Plan – EnGen Pty Ltd Leonora Gas Pipeline (PL48) - Document LNR – EMP – 891
- EDL Contract with APA.