Health, Safety and Environment Management System

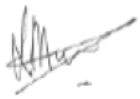
Environment Plan Summary

PEP.2373-PL-HSE-0002

PILBARA PIPELINE SYSTEM

OPERATIONS ENVIRONMENT MANAGEMENT PLAN SUMMARY

safeguard

Rev	Date	Status	Originated/ Custodian	Checked	Approved
1.2	09/04/26	DMPE comment incorporated			
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1.2	Apr 2026	Five-yearly renewal
1.0	Oct 2018	Document control (DC) number updated, aligned with APA national DC format; Previous DC number: 870-PL-HSE-1012; Updated in line with OEP 5 yearly review
1	May 2014	Update to include BGL
0	Oct 2013	Initial version; IFU

Table of Contents

1. Introduction

This Operations Environment Management Plan (OEMP) Summary provides an overview of the environmental management requirements for the operation of the pipelines listed in Table 1.

Table 1 PPS Pipeline Licences

Licence	Pipeline	Licensee	Nominated Operator
PL 22	Pilbara Energy Pipeline (PEPL)	APA (Pilbara Pipelines) Pty Ltd	APA (Pilbara Pipelines) Pty Ltd
PL 31	HBI Extension Pipeline (HBI)		
PL 82	Karratha Gas Lateral (KGL)		
PL 104	Boodarie Gas Lateral (BGL)		

1.1 Purpose and Scope

The purpose of this OEMP Summary is to provide information to the public regarding environmental management requirements.

The scope of this OEMP Summary is limited to operational works associated with the pipelines listed in Table 1.

1.2 Health, Safety, Environment and Heritage Policy

At APA we strive to be world class in health, safety, environment and heritage performance. Our foremost priorities include protection of the environment, heritage and the communities we operate.

APA is committed to managing and minimising our impact on the environment and heritage. We foster a culture of responsibility, leadership and awareness of our environment and heritage obligations and practices.

1.3 Abbreviations

Table 2 Abbreviations

Acronym	Definition
APA	APA Group
ASS	Acid Sulphate Soils
BGL	Boodarie Gas Lateral
CP	Cathodic Protection
CS	Compressor Station
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DMPE	Department of Mines, Petroleum and Exploration
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EPBC Act	*Environment Protection and Biodiversity Conservation Act*
ERP	Emergency Response Plan
ERP	Emergency Response Plan
HBI	HBI Extension Pipeline
KGL	Karratha Gas Lateral
LCP	Landholder Contact Program
LMS	Learning Management System
LOS	Line of Sight
MB	Maintenance Base
NGER	National Greenhouse and Energy Reporting
NORM	Naturally Occuring Radioactive Material
NPI	National Pollutant Inventory
OEMP	Operations Environment Management Plan
OSCP	Oil Spill Contingency Plan
PEPL	Pilbara Energy Pipeline
PL	Pipeline Licence
PPS	Pilbara Pipeline System
ROW	Right of Way
SG	Safeguard
TPA	Third-Party Awareness Program
WARC	WA Radiological Council
WBH	Water Bath Heaters
WO	Work Orders

2. Location

Pipeline	Location Description
PEPL	A 214 kilometer pipeline connecting the Carnarvon Basin with power stations located in Karratha and Port Hedland, as well mining operations in the Pilbara region located on the Port Hedland to Telfer Gas Pipeline PEPL commencement: -20.766693°; 116.730789° PEPL termination: -20.427692°; 118.551865°
HBI	A 5 kilometer pipeline which extends from the Port Hedland Terminal to the Hot Briquetted Iron gas Terminal HBI commencement: -20.427692°; 118.551865° HBI termination: -20.377998°; 118.541104°
KGL	A 5 kilometer pipeline connecting the PEPL to the West Pilbara Power Station at Karratha. KGL commencement: -20.786187°; 116.861001° KGL termination: -20.762727°; 116.838153°
BGL	A 100 m pipeline from the HBI pipeline to the Boodarie Industrial Estate. BGL commencement: -20.420913°; 118.548053° BGL termination: -20.421458°; 118.546486°

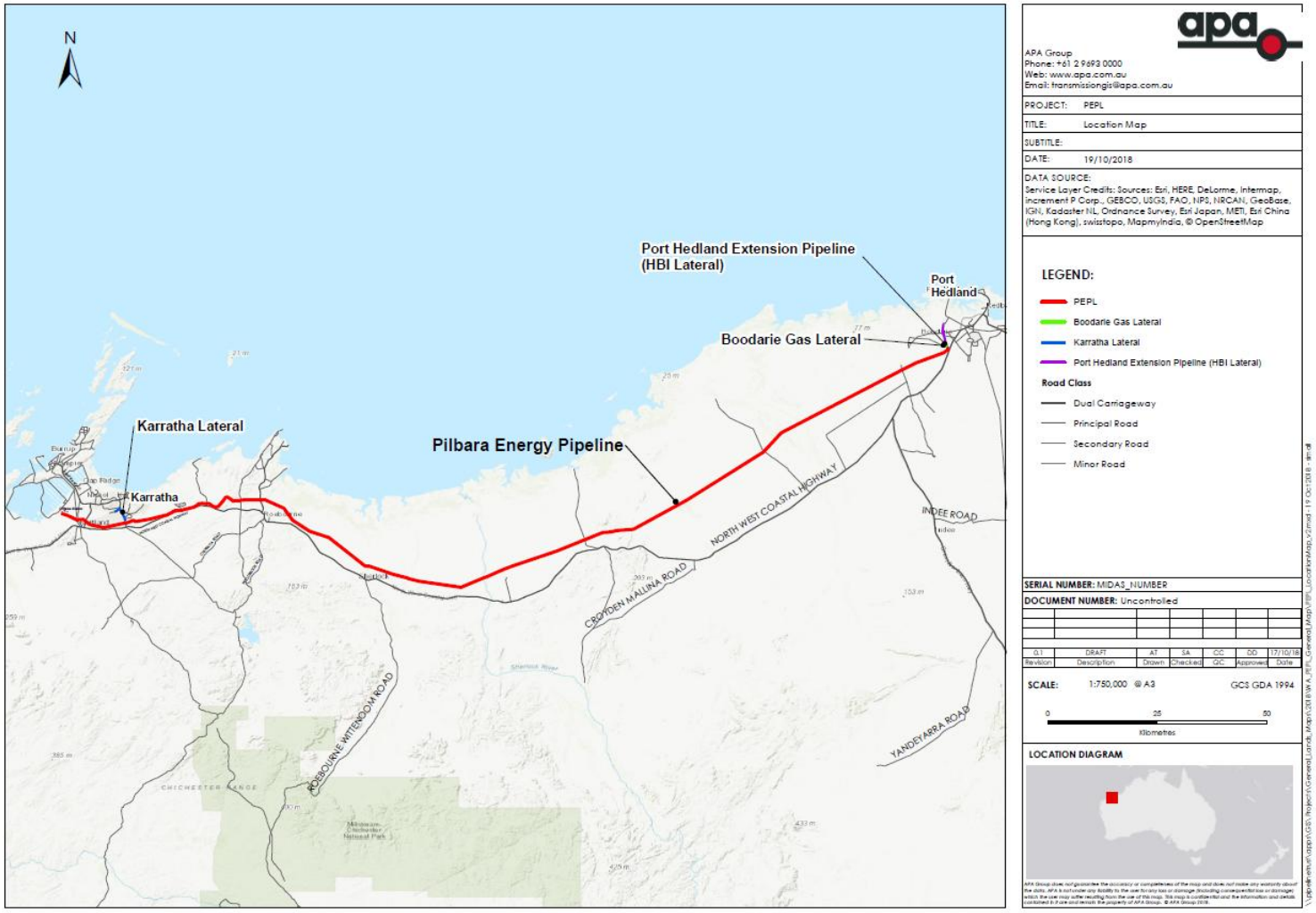

Figure 1 PPS Locality Map

3. Activity Description

3.1 General Equipment & Facility Maintenance

General equipment, easement and facility maintenance typically includes but is not limited to the following:

- Servicing and overhauls of machinery and equipment, including servicing and changing water of WBH;
- Equipment inspections and testing;
- Monitoring;
- Erosion management and remediation (inclusive of import of fill);
- Modification of fencing, include minor concreting for footings;
- Maintenance of temporary site offices, ablutions, laydown, and parking areas;
- Filter inspections and replacement; and
- Small scale facility works.

The above activities involve various mechanical and electrical tasks which are undertaken by appropriately qualified technicians.

Filter inspections are undertaken at regular intervals and filters replaced as required. Filter replacement involves filter removal, wash down with water and transfer to a secure container for transfer to appropriate offsite disposal facilities.

Pipeline warning signs are in accordance with AS2885. Signs are placed so as to be inter-visible and may require replacement.

Water Bath Heater's (WBH) consists of electric elements that get hot when electricity passes through them. The WBH's contain water which is treated with biocide or a corrosion inhibitor. These chemicals are stored at the MB and brought to site when required. Demineralised water, rainwater or mains water is used. WBH water is sampled and analyses on a three-monthly basis and is treated based on the results as required. Water is treated by draining approximately 10L of water into a bucket, adding the chemical and then topping up the WBH (manual process). The water is changed in line with the pressure equipment inspection. This is done via isolating the WBH and draining the water into a bunded IBC. The water is then either reused or disposed of by a licenced waste carrier.

Erosion and subsidence management requiring the import of fill, ground/surface compaction and the mobilisation of earth-moving machinery, may be required intermittently to ensure ongoing pipeline integrity. Fill will be clean of weeds and disease and sourced locally, where possible.

Small scale upgrades are required intermittently to allow for increased services or changes in pipeline requirements. Works may include minor concreting for footings, maintenance of temporary site offices, ablutions, laydown and parking areas to facilitate the small-scale installations. Works will be restricted to the pipeline licence area.

3.2 Pipeline Excavation

Pipeline excavations are undertaken periodically typically for pipeline repairs. The scales of excavations are generally single defect dig-ups.

Dewatering is sometimes required where the water table is present at less than a few metres from the ground surface, however this is rare (once every 5-10 years).

Abrasive blasting and coating activities may be conducted on an ad-hoc basis (likely once every ten years, based on similar APA pipelines).

3.3 Venting

Venting of gas is undertaken to purge pipelines or facilities for maintenance or emergency response purposes.

The Integrated Operations Centre Controller assists to monitor and respond to any unplanned/uncontrolled venting or gas release incidents via information provided on the on the operator interface (SCADA).

3.4 Flaring

Flaring using portable flare stacks may be employed as an environmental control measure during planned venting activities, where deemed appropriate. The decision to flare considers a balance of environmental benefit (ALARP), safety, fire risk, and potential community impacts, such as noise and radiation.

Flaring is subject to engineering planning and applicable supporting assessments, including noise exposure evaluations, to ensure risks are managed in accordance with relevant safety standards.

3.5 Pigging

Pipeline pigging is undertaken for the purposes of cleaning or integrity assessment (intelligent pigging). Intelligent pigging is completed in accordance with the requirements of AS2885.3 Section 6 – Pipeline Structural Integrity. In Line Inspection frequency is based on latest pigging data and integrity assessment, but not exceeding 10 years.

Pigs are run between pipeline scraper stations containing pig launching and receiving facilities. Particulate matter separated from the gas stream is a common by-product of pigging (removal of which is the ultimate goal in the case of a cleaning pig run), these are caught in the pig receiver trap along with the recovered pig and contained for appropriate offsite disposal.

3.6 Easement Inspections

Pipeline easement inspections are conducted as aerial or vehicle patrols. Scope of these patrols aim to identify:

- Third Party encroachments;
- Vegetation growth;
- Indicators of gas leaks;
- Line of sight;
- Presence of weed infestation greater than land immediately adjoining the corridor;

- Erosion;
- Exposed pipe; and
- Condition of signage and aerial markers.

Vehicle patrols are completed by pipeline technicians on a six-monthly basis or as per the Maximo Maintenance Regime. This work is conducted from light vehicles and managed through MAXIMO with WOs being generated for completion. Any issues identified are documented and where necessary additional WO raised for corrective action to be completed.

Aerial patrols are completed monthly. The monthly aerial patrol is undertaken via a contractor and any issues / occurrences that are recorded during the flight are uploaded into Field Maps directly by the contractor for APA to action. Any changes to the above frequencies will go through a Management of Change process via Maximo prior to the change being in effect.

3.7 Hot Tapping

Hot Tapping is the process of safely drilling a hole into an operating gas pipeline to allow a connection to be made. Excavations are within the previously disturbed boundaries.

3.8 Vegetation Clearing

The PPA requires upstream and downstream pipeline warning markers to be visible (line of sight). In some areas, plant regrowth obscures line of sight between pipeline warning markers and inhibits vehicle access for maintenance purposes and emergency response. In these instances, vegetation mulching becomes necessary. The operation does not comprise soil disturbance and hence vegetative root stock and soil quality is maintained.

Vegetation disturbance may also be required to facilitate minor excavations/dig-ups.

Clearing will occur in accordance with the Environmental Protection (Clearing of Native Vegetation) Regulation 2004.

3.8.1 PEPL

APA was granted a clearing permit under section 51E of the *Environmental Protection Act 1986* for PEPL (Purpose Permit 6793/1; for the purpose of a pipeline maintenance; permit duration 19 December 2015 – 19 December 2034).

3.8.2 BGL

Vegetation mulching on the BGL is classified as prescribed clearing (s.51C) (clearing; low impact petroleum activities) (Regulation 5 Item 20). BGL does not intersect any Schedule 1 Areas.

3.8.3 KGL

KGL is wholly within a Schedule 1 area. Clearing Permit shall be sought prior to any vegetation clearing.

3.8.4 HBI

Vegetation mulching on the majority of HBI is classified as prescribed clearing (s.51C) (clearing; low impact petroleum activities) (Regulation 5 Item 20). HBI does intersect a Schedule 1 area between KP0–0.5 and KP3.5-4 (associated with the Whim Creek), a clearing permit would be required for any clearing through this section.

3.9 Waste Management

General waste, contaminated waste, controlled waste and potentially NORMS waste are produced during the activity.

3.10 Vehicle Access

Vehicle activity predominantly comprises of light vehicles and occasional heavy vehicles for excavations, LOS clearing and associated maintenance activities. All access is restricted to the ROW and existing roads and tracks.

3.11 Planning for closure

APA will develop a separate environment plan for the decommissioning and rehabilitation of the PPS which will be submitted to DMPE for review and approval prior to any work commencing for this activity.

Rehabilitation of the pipeline easement will be back to safe, stable and no polluting form consistent with existing land use.

4. Receiving Environment

4.1 Climate

The Koppen classification schedule, which uses both temperature and rainfall to describe a region, classifies the PPS as being within a desert region, with hot, persistently dry conditions. The area is usually described as being arid, experiencing mostly summer rainfall (Bureau of Meteorology 2008). Beard (1976) describes the region as arid, although his bioclimatic map (after Bagnouls and Gaussen) describes the area as semi desert – tropical, with high maximum temperatures and summer rainfall (Woodman Environmental 2001).

The rainfall the area experiences is mainly as a result of cyclones, which originate in the Timor Sea and may cross over the coast as they travel southward along the coastline between December and April. There is a great variability in rainfall between months and between years due to this phenomenon (Woodman Environmental 2001). Refer to Table 3 for mean monthly rainfall data (BOM 2018) and Table 4 for the mean monthly maximum and minimum temperatures (BOM 2018).

Table 3 Mean Monthly Rainfall Data (Port Hedland Airport; Site 004032; mm)

J	F	M	A	M	J	J	A	S	O	N	D	Annual
64.0	89.9	51.3	21.8	27.0	23.6	10.8	4.8	1.2	1.0	2.6	18.9	319.2

Table 4 Mean Monthly Maximum and Minimum Temperature (Port Hedland Airport; Site 004032; ºC)

	J	F	M	A	M	J	J	A	S	O	N	D
Max	36.3	36.2	36.8	35.3	30.7	27.6	27.2	29.3	32.4	35.0	36.3	36.6
Min	25.6	25.5	24.6	21.5	17.3	14.2	12.4	13.2	15.5	18.6	21.5	24.1

4.2 Physical Environment

4.2.1 Geology

The Pilbara contains some of the oldest rocks on earth which formed during the Archaean period, approximately 3,600 million years ago. The land surface varies from flat sand plains overlying granitic rocks with ridges of dolerite, to dissected ridges of metamorphic stone and eroded tablelands comprised of a mix of Proterozoic volcanics and sedimentary rocks (DBNGP 2009).

The PPS lies within the Roebourne biogeographic subregion of the Pilbara, part of the Eremean Botanical Province (DBNGP 2009). This region is characterized by Quaternary alluvial (river-eroded) and older colluvial (gravity-eroded) coastal and sub-coastal plains. Basalt ranges also occur across the coastal plains.

The main topographic features of the Pilbara Region are the Hamersley Ranges and the Fortescue River valley floodplain. The surficial geology consists of a granite and greenstone base, overlain by Achaean sediments and volcanics of the Fortescue Group, capped by Proterozoic sediments of the Hamersley Group. Tertiary and quaternary deposits are common in water courses as well as colluvium at the base of scarps and hills. Soils include plastic clays, brown red clays and red brown earths as well as areas of calcareous soils associated with hardpans.

4.2.2 Soils

The pipeline system traverses two major landform units, the Coastal Plain, and the Archaean Fold Belts. The majority of the route crosses the Coastal Plain which is a flat, low-lying area fringed to the north by mangroves, tidal creeks, salt flats, sand overlay on river systems and areas of low coastal dunes. Soils consist largely of sand, sand-clay and clay. Hard, red alkaline earths and cracking clays occur in frequent patches further inland on alluvial plains (Bettanay et al 1967). A coarser sandy soil is found around the beaches and flatter coastal areas of the Burrup Peninsula where the influence of tides and storm surges has introduced silts and shell fragments. There are large saline mudflats in the intertidal areas that are mainly on the eastern side of the peninsula (DBNGP 2009).

A small part of the route near Sherlock River and near Whim Creek crosses the Achaean Fold Belts landform. This is a rugged landscape formed by folded Archaean greenstones and volcanic sediments that occur between areas of Granite Plain. Soils are mostly thin or absent, although small areas of deep cracking clays are present (Pilbara Energy Limited 1993).

4.2.3 Acid Sulfate Soils

An Atlas of Australian Acid Sulfate Soils desktop assessment (April 2024) showed that the PPS is predominately located in an area of Extremely Low Probability (1 - 5%) of ASS and low probability (6-70%) of ASS. There are very small sections on the PEPL which intersect areas of high probability (>70 %) of ASS. Refer to Figure 1 for map of ASS probability.

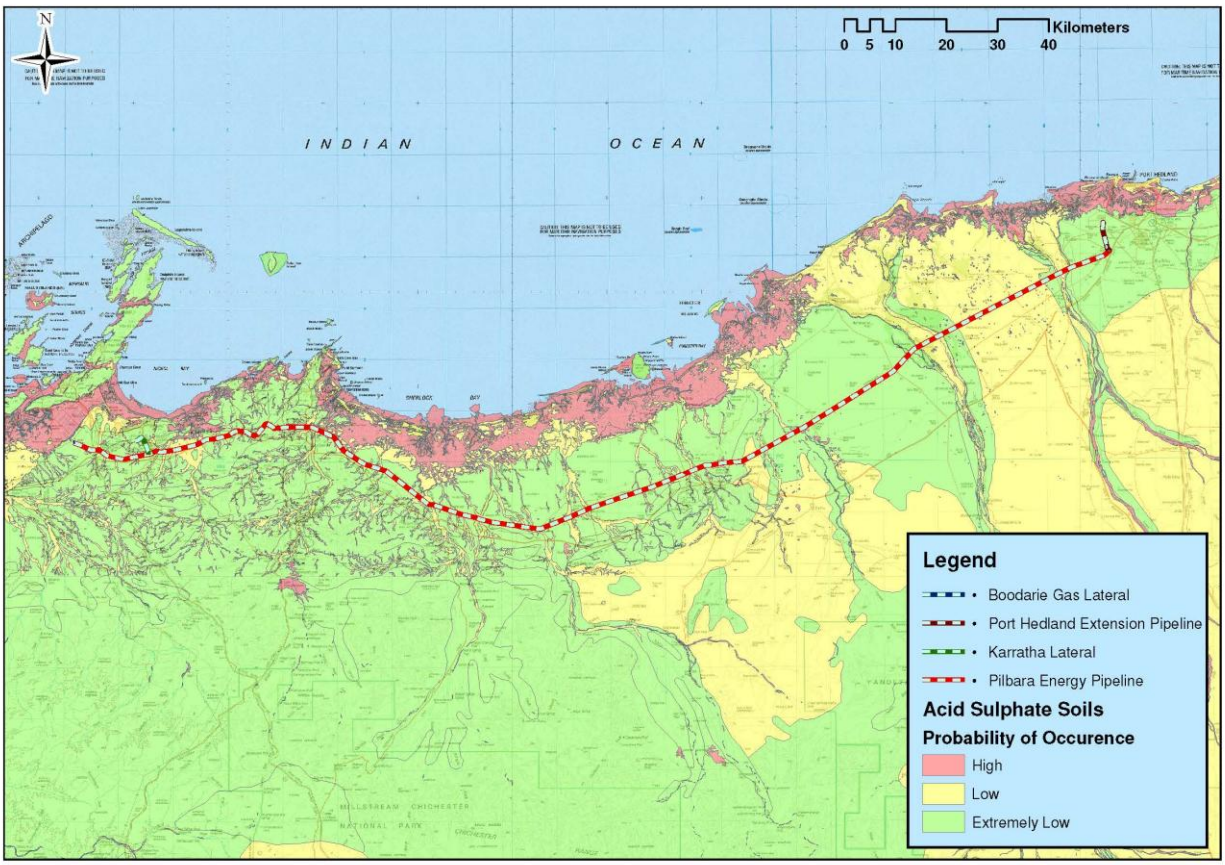

Figure 2 Probability of ASS around the PPS

4.2.4 Surface Water

The Roebourne sub-region has limited surface freshwater. Freshwater flows are variable and typically associated with storm surge or tropical cyclone activity. These periods of high flow are followed by dry periods, when stream flow stops and even the deeper waterholes in the gorges can dry up completely. Like much of the Pilbara, some groundwater is located in fractured rock aquifers where groundwater is stored in the fractures, joints, bedding planes and cavities of the rock mass. Groundwater recharge is directly related to rainfall events where water infiltrates in the fractures of the surface rock or through leakage from surface water flows. These fractured rock aquifers are very localised systems with little regional flow (DBNGP 2009).

The PPS crosses the following water courses in addition to numerous minor ephemeral drainage lines:

- Turner River
- Jones River
- George River
- Yule River
- Sherlock River
- East Harding River
- Harding River
- Peawah River

Generally, the pipeline crosses these rivers at the boundary between freshwater and areas closer to the coast that are influenced by tidal effects (Pilbara Energy Limited 1993).

Most of the rivers, creeks and streams require heavy rainfall to produce flowing conditions (Pilbara Energy Limited 1993). Cyclones cause major flows in some rivers almost every year between November and April. The rivers are generally dry between August and October, with only occasional short-lived flows. Localised river flows may be sustained by small spring discharges from aquifers intersected by river channels (DEWHA 2009a).

There are no Ramsar wetland sites or wetlands of national significance in or near the PPS (DEWHA 2008b).

Refer to Figure 3 for a map of major drainage lines on the PPS.

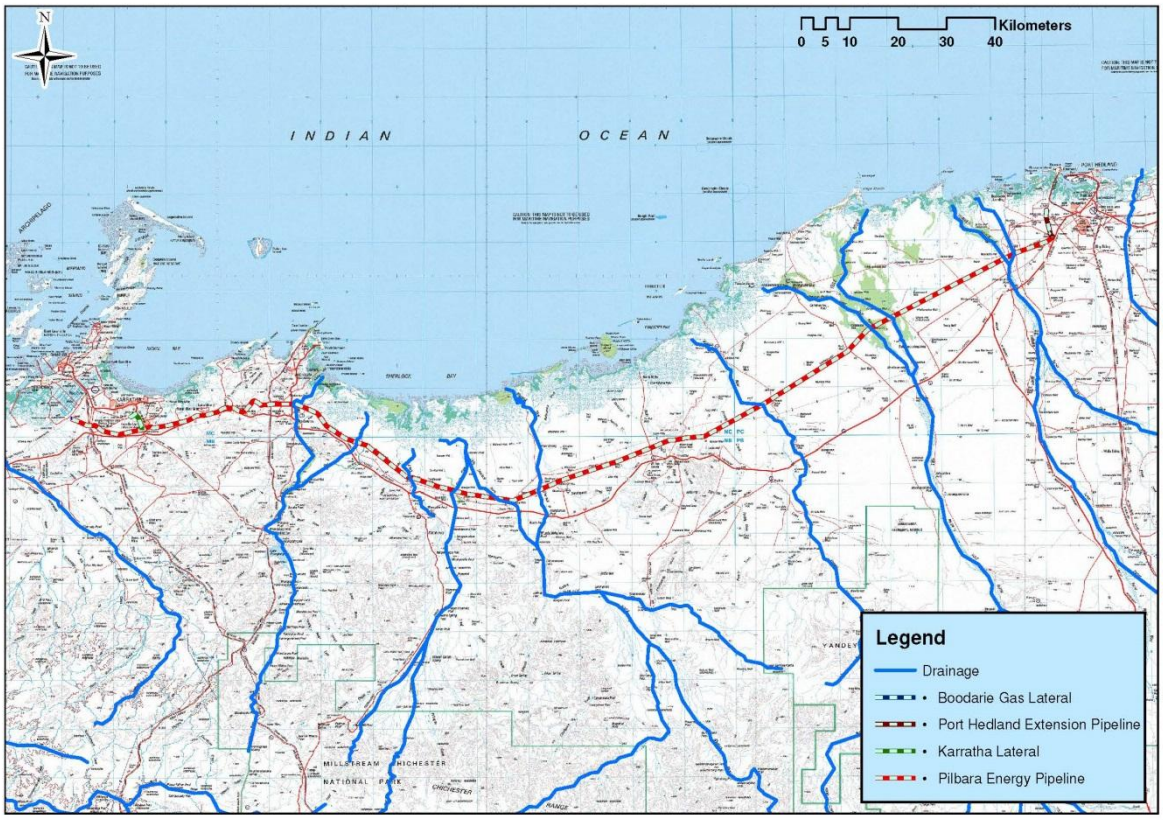

Figure 3 PPS Major Drainage Lines

4.2.5 Groundwater

The regional aquifer consists of rocks of low permeability and local aquifers of fractured and weathered rocks. It is the Pilbara fractured rock aquifer, consisting of Precambrian granite greenstone terrain overlain by superficial sediments in the river valleys (DOW Hydrogeological Atlas 2008). The water table is generally within 5-10 m of the surface in the granitic areas, but may be deeper below the greenstone hills. Groundwater salinity is marginal to brackish. Regional aquifers have low permeability and annual rainfall is low therefore recharge rates are very minor.

The Yule River Water Reserve and adjacent Water Reserve 33015 intersect the PEPL between KP 168 and KP 184. The Yule River Water Reserve is a declared Public Drinking Water Source Area (PDWSA) located approximately 45 km southwest of Port Hedland. It protects groundwater resources within the Yule borefield, which is a critical component of the regional drinking water supply for Port Hedland and surrounding communities. APA shall comply with WQPN25 including avoiding any refueling of equipment in the reserve, avoid long term parking of heavy vehicles or equipment in reserve and DWER to be notified prior to ground-disturbing activities within the reserve.

4.2.6 Contaminated Sites

A desktop assessment of the DWER Contaminated Sites Database was conducted in April 2024. The assessment indicated that PPS does not intercept any registered contaminated sites.

4.3 Biological Environment

4.3.1 Fauna

The following descriptions of the fauna in the project area are based upon investigations undertaken for the Consultative Environment Review study (which was submitted to EPA for assessment in 1993). The fauna investigations were completed by Dames and Moore and comprised literature searches, aerial photo interpretation and field surveys. (Dames and Moore 1993).

No rare fauna was observed or recorded along the routes of the gas pipeline or transmission line during the field survey by Dames & Moore. (Dames and Moore 1993).

Protected fauna that could be present in the project area include the Pebble-mound Mouse (*Pseudomys chapmani;* DBCA Priority 4), the Bilby (*Macrotis lagotis;* EPBC Vulnerable), the Grey Falcon (*Fako hypoleucos;* BC Act VUL, EPBC Act VUL), Pilbara Olive Python (*Liasis olivaceus barroni;* BC Act VUL, EPBC Act VUL) and the Peregrine Falcon (*Falco peregrinus,* BC OS) (Dames and Moore 1993).

4.3.2 Flora

The PPS does not traverse any Environmentally Sensitive Areas, as declared under section 51B of the *Environment Protection Act 1986*.

The primary cover of the Roebourne subregion is grass savannah including hummocks of soft Spinifex, *Triodia pungens*, interspersed with Acacia forests and woodlands (Australian Natural Resources Atlas, 2007). Shallow depressions have denser taller grass cover and there are claypans with sparse cover and extensive bare areas.

There are also patches of Snakewood Bush *(Acacia xiphophylla)* and larger areas of Spinifex, especially tree and shrub-steppe, near creeks and rivers, on gravelly soil and calcrete, on footslopes of hills and on sand. Kanji *(Acacia inaequilatera)* is the principal shrub or small tree in the steppe (Pilbara Energy Limited 1993).

In proximity to the ephemeral creeks and rivers, there is enough water for river red gums, coolabahs, carieputs, shrubs and smaller species of Eucalyptus, Acacia and Melaleuca, which occurs in riverine woodlands, forests and thickets (Pilbara Energy Limited, 1993). Mangals, samphires and Sporobolus grasses occur along the coastline and at river deltas (Australian Natural Resources Atlas, 2007).

Generally, the vegetation can be summarised into five communities:

1. **Drainage lines:** *Corymbia hamersleyana* low open woodland over *Acacia* shrubland over *Eriachne benthamii* and *Eulalia aurea* tussock grassland.
2. **Low hill:** *Corymbia hamersleyana* low scattered trees over *Acacia maitlandii* and *Acacia ancistrocarpa* high open shrubland over *Triodia* hummock grassland.
3. **Low rise:** Tall *Acacia arida* shrubland scattered over low mixed *Acacia* shrubland over *Triodia* hummock grasslands.
4. **Grassland:** **Cenchrus ciliaris*, *Chrysopogon fallax* and *Eragrostis xerophila* tussock grassland.
5. **Undulating plain:** General characteristics: *Acacia inaequilatera*, *A. bivenosa* and *A. stellaticeps* shrubland over *Triodia wiseana* and *T. epactia* hummock grassland.

A search of Naturemap (2018) (buffer of 0.1 km) identified one Priority flora species located in proximity to the PPS, Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479) (Priority 3).

4.3.3 Weeds

The weed species that have been identified on, or in the surrounding areas of the PPS are listed in Table 7 below:-

Table 7 Weeds in close proximity to the PPS

Species Name	Common name
Cenchrus ciliaris	Buffel grass
Cenchrus setiger	Birdwood grass
Rumex vesicarius	Ruby dock
Aerva javanica	Kapok bush
Passiflora foetida	Stinking passion flower
Euphorbia hirta	Asthma plant
Malvastrum americanum	Spiked malvastrum
Solanum nigrum	Black berry nightshade
Stylosanthes hamata	Verano stylo
Cenchrus setaceus	Fountain grass
Cenchrus echinatus	Burrgrass
Chloris barbata	Purpletop chloris
Bidens bipinnata	Bipinnate beggartick
Portulaca oleracea	Purslane
Vachellia farnesiana	Mimosa Bush

Source (DEC 2006, ENV 2009, Epic Energy 2003, DEWHA 2009b)

Mesquite is a common name for several plants in the genus *Prosopis*, which contains over 40 species of small leguminous trees. The largest infestation of Mesquite is located at Mardie Station to the south-west of the PEPL (CSIRO 2007). This species has not been recorded along the pipeline route over the past five years.

In 2021, APA engaged a third-party Botanist to conduct a desktop review of weeds likely to occur within the APA assets in the Port Hedland and Karratha region. Mexican Poppy (*Argemone mexicana*) and Thornapples (Datura sp.) were the only declared weeds assessed as having a high likelihood of occurring in the abovementioned management regions.

4.3.4 Disease

Phytophthora Dieback is not an issue in the Pilbara region (CALM 1994). This is due to the mean annual rainfall ranging between only 250 mm and 320 mm per annum. There is also a lack of susceptible vegetation required by *Phytophthora cinnamomi* along the pipeline route.

4.4 Social Environment

4.4.1 Heritage

Aboriginal heritage surveys of the PEPL, KGL and HBI were completed prior to construction (McDonald, E, 1994, Villiers, Linda, Warren, Louis.).

A search of the Department of Planning, Lands and Heritage Aboriginal Cultural Heritage Inquiry System was conducted in April 2024. The PPS intersects the publicly available buffer/boundary of 30 registered sites and 11 lodged sites.

4.4.2 Socio-economic

KGL is located within the City of Karratha only; HBI and BGL are located in the City of Port Hedland only; and PEPL traverses both of the abovementioned Shires.

The nearest major towns to The Pipelines are:

- Karratha (approximately 2.3 km north of KGL);
- Port Hedland (approximately 8.07 km north-northeast of HBI); and
- South Hedland (approximately 5.71 km east of HBI).

Karratha has a population of 22,199 (ABS 2021). Port Hedland (including the satellite town of South Hedland) has a population of 15,684 (ABS 2021b).

The wider Pilbara region supports a number of industries, predominantly including mining and petroleum, pastoralism, commercial services, construction and manufacturing (DEWHA 2009a). The wider region is also used for nature conservation and indigenous uses, however the pipeline route was originally designed to avoid such ecologically and culturally sensitive areas. The majority of the land that the pipeline traverses between Port Hedland and the mine site is used for mining or pastoral activities in the form of extensive cattle grazing.

The PEPL intersects two reserves for the purpose of water supply pipeline. These reserves contain water supply pipelines and are managed by Water Corporation. Water Corporation is consulted with prior to any works within these reserves and are also consult with annually via the Landholder Program (Section 6.2).

5. Implementation Strategy

All works will be conducted in accordance with the APA Corporate Environment and Heritage Policy. It is the responsibility of the APA WA Manager Operations and Maintenance to ensure that APA Environment and Heritage policies and commitments are observed throughout all operational activities.

The APA Health, Safety, Environment and Heritage (HSEH) Management System is called 'Safeguard' (SG). SG provides a framework by which the processes relating to APA's HSEH activities are defined, implemented and controlled. Local business unit processes and procedures operating under SG management systems, provide further instruction to workers on performing activities.

SG is supported by a database, referred to as SG+. SG+ is used for functions such as incident reporting, auditing, action tracking and reporting.

The APA business tools and system used to manage and maintain all information relating to asset operations required for the implementation of management include:

- Maximo – Asset maintenance system (Work Order / Job Plan / Work Instruction)
- SG+ - Risk, actions, auditing and incident reporting system
- XIC – Landholder Contact Program, landholder information, access conditions, stakeholder consultation
- Learning Management System (LMS) – Training system used to capture APA staff information and learning materials
- SkillPASS – Contractor training, competency and accreditation system (under LMS)

SG defines the requirements for environmental management under APA's Environmental Corporate Framework. Procedures, forms and other guidance materials for environmental management is available to all personnel via APA intranet Empower.

One Environmental Risk Assessment workshop per management region was conducted to assess environmental risks associated with the operation of the assets. The Environmental Risk Assessment is conducted in accordance with APA's 'Risk Management System – Group Procedure' which "aligns with the principles in the international risk standard ISO 31000:2018 - Risk Management". A summary of the primary environmental hazards, control measures and mitigating factors identified for the Activity has been provided in Table 5.

Note: Table 5 is intended to be indicative of major hazards and controls only and is not comprehensive of all commitments made by APA in the EMP.

Table 5 Primary Operations Environmental Hazards and Controls / Mitigating Factors

Summary of risks and impacts	Control Measures and Mitigation Factors
Overarching	• Regular legislation reviews • Toolbox talks • Works Environmental Assessment Process • Environmental audits • Site inspection • Inductions • Environment Procedures
Aspect: Contamination Activity: storage, transport, handling, waste disposal Impact: Ground and water contamination	• Bunding and site inspected for leaks/spill during periodic site inspections • OSCP testing • Chemicals must be stored to avoid the risk of contamination • Reportable spills reported to relevant regulator verbally within two hours and via report within three days. • No refuelling or parking equipment within 100m of watercourse • Documented mobile plant pre-start checks completed before mobilisation • Regular documented LV pre-start checks completed • Drip trays used when refuelling on ROW • Licenced controlled waste carrier engaged for all controlled waste transport on public roads • Capture in place to cover ground during coating • Spill kit inspections conducted in accordance with Maximo regime • Spill response equipment appropriate to the type and amount of chemical must be available at point of use or transport • Vessel inspection in accordance with APA pressure vessel inspection regime and concrete tank inspection regime • Level indicator calibration in accordance with calibration regime • Visual inspections of MB oily water separator system conducted in accordance with Maximo regime • MB oily water separator system water level maintained • WBH vessel inspection in accordance with APA pressure vessel inspection regime • Cathodic Protect of belowground steel lubrication oil lines in accordance with CP schedule (Maximo)
Aspect: Waste Activity: controlled, general, hydrocarbon, dangerous goods, NORM waste storage, handling, transport and disposal Impact: Ground contamination, unauthorised discharge or	• Licenced controlled waste carrier engaged for all controlled waste transport on public roads. Tracking receipts retained for seven years • Abrasive blasting activities not to occur within close proximity to watercourses without sufficient capture in place • Spent garnet is wrapped up and disposed of in hydrocarbon bin for Class III landfill disposal • Pigging waste screened for radioactivity to determine waste stream • Identify/label as NORM contaminated waste • Arrange for APA approved (licensed) NORM waste contractor for management/ disposal • Designated temporary concrete wash-down bay set up to contain liquid waste where significant volumes of concreting and equipment wash-down is required • Concrete wash-down and waste shall be captured, tested and disposed of in accordance with Landfill Waste Classification and Waste Definitions 1996 • Concrete tanker utilised wherever possible to minimise mixing of concrete on site • Bags of dry concrete to be stored in a designated, dry undercover area

Summary of risks and impacts	Control Measures and Mitigation Factors
community nuisance	• Waste shall be segregated into applicable waste streams • Waste shall be stored in a labelled designated waste storage area and in a manner to prevent nuisance (general waste lidded, regulated liquid waste bunded) • Waste to be removed from site and disposed of at a licensed landfill facility • Project works only: liquid overflow alarms fitted to temporary ablution facilities • No equipment to be stored on top of septic leach drains
Aspect: Heritage Activity: Driving, vegetation clearing, excavation Impact: unauthorised impact to heritage	• Mulcher with GIS capabilities (geofencing or similar) or heritage boundaries flagged prior to clearing near heritage areas • Knowledge Holders contacted prior to any ground disturbing works inside heritage areas • Works Environmental Assessment Form completed prior to clearing or excavation • Spotter/guide engaged during LOS clearing • If heritage values or suspected human remains are unexpectedly discovered, or suspected to exist in the activity area, the activity must immediately cease in the vicinity (10m from extent) of the heritage discovery and be reported as per current APA HSE GP 07.01 Incident Reporting
Aspect: Native Vegetation Activity: driving, vegetation clearing, excavation, weed spraying, CS operation Impact: Loss of biodiversity, fire	• Spotter/guide engaged during LOS clearing • Fire response equipment inspections in accordance with Maximo regime • Fire awareness to be reinforced during toolbox meeting • Works Environmental Assessment Form completed prior to clearing or excavation • Vehicles travelling on easement must have a fire extinguisher
Aspect: PWD Activity: Driving, vegetation clearing, excavation Impact: Introduction of new and /or spread of PWD	• APA vehicle washdowns bay maintained in good working order • All vehicle washdowns recorded in Washdown Register or similar • Vehicles and equipment kept clean and free of weeds and seeds • Clearing and excavation: equipment clean upon arrival
Aspect: Fauna Activity: Driving, vegetation clearing, excavation Impact: Negative or unauthorised impact to biodiversity	• Ramps for excavations left overnight • Fauna inspections undertaken in excavations and trenches that are left open overnight prior to work commencing • Works Environmental Assessment Form completed prior to clearing or excavation
Aspect: Gas, Light and Dust Activity: controlled and uncontrolled gas release, rupture	• NGER reporting in accordance with *National Greenhouse and Energy Reporting Act 2007* • NGI reporting in accordance with Environmental Protection (NEPM-NPI) Regulations 1998 • ERP is triggered for significant unplanned gas emission incidents • Site personnel are trained in the ERP

Summary of risks and impacts	Control Measures and Mitigation Factors
Impact: Contribution to global warming	
Aspect: Noise, Vibration, Amenity Activity: project works near sensitive noise receptors, facility operation Impact: Stakeholder nuisance	• Fire response equipment inspections in accordance with Maximo regime • Fire awareness to be reinforced during toolbox meeting • Works near noise sensitive receptors shall only be conducted between 0700 hours and 1900 hours (excluding emergency works) • Works near sensitive noise receptors shall not be conducted on Sunday or Public Holidays (excluding emergency works)
Aspect: Soil and Watercourse Activity: Excavation, dewatering/discharge, vegetation clearing Impact: acidification, erosion, unauthorised dewatering, unauthorised impact to beds and banks	• Where ASS/PASS cannot be avoided, APA will manage in-line with DWER treatment and management of soil and water in acid sulphate landscape guidelines • ASS desktop assessment completed prior to excavations • Topsoil must be stripped and stockpiled prior to, or at the commencement of, land disturbance activities • Vegetation/mulch to be respread following reinstatement • Easement patrols completed in accordance with maintenance regime (Maximo) • Dewatering conducted inline with DWER Water Quality Protection Note 13 • No disturbance to watercourse without Permit to Interfere with Beds and Banks • No discharge to watercourse permitted • Works Environmental Assessment Form completed prior to excavation and dewatering

6. Stakeholder Consultation

Stakeholders are identified by looking at the underlying land parcel and other layers of tenure or constraints intersecting each parcel. Stakeholder consultation is managed in the APA X-Info Connect database, maintained by the Infrastructure Protection Team. X-Info stores all contact details, communications, land parcel details, APA access, risk level of each parcel, requirements for access and any documentation associated with the parcel. APA completes annual updates of the parcel information stored in X-Info. X-Info is used in conjunction with ARGO (Assets, Resources and GIS Online) to show the geometry for each parcel.

The main form of planned ongoing stakeholder consultation for APA pipelines is via the Third-Party Awareness Program (TPA) and the Landholder Contact Program (LCP) to achieve compliance with AS2885. Consultation is also done on an ad hoc basis for maintenance programs. Table 6 below shows the main forms of consultation that APA performs.

Table 6 Consultation Programs

Program	Communication Methods / Materials	Frequency
TPA	• Face to face meetings • Letters • Emails • Phone calls • Promotional materials • Multimedia materials • Presentations	The program is run on an annual basis. The frequency of each group will be determined through the AS2885 safety management study, with high-risk groups contacted annually.
LCP – Rural / Remote	• Face to face meetings • Letters • Emails • Phone calls • Promotional materials	Annual contact as a minimum, however maybe more frequent if determined through the AS2885 safety management study.
Routine Works	• Letters • Emails • Phone calls	Ad hoc basis
Third Party Works	• Face to face meetings • Letters • Emails • Phone calls • Risk assessments • Permits / Approvals	Ad hoc basis
Emergency works	• Emails • Phone calls	Ad hoc basis

The following stakeholders have been identified as having an interest in PPS operation:

- Karratha Station Owner (Hamersley Iron Pty Ltd)
- Water supply pipeline (Water Corporation)
- Rail, road and unallocated crown land (DPLH)
- Mt Welcome Station Owner (Mt Welcome Pastoral Co Pty Ltd)
- Mine road and railway (Mitsui Iron Ore Development Pty Ltd, Nippon Steel & Sumikin Resources Australia Pty Ltd)
- Warambie Station (Warambie Pasteral Pty Ltd)

- De Grey-Mullewa Stock Route (DPLH)
- Sherlock Station Owner (Bettini Pasterol Pty Ltd)
- Mallina Station Owner (Bettini Pasterol Pty Ltd)
- Mundabullangana Station Owner (Four Seasons Corporation Pty Ltd)
- Yule River Water Reserve (Water Corporation and DWER)
- Boodarie Station Owner (BHP Billiton Direct Reduced Iron Pty Ltd)
- Port Hedland Power Station (Regional Power Corporation)
- Aboriginal Knowledge Holders

6.1 Third Party Awareness Program

The TPA is used to contact relevant industry, local government and utilities. The types of consultation for the TPA is in the form of meetings, emails, materials (i.e. toolbox, engagement letters, emails, calendar), multimedia (i.e. CodeSafe and e-learning), personal (i.e. meeting, face to face group presentations, conference or industry group presentation) and promotion (i.e. advertising, text message or email message, industry event, social media post). The TPA is used for providing these stakeholders with the location of the pipeline, safety and emergency requirements and APA contact if they propose to do any works in the vicinity of the pipelines. Response from recipients is not mandatory.

6.2 Landholder Program

The LCP alerts landowners to the pipeline location, safety and emergency requirements, ongoing landholder contact processes and details during APA operations. Landholders are visited annually each financial year as part of the LCP.

For rural or remote landholders, contact will be made via phone / email prior to APA travelling to them. There will be at least three attempts to contact the landholder to arrange a visit. If a face-to-face meeting is not desired by the landholder, the meeting will be conducted via phone. Records stored in X-Info.

LCP also conducts annual notification and APA branded promotional materials. APA does not require a response from the LCP recipients. The notifications are letter form.

6.3 Routine Maintenance Works

Ad hoc consultation to notify landholders of routine works that will be carried out. APA endeavours to provide advanced notice of easement works to landholders and affected stakeholders. This is via letter or email. The notifications will outline the type, duration, date works are scheduled, APA's right of access and APA contact information. If the landholder has particular access requirements, they will also be reiterated on the notification.

Responses to these communications are not required by APA due to APA's right of access.

6.4 Third Party Works

Third party works are when an external party contacts APA as they have a project that will impact an APA pipeline. These can be activities that involve excavations, vertical and horizontal boring / drilling or installation of power lines. It may also be a connection into the APA pipeline. Third party works cannot proceed until APA has completed the necessary protection works.

The main communications to the impacted stakeholders will include description, date and duration of works. Government approvals may also be required for works, APA shall arrange approvals prior to works.

If responses are required by APA, this will be noted in the correspondence with an initial period of one month to reply. For individuals (freehold landowners), that don't reply, then APA will communicate again via the same method as well as others. If there is still no response, site visits will be made to attempt to make contact with the individual. The more time from the initial contact, the more frequent the ongoing contact is made.

For companies and government departments, when there is no reply, then alternative contacts will be used. If still no response, then the client may get involved until a determination is made. As above, the timing of the contact attempts shall become more frequent overtime.

There may be times where the client takes the lead for stakeholder consultation due to wider commitments, APA will still be a part of the process. These communications shall be recorded in X-Info.

6.5 Emergency Works

Emergency works are completed when the emergency response plan is enacted.

For the consultation during an emergency, the impacted stakeholders are contacted, usually via phone with a follow up email, however APA doesn't always wait for a response. At the end of emergencies, there will be a closeout notification with the impacted parties.

6.6 Other Consultation

Table 7 shows additional ad hoc consultation as part of the ongoing stakeholder consultation outside the abovementioned programs for the PPS.

A summary of ongoing stakeholder consultation undertaken by APA is provided in Table 7.

Table 7 Stakeholder Consultation

Stakeholder	Detail
DMPE	Updates to OEMP Changes to activity Reporting Clearing referrals/permit applications
DWER	Permits/approvals/licences Controlled waste transport / contaminated sites
DPLH	Regulation 10 approvals
DPIRD	Report declared weeds
Clean Energy Regulator	NGER reporting
DCCEEW	NPI reporting
Local Knowledge Holder	Contacted prior to conducting ground disturbance works in registered and other sites
WARC	Licensing of APA facilities to temporarily store NORM waste

Stakeholders who manage sensitive environments intersected by the assets listed in Table 1 were consulted with during the five-yearly renewal. This included Knowledge Holders and Water Corporation (Yule River Water Reserve).

During the five-yearly EMP renewal stakeholder consultation program, if no response was received by the due date, APA will call or email the stakeholder to confirm they received the correspondence.

Please refer to Table 8 for the consultation undertaken during the five yearly OEMP review completed during 2024.

Table 8 Stakeholder Consultation for Five Yearly Renewal

Stakeholder	Method	Detail	Date
Kariyarra AC	Phone	Phoned Kariyarra administration to confirm email address.	09/04/24
	Email	APA to Kariyarra AC: "APA owns the Pilbara Gas Pipeline which intersects the Kariyarra AC region. Kariyarra AC has been identified as a stakeholder in relation to cultural heritage matters which may arise during operations. As such, we would like to notify you that pipeline Environment Management Plan is currently undergoing it's five yearly renewal. Please find attached letter and Plan Summary. Should you have any comments, please return them by 07 May 2024."	09/04/24
	Phone	Called twice (in morning and afternoon) with intent to inform them verbally that consultation closes tomorrow. No answer and no option to leave voicemail.	20/05/24
	Email	APA to Kariyarra. "Please note, consultation for the Pilbara Gas Pipeline Environment Plan 5 yearly renewal closes tomorrow. Please get any comments through by close of business tomorrow."	20/05/24
Ngarluma AC	Phone	Phoned Ngarluma administration to confirm email address.	07/04/24
	Email	APA to Ngarluma AC: "APA owns the Pilbara Gas Pipeline which intersects the Ngarluma AC region. Ngarluma AC has been identified as a stakeholder in relation to cultural heritage matters which may arise during operations. As such, we would like to notify you that pipeline Environment Management Plan is currently undergoing it's five yearly renewal. Please find attached letter and Plan Summary. Should you have any comments, please return them by 07 May 2024."	07/04/24
	Phone	APA called Ngarluma administration. Notified them that consultation period closes tomorrow and to get comments through by cob tomorrow. Administration told us that there has been a restructure and to resend the message and cc CEO.	22/05/24
	Email	APA to Ngarluma. Resent the letter and EP Summary. To Administration and CEO. Titled: "Comment period closes tomorrow".	22/05/24
DPLH	Email	Note: DPLH was consulted for GGP re stock route intersection. Correspondence and direction also related to PEPL intersection. Sent GGP OEMP to hcwareferrals@dplh.wa.gov.au. Provided 30-day review period.	24/10/23
	Email	Heritage Support Officer confirmed OEMP received, referral number P5113-50993. Please be advised that heritage advice is generally provided within 42 days. However, there may be a delay in our response due to our current workload.	24/10/23

	Email	DPLH Senior Heritage Officer to APA: Could you please confirm there are no works currently being proposed on the pipeline intersecting De Grey - Mullewa Stock Route No. 9701?	25/10/23
	Email	APA to DPLH Senior Heritage Officer: "There are no works currently proposed. However, during operations, the following activities are occasionally conducted, as required: •occasional pipeline repairs which involve small excavation (3m x 3m); and •occasional mulching/trimming of vegetation regrowth within 3m of the pipeline where regrowth is blocking the pipeline safety markers/signage. The abovementioned works is always within the previously disturbed boundaries (e.g. the area which was disturbed/trenched during pipeline construction). If there are any approvals/notification requirements for the abovementioned works, let us know and we will put it in the EMP.	25/10/23
	Email	Thank you for the clarification. In regards to mulching/clearing you would not require approvals unless it was for major landscaping works. For repairs involving excavation we would need require notification and would likely need to assess the works prior to commencement. Could please amend your EMP document to include the above.	27/10/24
DWER	Email	APA to DWER (northwest.landuse@dwer.wa.gov.au). "Hi, Thank you for your time on the phone this morning. APA owns the Pilbara Energy Gas Pipeline which intersects the Yule River Water Reserve. The pipeline is regulated DEMIRS. The pipeline Environment Management Plan is undergoing it's 5 yearly renewal. DWER has been identified as a stakeholder re the Yule River Water Reserve. Please find attached the pipeline Environment Management Plan Public Summary for your comment. APA's key controls: •Yule River Water Reserve only: Avoid refuelling within reserve •Yule River Water Reserve: Avoid long term parking of heavy vehicles or equipment in reserve •Yule River Water Reserve: DWER to be notified prior to ground-disturbing activities within the reserve Please return comments by 30 Jul 2024."	09/07/24
	Email	DWER Program Manager North West Planning Advice to APA:	10/07/24

		"Thanks for getting in touch. I was wondering if your 5 yearly renewal process involves submission to DEMIRS for approval? DWER has an administration agreement with DEMIRS and if you have submitted to DEMIRS I would expect them to refer this on to us with a request for advice due to the presence of the Yule Water Reserve. As DEMIRS are the primary regulatory authority we would normally provide advice to them. If not then happy to provide some advice direct to you, although we may struggle with the deadline of 30 July. Happy to discuss."	
	Email	APA to DWER: "Thank you for the feedback. Yes- this EMP revision is submitted and approved by DEMIRS."	10/07/24
Water Corporation	Email	APA Environment Business Partner to Water Corporation Team Leader Property Portfolio: Request to confirm whether Reserve 36991 and 33015 contains a water pipeline.	19/01/26
	Email	Water Corporation Team Leader Property Portfolio to APA Environment Business Partner: Notified that any requirement to enter or cross over this reserve must ensure that we are consulted fully prior to any works being undertaken by APA. Notified that Reserve 33015 falls within a P1 drinking water source area which has stringent regulations as imposed by DWER and as such we would also need to notify our Water Source Protection Team should there be any impacts within this area. Requested the exact location where the pipeline gas pipeline intersects, so they can provide advice regarding water pipeline location.	27/01/26
	Email	APA Business Partner to Water Corporation Team Leader Property Portfolio: Our Corridor Integrity team has updated the access conditions on the below-mentioned three land parcels to include Water Corporation notification prior to access. Attached are maps of where APA's pipeline easements intersect the below-mentioned three land parcels. Are you please able to confirm whether any water pipelines intersect the gas pipeline easement.	20/03/26
	Email	Water Corporation Team Leader Property Portfolio to APA Environment Business Partner: Confirmed location of water pipelines.	07/04/26

7. APA Contact Details

For further queries regarding the Activity please contact the WA APA Environment & Heritage Team on (08) 6189 4300 or via the APA Website https://www.apa.com.au/contact/.

8. References

- Australian Bureau of Statistics (ABS) (2021). Data by Region: Karratha. Available at: https://abs.gov.au/census/find-census-data/quickstats/2021/LGA54310 (accessed 04/04/2024)
- Australian Bureau of Statistics (ABS) (2021b). Data by Region: Port Hedland. Available at: https://abs.gov.au/census/find-census-data/quickstats/2021/LGA57280 (accessed 04/04/2024)
- Australian Natural Resources Atlas (2007) Biodiversity and Vegetation – Pilbara. Available at: http://www.anra.gov.au/topics/vegetation/extent/wa/ibra-pilbara.html Accessed 17 April 2008
- Beard, J.S. (1976) Vegetation Survey of Western Australia, Pilbara 1 : 1 000 000 Vegetation Series. Explanatory Notes to Sheet 5, UWA Press, Perth
- Bureau of Mereology, accessed August 2018 [http://www.bom.gov.au/climate/averages/tables/cw_004032.shtml]
- Burrup Nitrates Pty Ltd (2008) Proposed Technical Ammonium Nitrate Facility: Referral of a Project to the EPA, Perth Western Australia

  CALM (2004) Best Practice Guidelines for the Management of Phytophthora Cinnamomi, Government of Western Australia.
- CSIRO (2009) Acid Sulphate Soils, Australian Government. Accessed online 27 April 2012: http://www.clw.csiro.au/acidsulfatesoils/
- DBNGP (2009) DBNGP Stage 5B BEP Interconnect Feasibility Study Report, Perth, Western Australia
- DEC (2006) Proposed Burrup Peninsula Conservation Estate: Draft Management Plan 2006 – 2016, Kensington, Western Australia
- DEC (2006) Proposed Burrup Peninsula Conservation Estate: Draft Management Plan 2006 – 2016, Kensington, Western Australia
- Department of the Environment, Water, Heritage and the Arts. (2009a). Australian Natural Resources Atlas: Natural Resource Topis: Rangelands Overview. Available at: http://www.anra.gov.au/topics/rangelands/overview/wa/ibra-pil.html Accessed: 25 August 2009.
- Department of the Environment, Water, Heritage and the Arts. (2009b). Environmental Reporting Tool. Accessible at: http://www.environment.gov.au/erin/ert/index.html. Accessed: 25 August 2009.
- DEWHA (2009b) Environmental Reporting Tool. Accessible at: http://www.environment.gov.au/erin/ert/index.html. Last Accessed: 25 August 2009.
- ENV Pty Ltd (2009) Karratha Lateral Gas Pipeline Flora and Fauna Assessment, unpublished report prepared for WorleyParsons Services Pty Ltd.
- Epic Energy (2003) Bioregion Description: Dampier to Bunbury Natural Gas Pipeline. Prepared by Ecos Consulting on behalf of Epic Energy. Perth, Western Australia.
- McDonald, E (1994) Report of an Aboriginal Heritage Survey Proposed Karratha-South Hedland Gas Pipeline and Power Station Site. Jan. 1994.
- NatureMap (2018). NatureMap Species Report [generated: 11/12/2018].
- Pilbara Energy Limited. (1993). Pilbara Energy Project: Consultative Environmental Review. Prepared by Dames and Moore on behalf of Pilbara Energy Limited, Perth, Western Australia

- Pilbara Energy Limited. (1993). Pilbara Energy Project: Consultative Environmental Review. Prepared by Dames and Moore on behalf of Pilbara Energy Limited, Perth, Western Australia
- Villiers, Linda. An Archaeological and Ethnographic Survey of the Proposed Gas Pipeline Route at Karratha Road, Karratha, Western Australia
- Warren, Louis. Final Archaeological Survey of a Number of Facility Locations for a Proposed Hbi Plant Near Port Hedland
- Woodman Environmental (2001). Wodgina Lateral Pipeline Flora, Vegetation and Fauna Assessment. Prepared for Epic Energy.
- Woodman Environmental (2001). Wodgina Lateral Pipeline Flora, Vegetation and Fauna Assessment. Prepared for Epic Energy.