Health, Safety and Environment Management System

Environment Plan Summary

WGL.2373-RP-HSE-0002

WODGINA GAS PIPELINE & CAPE PRESTON PIPELINE OPERATIONS ENVIRONMENT PLAN SUMMARY

APA safeguard

Version Control and Authorisation					
Rev	**Date**	**Status**	**Originated/ Custodian**	**Checked**	**Approved**
A	03/12/2013	WGL: Issued for internal review and comment	B. Jayatilaka APA Environment Officer	-	S. Wareing APA, Team Leader Pt Hedland
0	12/12/2013	WGL: Issued for Use	B. Jayatilaka APA Environment Officer	-	S. Wareing APA, Team Leader Pt Hedland
A	20/01/2014	CPP: Issued for internal review and comment	B. Jayatilaka (Environment Officer)	-	E Mott (Field Services Manager - Pilbara)
0	22/01/2014	CPP: Issued for Use	B. Jayatilaka (Environment Officer)	-	E Mott (Field Services Manager - Pilbara)
1	22 May 2018	Five yearly update, new template and document number (formerly WGL-EMP-2969 and CPP-EMP-3010	M. Morel	B. Jayatilaka	A. Rawlinson
			Environment Advisor	Environment Advisor	Environment Manager
2	6 June 2018	Updated with DMIRS comments	M. Morel	B. Jayatilaka	A. Rawlinson
			Environment Advisor	Environment Advisor	Environment Manager
					

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1. Executive Summary

The Wodgina Gas Lateral (WGL) and Cape Preston Pipeline (CPP) Operations Environment Plan (EP) pipelines and licences are presented in Table 1.

Table 1 Pipeline Licences

Licence	Pipeline	Licensee	Nominated Operator
PL 55, 56	Wodgina Gas Lateral (WGL)	Wodgina Lithium Pty Ltd	APT Goldfields Pty Ltd
PL 77	Cape Preston Pipeline (CPP)	CPMM (Sino Pacific)	APT Goldfields Pty Ltd

The CPP and WGL are owned by CPMM (Sino Pacific) and Wodgina Lithium Pty Ltd, respectively, and both pipelines are operated by APA Group (APA). The WGL begins at an offtake on the Pilbara Energy Pipeline (PEPL) at kilometre point (KP) 181.5, approximately 40 km south west of Port Hedland. It then extends in a south easterly direction for approximately 80 km to the Wodgina mine site. The CPP is located within Miscellaneous Licence (ML) L008/20. The facility area covered by this EP comprises the pipeline corridor, various facilities as well as communication systems from the CPP offtake facility on the Dampier to Bunbury Natural Gas Pipeline (DBNGP) to the CPP delivery station at the Cape Preston Power Station.

Environmental aspects associated with pipeline operational activities have been risk assessed and specific measures identified to ensure that the potential environmental impacts are mitigated to as low as reasonably practicable (ALARP). The overall objective of this EP is to minimise impacts to the environment and social values as a result of operation and maintenance of the pipeline.

Environmental aspects have been identified with reference to industry codes, standards and other guidelines. A summary of key environmental aspects identified for the operation of the pipeline includes, but is not limited to:

- Waste management
- Hydrocarbon emissions
- Chemical transport, storage and handling
- Soil erosion
- Weed and disease management
- General disturbance to surrounding landholders and agricultural use.

The pipeline is primarily located within previously disturbed agricultural land which has been largely cleared of native vegetation for pastoral use. The pipeline does not traverse any nature reserves or Environmentally Sensitive Areas (ESAs).

2. Introduction

This Operations Environment Plan (OEP) Summary provides an overview of the environmental management requirements for the operation of the WGL and CPP.

2.1 Purpose and Scope

The purpose of this OEP summary is to provide information to the general public regarding environmental considerations and management requirements.

The scope of this OEP Summary is limited to operational works associated with the pipeline.

2.2 Objectives

The overall environmental objectives of the OEP are to:

- Minimise environmental impacts resulting from pipeline operations
- Mitigate all identified environmental risks to a level that is As Low As Reasonably Practicable (ALARP)
- Comply with all relevant legal and regulatory environmental requirements

- Minimise disturbance to surrounding landholders.

2.3 Corporate Environmental Policy

APA is committed to responsible environmental management and believes that all environmental aspects associated with the operation of the WGL can be effectively managed. In addition, APA is committed to reducing all environmental risks subsequent to site based operational activities to ALARP.

All works will be conducted in accordance with the APA Corporate Health Safety and Environment (HSE) Policy.

All contractors and sub-contractors must comply with the OEP. This requirement is specifically addressed within contractual arrangements. Regardless of this, APA takes full responsibility for the application and administration of the OEP at all times.

2.4 Definitions

Table 2: Definitions

AHIS	Aboriginal Heritage Information System	GGP	Goldfields Gas Pipeline
ALARP	As Low as Reasonably Practicable	HAZOP	Hazard and Operability Study
APA	APA Group	HSE	Health Safety and Environment
DAA	Department of Aboriginal Affairs	IOC	Integrated Operations Centre
DBCA	Department of Biodiversity Conservation and Attractions	JHA	Job Hazard Analysis
DBNGP	Dampier to Bunbury Natural Gas Pipeline	MLV	Main Line Valve
DG	Dangerous Good	OEP	Operations Environment Plan
DMIRS	Department of Mines, Industry Regulations and Safety	OSCP	Oil Spill Contingency Plan
DPIRD	Department of Primary Industries and Regional Development	PDWA	Public Drinking Water Area
DPLH	Department of Planning, Lands and Heritage	PL	Pipeline Licence
DWER	Department of Water and Environmental Regulation	PTW	Permit to Work
EP	Environment Plan	SDS	Safety Data Sheet
ERA	Environmental Risk Assessment	SWMS	Safe Work Method Statement
ERP	Emergency Response Plan	TPC	Third Party Contractor
ESA	Environmentally Sensitive Area	WQPN	Water Quality Protection Note

3. Facility Area and Activity Description

The construction of the 13.3 km long CPP was completed in 2008. The pipeline commences at the DBNGP Main Line Valve (MLV) 9, terminating at a delivery station adjacent the Cape Preston Power Station (Figure 1). The CPP is located within a ML 008/20, situated entirely within the Mardie pastoral lease (retained by Pastoral Management Pty Ltd, a wholly owned subsidiary of CITIC Pacific Ltd). Access for pipeline maintenance and operations is provided through the licence. The pipeline is also located within a Pipeline Licence (PL 77). Temporary access or work areas outside the easement require landholder consent and appropriate regulatory approvals.

The facility area covered by the EP comprises the pipeline corridor, various facilities as well as communication systems from the CPP offtake facility on the DBNGP to the CPP delivery

station at the Cape Preston Power Station. Note that this does not include the entire ML 008/20 area; part of which is intended for use by additional infrastructure.

Approximate geographic information system (GIS) latitude and longitude coordinates for the operational area of the CPP are as follows:

- CPP commencement point: -21.073737° 116.281382°
- CPP termination point: -21.079650° 116.160534°.

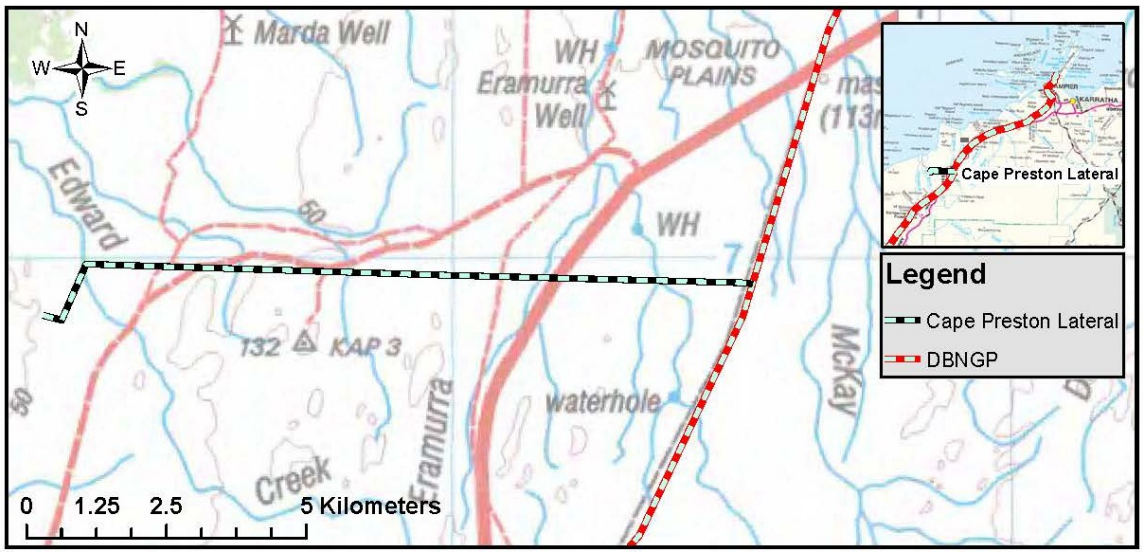

Figure 1 Cape Preston Pipeline Locality Map

The WGL Is located within two pipeline licences:

- PL56: 75 km pipeline which extends from PEPL pipeline (Launcher Station, WGL KP0) to the Wodgina mine site boundary (WGL KP 75.1).
- PL55: 5 km lateral which extends from the Wodgina mine site boundary to Wodgina Power Station. WGL KP75.1 (Wodgina Mine Site Boundary) to Wodgina Delivery Station (KP80.2).

The WGL facility area covered by this EP comprises the pipeline corridors, part of ML 45/108, various facilities such as metering stations and delivery stations, and communication systems. The pipeline traverses crown land, pastoral leases (Mundabullanga and Kangan Stations), properties with exploration and mining tenement and leases, road reserves and local roads. The pipeline easement and ML provides access to the pipeline for maintenance and operation. Temporary work areas outside the easement require landholder consent and appropriate regulatory approvals.

Approximate GIS latitude and longitude coordinates for the operational area of the WGL are as follows:

- WGL commencement point: -20.563160° 118.280772°
- WGL termination point: -21.173514° 118.675603°.

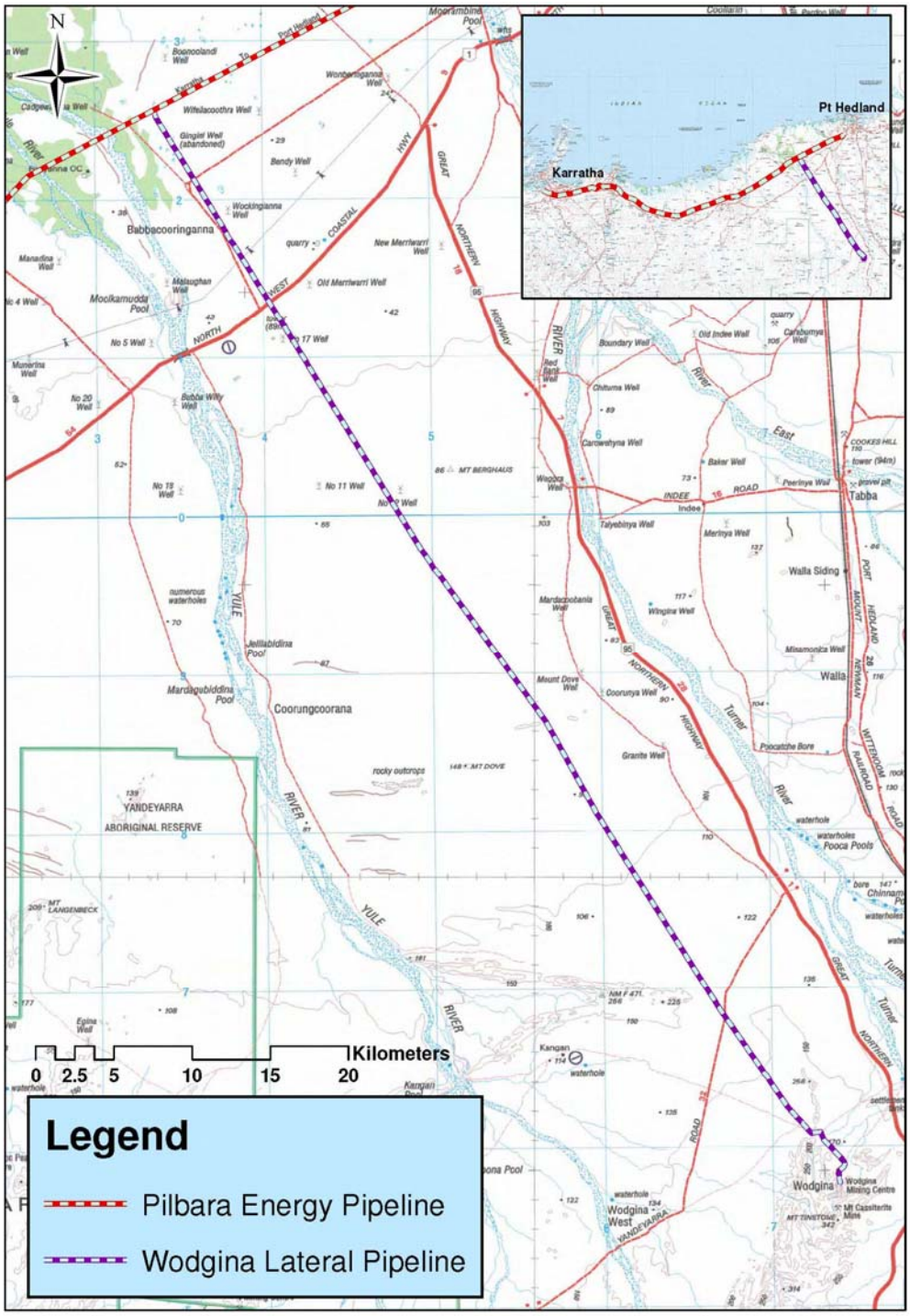

Figure 2 Wodgina Gas Lateral Locality Map

3.1 Pipeline Operations and Maintenance

The WGL is operated by the APA Pilbara Region Team from the Port Hedland Maintenance Base. The CPP is managed as part of the Pilbara Region and managed from the Karratha Maintenance Base.

Routine maintenance of the pipeline is undertaken as determined by the Field Services Manager, Team Leaders and plans which are implemented via a dedicated maintenance management system (MAXIMO). Specific pipeline operations and maintenance activities to which the OEP applies include:

- General equipment and facility maintenance
- Filter changes
- Cathodic protection surveys
- Pipeline excavation
- Venting
- Pipeline pigging
- Pipeline patrols
- Easement, facility and equipment inspections
- Breakdown and emergency response exercises.

3.1.1 General Equipment & Facility Maintenance

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

- Servicing and overhauls of machinery and equipment
- Equipment inspections and testing
- Monitoring
- Safety inspections and follow up
- Filter inspections and replacement
- General housekeeping (i.e. as per safety requirements and the EP).

The above activities involve various mechanical and electrical tasks which are undertaken by appropriately qualified personnel. Regular monitoring and safety inspections are also undertaken to identify unplanned maintenance requirements as they arise.

Filter inspections are undertaken at regular intervals and filters are replaced as required. Filter replacement involves filter removal, wash down with water and transfer to a secure container for transfer to appropriately licensed offsite disposal facilities. General housekeeping includes numerous tasks typically associated with health, safety and / or environmental management. Specific items may include general tidying / cleaning, waste management, maintenance of fire breaks, spraying of weeds and various other duties.

3.1.2 Cathodic Protection Surveys

Cathodic protection (CP) refers to the use of electrical current to protect steel pipework against corrosion. CP surveys are undertaken on a regular basis to monitor pipeline integrity and ensure the CP system itself remains functional. CP surveys involve accessing CP test points at approximately five kilometer intervals along the pipeline and connection to a meter which measures corrosion.

3.1.3 Pipeline Excavation

Pipeline excavations are undertaken periodically typically for pipeline repairs and crossing installations. Pipeline excavations are strictly controlled for safety reasons via risk assessment, work permits and procedures. The scale of excavations can vary from single defect dig-ups of a few metres, to trenching of more than a kilometre in length to access multiple defects in close proximity. Dewatering is sometimes required where the water table is present at less

than a few metres from the ground surface, however this is rare and if required will be managed as per the OEP.

3.1.4 Venting

Venting of gas from the pipelines is undertaken to purge pipelines and / or facilities for maintenance or emergency response purposes. Venting for maintenance purposes under normal operating pressure could typically release approximately 10 m^3 of gas. Quantities of vented gas are recorded by the APA Integrated Operations Center (IOC) and included in the quarterly emissions and discharges reporting to Department of Mines, Industry Regulation and Safety (DMIRS) Environment Branch.

3.1.5 Pigging

Pipeline pigging is undertaken for the purposes of either pipeline cleaning or integrity assessment (intelligent pigging). Intelligent pigging is completed in accordance with the requirements of AS2885.3 Section 6 – Pipeline Structural Integrity. Pigging programs involve thorough planning involving specialist Engineering, Operations and Safety personnel.

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 offsite disposal. Small amounts of general purpose grease and degreaser may be used during the pigging process which is managed as per the chemical requirements specified in the EP.

3.1.6 Right of Way (ROW) patrols

Pipeline Right of Way (ROW) vehicle patrols occur on a regular basis. 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
- Line of sight
- Presence of weeds
- Erosion, subsidence or stability issues
- Exposed pipe
- Condition of signage and aerial markers.

Aerial patrols are completed monthly and are undertaken through a contractor that records and reports any issues observed to APA for investigation and action. The contractors are required to follow the APA Aerial Surveillance Procedure.

4. Receiving Environment

The pipelines are located within the Pilbara bioregions, as described within the Interim Biogeographic Regionalisation for Australia (IBRA). Mean annual rainfall varies between 250 mm and 350 mm with the majority during the summer months (Tille 2006). Weather is characterised by two distinct seasons; the “wet” season (summer) between November and April and the “dry” season (winter) between May and October. Cyclonic weather conditions and associated heavy rainfall occurs periodically during the summer months (BoM 2009).

The CPP is located within the Fortescue Soil-Landscape Province of Tille (2006) which overlies the Pilbara Craton and generally aligns with the Pilbara IBRA. The Fortescue Province of Tille (2006) also coincides roughly with Fortescue botanical district of Beard (1990) and comprises an area of approximately 160,050 km^2 in the northern Pilbara Region of WA. The WGL lies within the Roebourne and Chichester IBRAs of the Pilbara, comprising part of the Eremean Botanical Province (DBNGP 2009). This region is characterised by Quaternary alluvial (river-eroded) and older colluvial (gravity-eroded) coastal and sub-coastal plains.

Topography of the region is characterised by rocky, hilly terrain to the west and stony floodplains to the east. These observations are confirmed by Tille (2006) describing the area as hills and ranges with stony plains and some alluvial floodplains. The CPP is located within the Harding Hills and Plains Zone of the Fortescue Soil-Landscape Province (Tille 2006). Geology of northern portion of the Fortescue Province is characterised by Archaean rocks of granite-greenstone terranes. The Harding Hills Plains Zone comprises sedimentary, granitic and volcanic rocks of the Pilbara Craton (Tille 2006).

Groundwater in the Pilbara region predominantly occurs in palaeovalley calcrete unconfined aquifers. Some groundwater is located in fractured rock aquifers where groundwater is stored in the fractures, joints, bedding planes and cavities of the rock mass; often this water is hypersaline (Magee 2009). Depth to groundwater varies in relation to topographical influences and proximity to recharge areas, however in nearly all areas a buffer of more than 10 m exists between the surface and groundwater (ANRA 2009). Considerable surface water and groundwater interaction occurs in the Pilbara; rivers contribute significantly to groundwater recharge, particularly on coastal plains.

The CPP traverses a small number of ephemeral Fortescue River tributaries. Most notable are the Edward and Eramura Creeks. The major river nearest is the Fortescue River, which discharges over coastal flats to the Indian Ocean. The Yule River Water Reserve and adjacent Water Reserve (33015) intersect the off WGL -take and PEPL as a two-parcel gun-shape. There are number of pipeline licence conditions that directly relate to this area and are included within the OEP.

The pipelines do not traverse any Environmentally Sensitive Areas (ESAs), Ramsar wetlands or wetlands of national significance.

5. Heritage

A heritage survey of the CPP was completed prior to pipeline construction. The survey identified a number of heritage areas within the licence boundary. This was confirmed through a search of the Department of Planning, Lands and Heritage (DPLH), formerly the Department of Aboriginal Affairs, Aboriginal Heritage Inquiry System (AHIS) in July 2013. During construction the sites were pegged and avoided by both the pipeline and pipeline access track. No further disruptions to these sites are anticipated as a result of pipeline operations.

AHIS search results confirmed two Aboriginal heritage sites are located along the WGL. Aboriginal groups identified as having an interest in the WGL include the Kariyarra People. Heritage surveys of the WGL easement were undertaken prior to construction of the pipelines. At this time the pipeline route was redirected to avoid areas of Aboriginal and European cultural significance identified during the heritage surveys.

Consultation with the DPLH has established that pipeline activities such as access through a site (excluding ground disturbing works or alike) does not constitute impact to heritage sites and therefore is unlikely to breach Section 17 of the *Aboriginal Heritage Act 1972*. This being the case, disruption to heritage areas and/or artefacts as a result of ongoing operational activities is not expected provided works do not extend beyond the previously disturbed easement boundary and vehicles remain within designated areas and access routes at all times. Should ground disturbing works be required, reference to the known DPLH AHIS database will be undertaken, and DPLH will be consulted as required. A cultural heritage management plan will be implemented if required.

6. Implementation Strategy

Implementation of the EP is via the APA Safeguard Environmental Management System and in compliance with the Petroleum Pipelines (Environment) Regulations 2012 requirements, including:

- communication of policies, objectives and roles and responsibilities
- inductions, training and competency of personnel
- monitoring, auditing, record keeping and reporting, including a dedicated hazard and incident reporting system
- management of non-conformances and corrective actions
- development, tracking and ongoing maintenance of documentation
- emergency preparedness and response
- toolbox talks.

A risk based approach has been adopted to manage potential threats to the environment as a result of pipeline operation. This process involved initial identification of environmental interactions (aspects) resulting from operational activities followed by an ERA workshop attended by personnel from a range of qualifications. The ERA process involved:

- assessment of environmental risks in terms of likelihood and consequence
- identification of mitigating factors and management measures to reduce environmental risks to ALARP
- risk ranking according to severity.

A summary of the primary environmental hazards, control measures and mitigating factors identified for the WGL and CPP has been provided in Table 3.

It is important to note that Table 3 is intended to be indicative of major hazards and controls only and is not comprehensive of all commitments made by APA in the OEP.

Table 3: Primary Operations Environmental Hazards and Controls / Mitigating Factors

Environmental Hazard	Control Measures and Mitigation Factors
All hazards	• HSE inductions communicating Environment requirements • Competent personnel – training and procedures / guidance materials provided • Hazard and incident reporting via APA hazard and incident database • Management, PTW*, maintenance and emergency response systems in place • Regular audits, inspections and other EP compliance checks • TPC* compliance with EP commitments via contractual requirements • JHAs* for tasks presenting specific environmental hazards • Strict controls on vehicles and access implemented via Operations Manuals • Reporting as per Regulatory requirements • Compliance with all relevant legislation and regulatory requirements
Air emissions	• HAZOP* undertaken specifically addressing uncontrolled gas release • Assets designed as per standards of the day (failure prevention) • Physical protection (i.e. cordoning and signage) of live pipework

Environmental Hazard	Control Measures and Mitigation Factors
Chemical use	<u>All</u> • Procedures for chemical use • Chemical register and SDS* maintained for all hazardous substances onsite <u>Storage & handling</u> • Storage of hazardous substances as per SDS and safety specifications • Storage receptacle sizes and types defined and controlled • Use of bunds and drip trays • Capacity of bunds sufficient to contain quantity of largest stored container • Minimise onsite chemical storage and use via off-site storage where possible <u>Transport</u> • Use of licensed contractors for (large quantities) DG* Transport • Strict access controls and maintenance of road condition • Double skinned tank on diesel transport vehicles <u>Spill prevention and response</u> • Spill response equipment available at site • ERP* and OSCP* to ensure adequate preparedness for spill response • Regular checks and maintenance of machinery, plant and equipment • Use of self bunded equipment where practicable <u>Chemical waste</u> • Chemical waste treated as per other chemicals for management purposes • Waste chemicals clearly marked and disposed of in accordance with regulations
Weed introduction and / or spread	• Vegetation clearing and earthworks limited where possible (disturbed areas prone to weed proliferation) • Strict hygiene measures for digging equipment and • Access and vehicle controls imposed; as per existing roads and tracks • Weed identification information available to personnel • Timely response to declared weed occurrences as per DBCA* recommendations
Disturbance to local vegetation (both native and other desirable plants i.e. feedstock)	• Native vegetation clearing limited and in compliance with WA Environmental Protection (Native vegetation Clearing) Regulations 2004 • Vegetative material from clearing retained for use during site remediation • Disturbed (by APA) areas to be remediated as follows: - Stockpiled topsoils re-spread evenly to a maximum depth of approximately 10 cm - Surfaces reprofiled and scarified to assist seed and water trapping - Stockpiled vegetative material spread over topsoils to aid vegetation re-establishment
Soil erosion	• Strict controls on vehicles and access imposed • Topsoil removal limited and controlled • Topsoils removed for construction reused during post construction remediation • Topsoil stockpiles maintained to minimise erosion • Remediation of disturbed areas as described above

Environmental Hazard	Control Measures and Mitigation Factors
Ignition source for Fire	• Fire response equipment maintained at site and in vehicles and machinery • Operations sites maintained to minimise fuel availability and fire risk • Localised fire emergency response covered in ERP • Emergency contact details available to all operations personnel • Dedicated containers for chemicals classed as flammable • Smoking within designated areas only • Fire awareness to be reinforced at toolbox meetings
Waste Generation (excluding chemicals – see above)	• All wastes to be removed from site and disposed of to the appropriate class landfill facility • Adequate waste receptacles maintained onsite and waste segregated as appropriate
Dust generation	• Strict controls on vehicles and access • Dust suppression assistance to be sought as required
Disturbance to local fauna	• Fauna movement not restricted – can move away from sources of disturbance • Trenching and excavation activities controlled • Escape ramps for fauna installed in open trenches and morning visual trench inspections undertaken • Trained and competent handlers engaged for fauna removal from site if required
Third party disturbance	• Regular landholder consultation undertaken • Lighting at site to be concentrated in required areas only • Strict controls on Operations vehicle movement imposed
Disturbance to heritage values	• Works to cease and DPLH to be notified immediately if suspected heritage artefacts identified • Strict controls on Operations vehicle movement imposed • All site works contained within easement boundary

*Definitions provided in Table 2

7. Stakeholder Consultation

A summary of Operations Stakeholders and consultation undertaken by APA is provided in Table 4.

Table 4: Stakeholder Consultation

Stakeholder	Consultation to date	Ongoing commitment
Shires and Local Governments: - Shire of Roebourne - Town of Port Hedland - Shire of East Pilbara	• Regular contact with the Shire via third party works process	• Consultation as necessary as part of pipeline operations consultation program
Landholders	• Ongoing liaison since prior to CPP and WGL construction • Operations specific consultation ongoing	• Notification of activities planned for sites • Ongoing liaison throughout the course of the Operations.

Stakeholder	Consultation to date	Ongoing commitment
Wodgina Lithium Pty Ltd	• Ongoing commercial liaison • Operations specific consultation ongoing • Pipeline Awareness	• Notification of activities planned for the easement within mine site • Ongoing liaison throughout operations
Sino Iron; CITIC Pacific Mining	• Ongoing commercial liaison • Operations specific consultation ongoing • Pipeline Awareness	• Notification of activities planned for the pipeline • Ongoing liaison throughout operations
DFES: Local emergency services provider	• Liaison throughout ERP development and implementation	• Notification of risk activities as agreed (i.e. venting) • Ongoing liaison throughout site operations
DMIRS: Regulator	• Liaison ongoing throughout Operations	• Reporting monthly, 3 monthly, annually and at Operations close out • General liaison as required i.e. due to Operations changes, audits etc.
DWER & DBCA: Regulator	• Liaison / advice ongoing throughout Operations	• General liaison regarding vegetation, flora and fauna management as required
DPLH: Regulator	• Liaison / advice ongoing throughout Operations	• DPLH to be contacted if heritage areas / artefacts encountered during Operations
Water Corporation: Regulator	• Liaison throughout operations regarding management of the Water Reserve	• Ongoing liaison throughout operations • Advice if excavating in the Reserve

8. APA Contact Details

For further queries regarding the WGL and CPP Operations EP please contact the APA Environment Advisor on (08) 6189 4300 or via the APA website at Website https://www.apa.com.au/contact/.

9. References

- Australian Natural Resource Atlas (ANRA). (2009) *Water resources - Overview - Western Australia*. Department of Sustainability, Environment, Water, Population and Communities, Canberra.
- Beard, J.S. (1979) *The vegetation of the Western Australia: Map and Explanatory Memoir 1:250,000 series, Vegmap Publications,* Perth.
- Beard, J.S. (1990). *The Vegetation of the Pilbara Area. Explanatory Notes to Map Sheet 5 of Vegetation Survey of Western Australia: Pilbara*. University of Western Australia Press, Perth, Western Australia.
- Bureau of Meteorology (2009) *Australian Government*, Perth, accessed online 10/9/2009, http://www.bom.gov.au.
- Dampier to Bunbury Natural Gas Pipeline (DBNGP), (2009) *DBNGP Stage 5B BEP Interconnect Feasibility Study Report*, Perth, Western Australia.
- Magee, J (2009) *Palaeovalley Groundwater Resources in Arid and Semi-Arid Australia: A Literature Review.* National Water Commission, Geoscience Australia. Australian Government, Canberra.
- Tille, P. (2006) *Resource Management Technical Report 313: Soil Landscapes of Western Australia's Arid Interior*, Department of Agriculture and Food, Government of Western Australia.