



FORTESCUE RIVER GAS PIPELINE

ENVIRONMENT PLAN

Revision 5

PUBLIC SUMMARY DOCUMENT

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1. Introduction

1.1. Background

The Fortescue River Gas Pipeline (FRGP) is an approximately 270 km buried gas pipeline, which transports natural gas from the Dampier to Bunbury Natural Gas Pipeline (DBNGP) to the Solomon Power Station (**Error! Reference source not found.**). The Solomon Power Station is a 125 MW power station which supplies power to Fortescue’s (formerly Fortescue Metals Group) iron ore mine (the Solomon Hub) in the Pilbara region of Western Australia (WA). The FRGP connects to the DBNGP at Compressor Station 1 (CS1) via an inlet station and delivers gas to the Solomon Power Station through a delivery station.

1.2. Operator

The Fortescue River Gas Pipeline Joint Venture (FRGP JV), an unincorporated joint venture between AGI Fortescue River Pty Ltd (AGIFR) (57%) and TransAlta Energy (Australia) Pty Ltd (43%) owns the FRGP. AGIFR is the manager of the joint venture and the license holder.

The FRGP JV contracts AGI Operations Pty Ltd (AGIO) to operate and maintain the FRGP. As part of this arrangement, AGIO relies on the services of Dampier Bunbury Pipeline (DBP), the owner of the DBNGP, for the provision of labour and equipment to undertake their business.

DBP and AGI entities, AGIFR and AGIO, are part of the Australian Gas Infrastructure Group (AGIG), which comprises a number of gas distribution, transmission and other infrastructure businesses. AGIO, as the operator of the FRGP, adopts all AGIG (includes DBP) policies and procedures across the operation of its business. Table 1-1 provides the contact details of the FRGP operator.

Table 1-1: Contact Information of Operator

Operator	
ABN	76 166 900 170
Contact Name	Melanie Kenny
Position	Environment Manager
Address	PO Box Z5267, Perth, St Georges Terrace WA 6831
Telephone	+61 8 9223 4907
Email	Melanie.Kenny@agig.com.au

1.3. Location

The FRGP is within the Pilbara region, ranging from the near coast to inland Western Australia (Figure 1-1). The FRGP is contained within a 30 m wide corridor, extending 270 km from the DBNGP to the Solomon Power Station (Licence Area). Co-ordinates of the pipeline are provided in Table 1-2:.

Table 1-2: FRGP Co-ordinates (GDA 94 Zone 50)

Kilometre Point (KP)	Easting	Northing
KP0	391,389.56	7,627,733.63
KP25	400,058.52	7,606,502.28
KP50	421,525.14	7,604,116.01

Kilometre Point (KP)	Easting	Northing
KP75	443,840.54	7,608,223.33
KP100	467,648.18	7,605,578.76
KP125	487,534.29	7,597,909.81
KP150	509,906.49	7,599,714.45
KP175	532,026.18	7,588,145.65
KP200	556,001.85	7,581,749.80
KP225	580,360.71	7,578,050.15
KP250	599,293.30	7,564,715.34
KP265	601,215.73	7,550,500.89

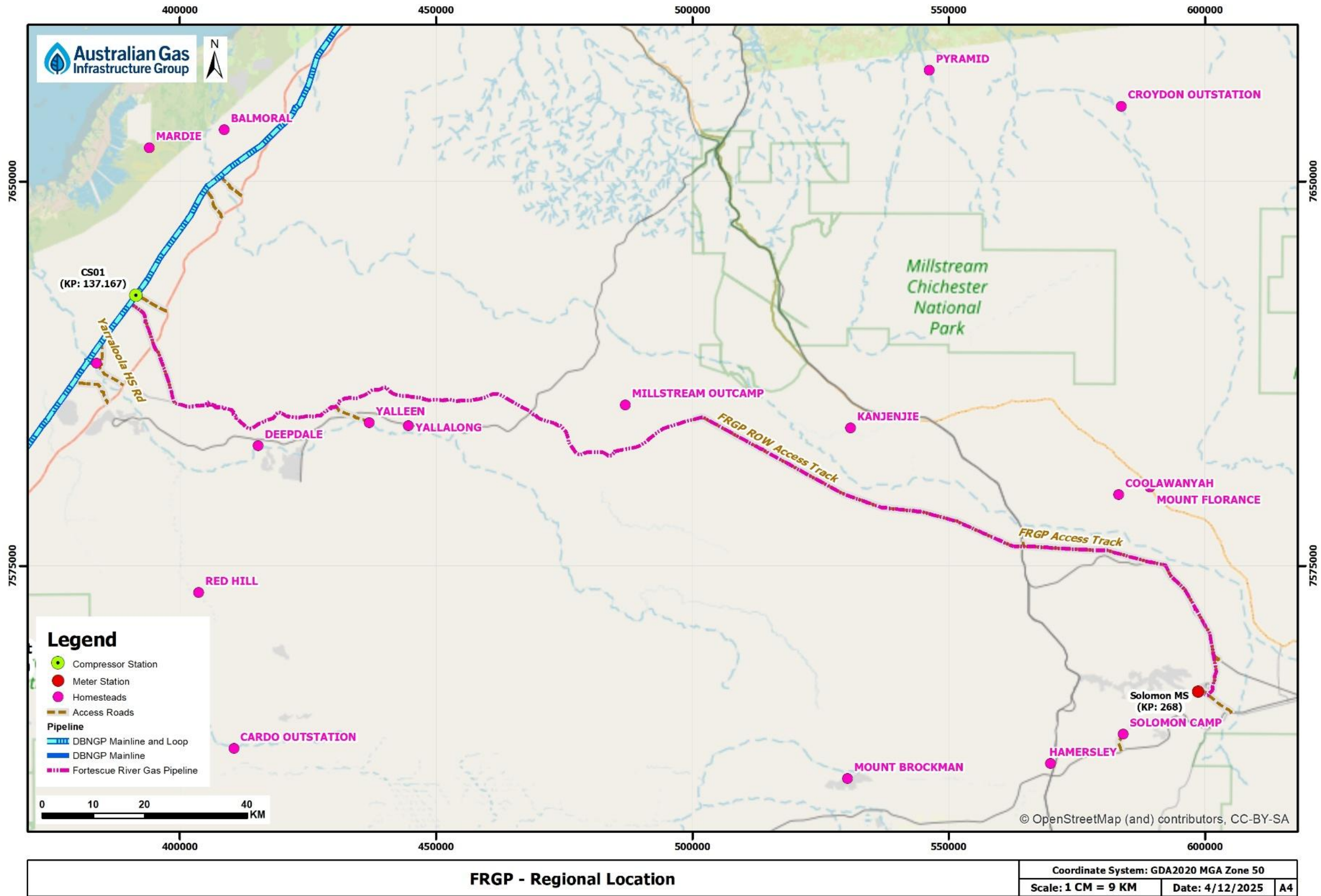


Figure 1-1: FRGP Regional Location

2. Activity Description

The FRGP transports natural gas through the pipeline from the DBNGP CS1 to the Solomon Power Station. The FRGP is designed to operate under the initial free flow capacity of 64 TJ/day and has a fully compressed capacity of 334 TJ/d with compression to 15.3 MPa. The average flow rate of the FRGP is 10 TJ/day. The details of the pipeline are summarised in Table 2-1 below. A general layout of the pipeline is provided in Figure 2-1.

Table 2-1 Pipeline Details

Fortescue River Gas Pipeline – Specifications	
From	DBNGP CS1 (FRGP KP0)
To	Solomon Power Station (FRGP KP268)
Length (km)	270
Nominal Size (mm)	400
Nominal Wall Thickness (mm)	9.0 (standard) / 12.4 (heavy wall)
Minimum Wall Thickness (mm)	8.06 (standard) / 11.12 (heavy wall)
Critical Defect Length (mm)	74.2 / 146.2
Measurement Length (m)	504
Pipe steel grade (API 5L)	X70
Min yield strength(MPa)	482
Pipe Specification	HFW
Fittings and valves	Class 900
MAOP (MPag)	15.3
Operating temperature range (°C)	0 - 60
Nominal earth cover (mm)	750
External corrosion coating	FBE
Internal flow coating	Epoxy
Cathodic protection	IC
Pipeline corridor width (m)	30

2.1. Facilities

Facilities associated with the FRGP include:

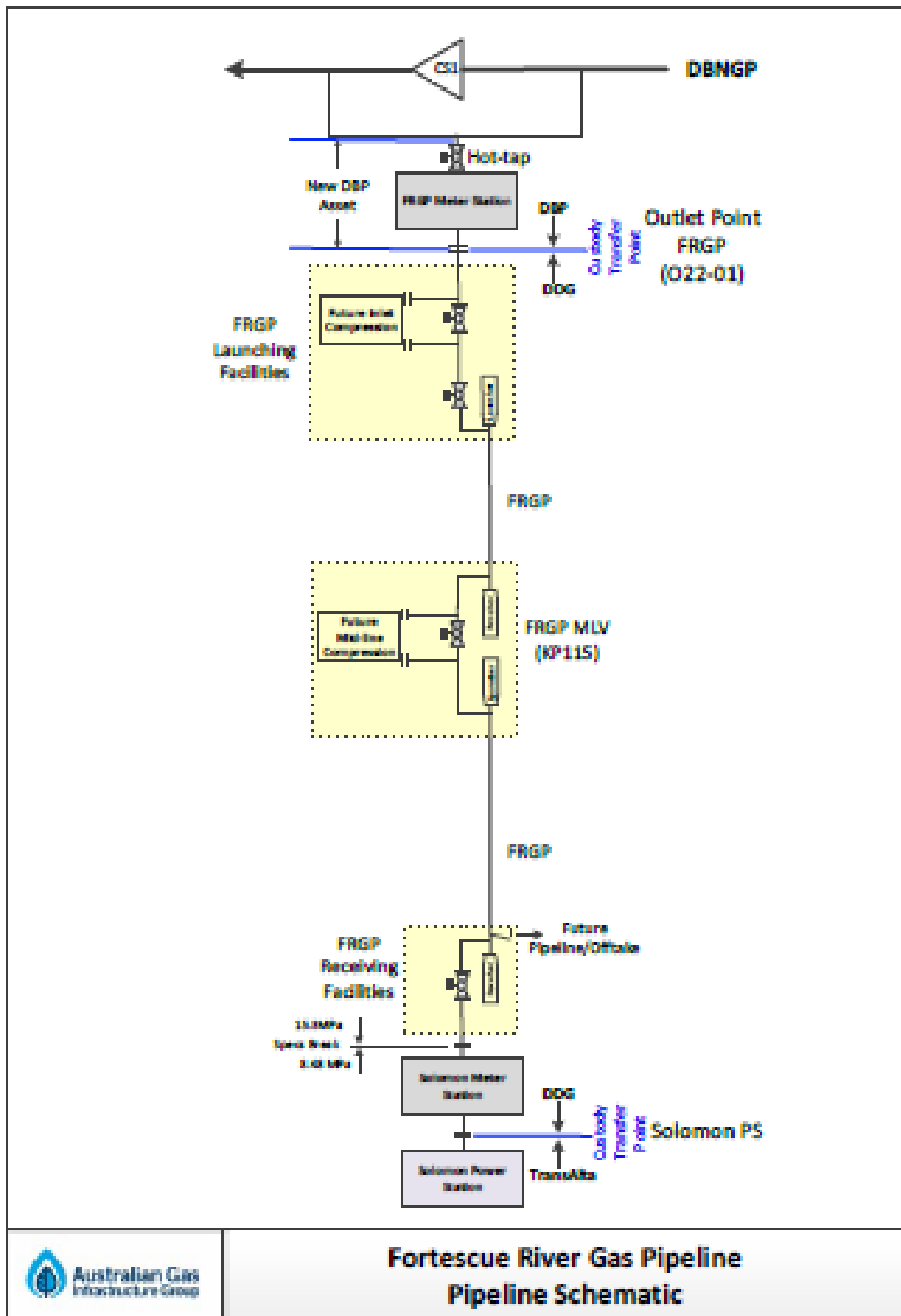
- Fortescue River Launcher Facility
- Fortescue River Line Valve
- Solomon Meter Station

2.2. Communications System

Communications at the facilities are provided via:

- FRGP Launcher Facility – optic fibre connection to existing communications infrastructure at CS1;
- FRGP Valve – a satellite modem and satellite dish; and
- Solomon Meter Station – a Telstra NextG modem and antenna.

Figure 2-1: FRGP General Layout



2.3. SCADA

A Remote Terminal Unit (RTU) is installed at all three aboveground facilities including switches, nameplates, indication lamps, batteries and chargers.

Site functionality shall be as follows (where applicable):

- Remote and local operational control of the actuated shutdown valves;
- Monitor miscellaneous pressures, temperatures, valve positions and site status; and
- Metering data.

2.4. Accommodation and Amenities

There are no permanent accommodation or offices established within PL 105. Accommodation is provided under a commercial arrangement with an appropriate existing facility within the vicinity of the pipeline.

2.5. Access

A permanent access track (3 m width) is maintained throughout the entire length of PL 105 to enable access for ongoing maintenance and operation except for KP26 to KP60 of the alignment may also be transited via sealed public road (Pannawonica Rd) with the pipeline running adjacent to the road reserve.

2.6. Transportation Services Control Centre

The DBP Transportation Services Control Centre (TSCC) is located on Level 23 of 14 St Georges Tce in Perth. The TSCC is designed to monitor FRGP and control remotely operable shutdown valves in the event of an emergency. TSCC is manned 24 hours a day, 365 days a year and utilises a fully redundant SCADA system including a Disaster Recovery (DR) site and Backup Control Room located offsite in the Jandakot complex.

2.7. Vehicles, Plant and Equipment

No plant and mobile equipment is stored onsite during normal operations.

2.8. Operational Activities

The FRGP undergo operational works on an ongoing basis. An operational project can be any combination of the typical operational activities as provided below:

- Clear and grade
- Maintenance works on cables and conduits (electrical and fibre optic) and electrical earthing
- Maintenance works on meter skid, filtration and pressure reduction valves if required
- Maintenance works on remote terminal unit (RTU), communications mast, instrumentation and control equipment
- Maintenance works on electrical wiring
- Dewatering
- Excavation for tie-in line
- Site fitted welds
- Non-destructive testing
- Painting and wrapping
- Back fill
- Fence maintenance
- Commissioning
- Site clean-up and reinstatement

The FRGP may undergo enhancements and modifications on an ongoing basis as a result of:

- Requests for new connections or modification of existing connections from new or existing customers;

- Improvements initiated by FRGP JV to improve health, safety and environmental impacts, reliability, efficiency and/or cost effectiveness of operation; and
- Any other influences including but not limited to changes in regulatory requirements, customer requirements, obsolete or redundant equipment or vendor changes.

Enhancement or modification works would only be conducted with a revision to this EP and subject to approval by the DMPE.

2.9. Vegetation Maintenance

As required under AS2885.3:2002 and the FRGP Safety Case, the FRGP undergoes vegetation management to ensure Line of Sight (LOS) between pipeline signs and access to the pipeline is maintained. This process is undertaken in accordance with statutory clearing approvals and managed internally under an internal process, referred to as an Environmental Ground Disturbance Permit (EGDP).

2.10. Decommissioning and Rehabilitation

A decommissioning and rehabilitation plan will be submitted to DMPE for approval prior to undertaking any removal, decommissioning or rehabilitation works of facilities and pipelines associated with the FRGP. The pipeline design life is 75 years.

3. Description of Environment

A summary of the existing environment associated with the FRGP is presented in Table 3-1.

Table 3-1: Existing Environment Summary

Environmental Aspect	Summary
Biogeographic region	<p>The FRGP lies within the Pilbara bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA), which is comprised of four subregions: Chichester, Fortescue, Hamersley and Roebourne.</p> <p>The FRGP extends into each of these subregions, but lies predominantly within the Fortescue subregion</p>
Climate	<p>The Project Area intersects the Pilbara bioregion, which has a climate of semi-desert-tropical, with an annual average rainfall of 290 mm ranging from 250 mm – 400 mm per annum. Cyclonic systems may affect the coast and hinterland annually.</p>
Geology	<p>The FRGP is situated within the Fortescue Province, which lies over the Pilbara Craton.</p> <p>The main characteristic of the soils in the Pilbara region is the predominant red colour with the most extensive soils being shallow, stony soils on hills and ranges and sands on sandplains.</p>
Hydrology	<p>The FRGP passes through the Lower Fortescue Basin catchment (MWH 2009) and lies within the RIWI Act's Surface Water Proclamation Area of the Pilbara.</p> <p>The FRGP traverses in the vicinity of the Fortescue and Robe Rivers. Although the FRGP avoids intersecting both of these major watercourses, it does traverse a number of associated minor watercourses where 29 water crossings have been installed.</p> <p>Depth to groundwater along the FRGP route varies significantly, ranging from the shallowest of 6.37 metres below ground level (mbgl) at KP233 to deepest of 38.34 mbgl at KP195.</p> <p>The FRGP passes through Priority 1 and Priority 2 areas of the Millstream Water Reserve, which is gazetted under the CAWS Act as a PDWSA.</p>
Flora and vegetation	<p>13 vegetation associations are associated with the FRGP.</p> <p>29 species of conservation significant flora were identified as having the potential to occur or have habitat in proximity to the FRGP.</p> <p>3 Priority Ecological Communities (PECs) are intersected by the FRGP. No Threatened Ecological Communities (TECs) are intersected by the FRGP</p> <p>Introduced weed species are known to be present within the region.</p>
Conservations areas	<p>The FRGP does not traverse any recognised conservation areas or ESAs. Millstream Chichester National Park, approximately 8 km to the north (midpoint of the FRGP), and Karijini National Park, approximately 7.5 km to the east (Solomon Power Station end), are the closest conservation areas to FRGP infrastructure.</p>
Fauna	<p>36 species conservation significant fauna were identified as having the potential to occur or have habitat in proximity to the FRGP.</p> <p>Introduced fauna species are known to be present within the region.</p>
Socio-economic	<p>The FRGP is located predominantly within the Shire of Ashburton with approximately 18 km of the west end of the pipeline within the City of Karratha.</p>

	The FRGP corridor traverses five pastoral leases with several exploration and mining leases also overlapping.
Cultural heritage	<p>No World, Commonwealth and National heritage places are known to occur in the general location of the FRGP.</p> <p>There are 5 Native Title determinations associated with the FRGP. These being registered to the Wirrawandi Aboriginal Corporation, Robe River Kuruma Aboriginal Corporation, Yindjibarndi Aboriginal Corporation and Ngarluma Aboriginal Corporation.</p>

4. Environmental Risk Assessment and Management Strategies

In order to identify, understand and manage all environmental sources of risk and consequent impacts associated with operation of the FRGP, a comprehensive Environmental Risk Assessment (ERA) review was undertaken.

Table 4-1 sets out key impacts, risks and control measures established to manage risks identified during the ERA.

Table 4-1: Risk Assessment Summary

Aspect	Hazard	Management and Mitigation Measures
Soils and sediment	<ul style="list-style-type: none"> - Poor stockpiling of topsoil - Mixing of topsoil and subsoil) - Vehicle and earthmoving equipment movements - Environmental conditions 	<ul style="list-style-type: none"> - An Environmental Ground Disturbance Permit is obtained prior to any ground disturbance works - Any works impacting the topsoil or soil profile shall abide by the Flora and Vegetation Management Procedure - Excavation works will be undertaken in accordance with the Excavation and Excavation Entry Procedure - Non-operational areas will be reinstated and/or rehabilitated - The Procedure for Management of Erosion Risk Areas shall be implemented - The Watercourse Crossing Procedure will be implemented in areas identified to require stabilization of banks - Where erosion, associated with AGIO activities, is identified, repairs shall be undertaken
Native vegetation	<ul style="list-style-type: none"> - Unapproved disturbance to conservation significant flora species - Excessive clearing - Vehicles and earthmoving equipment movements - Lack of rehabilitation success 	<ul style="list-style-type: none"> - All clearing is managed through an Environmental Ground Disturbance Permit - Areas of vegetation disturbance not required for future operational use shall be reinstated and/or rehabilitated - Activities undertaken within compound boundaries where possible to avoid impacts to vegetation. - All personnel involved in the activities under this EP complete the Transmission Operations Induction - A GIS Environmental Database is maintained to present up to date publicly available information regarding the location of all environmental sensitivities relating to vegetation
Weeds and pathogens	<ul style="list-style-type: none"> - Vehicle and earthmoving equipment movements - Import of fill - Weed control program - Rehabilitation progress 	<ul style="list-style-type: none"> - The Clean on Entry (COE) Procedure is implemented - A targeted weed management program shall be undertaken - Operational projects ensure all weed and seed requirements are implemented
Fire	<ul style="list-style-type: none"> - Ignition from vehicles - Ignition from hot works (grinding, welding, etc.) - Ignition from other activities (smoking etc.) 	<ul style="list-style-type: none"> - All activities are conducted in accordance with relevant fire restrictions (local, state), notifications and permitting procedures
Fauna	<ul style="list-style-type: none"> - Vehicle and earthmoving equipment movements 	<ul style="list-style-type: none"> - All personnel shall abide by the requirements of the Fauna Interaction Procedure

	<ul style="list-style-type: none"> - Attraction of fauna to facilities (poor waste management and water resource) - Excavation fauna entrapment - Clearing outside approved areas - Gates left open (livestock) or impacts from aerial surveillance 	<ul style="list-style-type: none"> - Ensure gates are maintained as required (as found) to prevent livestock loss and minimise stock crossing points - All open trenches will be frequently inspected for trapped fauna - AGIO shall implement the Flora and Vegetation Management Procedure to minimise impacts to fauna habitat
Cultural heritage and stakeholder engagement	<ul style="list-style-type: none"> - Clearing, trenching excavation to impact on known registered or unknown heritage / artefacts locations. - Dust and noise / vibration generated from operational and maintenance activities - Impact to landholders / local land users from requirements to access the pipeline corridor 	<ul style="list-style-type: none"> - All clearing is managed through the Environmental Ground Disturbance Permit process, which facilitates pre-clearing checks - All relevant personnel working on or near an Aboriginal site shall be made aware of their responsibilities under the Aboriginal Heritage Act 1972 - Landholders are communicated with at least annually and complaints are responded to
Emissions – atmospheric (GHG), dust and noise	<ul style="list-style-type: none"> - Controlled gas release from venting, and transfer - Uncontrolled gas release from pipeline rupture, equipment (i.e. relief valves) failure from aboveground facilities - Generation of dust and noise / vibration from vehicles and earthmoving equipment movement 	<ul style="list-style-type: none"> - All gaseous emissions shall be monitored and reported on a quarterly basis - Maintenance activities are implemented in accordance with the FRGP Asset Management Plan, which contains information on inspections and/or surveys - In the event of significant unplanned gas emission, the DBP Emergency Response Plan is initiated - All unplanned gaseous emissions (leaks or release during testing) shall be captured as an event and reported - All fuel use is monitored and recorded - Dust controls are implemented to minimise dust impacts - Noise controls are implemented to minimise noise impacts
Surface water and groundwater	<ul style="list-style-type: none"> - Movement of vehicles and earthmoving equipment modifying drainage channels - Excessive rainfall event 	<ul style="list-style-type: none"> - AGIO shall implement the Watercourse Crossing Procedure - Implementation of maintenance of wastewater systems, approval for any water discharge offsite and contained storage of waste liquids
Hazardous materials storage and handling; spill response	<ul style="list-style-type: none"> - Spill of hazardous chemicals - Inappropriate storage and disposal of hazardous waste - Storage, handling and transport of hazardous chemicals 	<ul style="list-style-type: none"> - All chemicals management shall comply with the Hazardous Materials Storage and Handling Procedure - Appropriate spill response equipment, including containment and recovery equipment, shall be available on site and in vehicles - All spills shall be contained as soon as possible and clean up actioned as soon as feasible - Personnel shall be aware of and abide by requirements of the FRGP Oil Spill Contingency Plan (OSCP)
Waste	<ul style="list-style-type: none"> - Production of waste from activities - Inadequate management of waste, i.e. inappropriate storage and disposal 	<ul style="list-style-type: none"> - All personnel shall abide by the Waste Management Procedure - All waste (including pigging waste) shall be captured and stored and then disposed of by a licensed contractor to a licensed waste facility

5. Implementation Strategy

5.1. Environmental Management System

The Environmental Management System (EMS) contains the systems and processes used for the safe operation of the FRGP. AGIO adopts all AGIG and DBP policies and procedures across the operation of its business. Implementation of AGIG/DBP's EMS ensures that the impacts and risks to the environment are continuously reduced to ALARP and that environmental performance objectives and standards in this EP are met throughout operation of the FRGP.

5.2. Corporate Environmental Policy

AGIG has a corporate culture, which strives for HSE excellence driven by a corporate commitment to protect people and the environment. Central to this are the AGIG Health and Safety Policy and the Environmental Policy, which are approved by the Board and Chief Executive Officer of DBP. This is supported by a set of core principles, called Zero Harm Principles, which are aimed at establishing principles for undertaking activities that have been assessed as having the highest risk to AGIG and its workforce.

5.3. Induction and Training

All staff and contractors shall be required to undertake an environmental awareness induction prior to commencement of works on the FRGP. The environmental awareness induction is targeted to educate staff and contractors regarding AGIG's environmental objectives and their individual responsibilities for environmental management. The environmental awareness induction covers off on the following key topics:

- Native vegetation;
- Fauna;
- Weeds and pathogens;
- Soil and sediment;
- Surface water and groundwater
- Fire;
- Cultural heritage;
- Stakeholder engagement;
- Emissions – atmospheric (GHG), noise and dust;
- Hazardous materials and spill response; and
- Waste.

The induction additionally ensures that all personnel are capable of implementing the JHA or Take 5 process to identify and manage risks.

All personnel are required to undergo refresher training once every three years. All visitors or short-term workers receive a site-specific induction appropriate in length and content for the type of work being undertaken.

Employees are trained and provided with appropriate resources to ensure compliance with environmental laws, codes and standards and company policies. These additional specific training needs are addressed on an as needs basis. AGIO maintains a record of training for all personnel.

5.4. Incident Management

It is a mandatory requirement for any personnel working for or on behalf of AGIO to respond to all hazards and events that have affected or have the potential to adversely affect the environment.

A Significant Environmental Incident is an event which:

- may but does not necessarily result in any permanent damage to the environment but requires the use of additional personnel or contractors external to the site and additional remediation equipment; or
- the regulatory authority deems as notifiable; or
- is likely to result in widespread public complaints and anger.

5.5. Emergency Preparedness and Response

AGIG has three tiers of emergency and crisis response: Incident, Emergency and Crisis. The Emergency Response Plan (ERP) provides for an Emergency Management Team (EMT) and an Incident Management Team (IMT) who are responsible for managing emergencies and minor incidents.

The Crisis Management Plan (CMP) establishes the Crisis Management Team (CMT) which is responsible for managing Crisis events, being those that are likely to be associated with personnel, public safety, supply, pipeline license or AGIO reputation issues.

In the event that an emergency deteriorates and can no longer be managed effectively by the Emergency Management Team the CMT would be activated.

5.6. Monitoring

In accordance with Section 33 of the Regulations, AGIO shall conduct monitoring of all applicable emissions and discharges. The Quarterly Emissions and Discharge Report shall consolidate the results of all monitoring for submission to the DMPE as specified in the EP.

5.7. Inspections and Audits

The pipeline may be subject to land settlement and other effects on the right of way where the pipeline crosses rivers, roads and pastoral grazing areas. The pipeline is located in the 'pastoral region' and is surveyed by aerial surveillance once monthly and by a ground survey annually.

Gas accounting on the pipeline is based on gas metered into the pipeline at FRGP Meter Station located at CS1, use by the customer metered at Solomon Meter Station and the monitoring of linepack.

Third party activities and corrosion are considered the most significant threats to the integrity and pressure containment capacity of pipelines. The FRGP is protected with Fusion Bonded Epoxy (FBE) coating system which is supplemented by a cathodic protection system to prevent the corrosion of the pipeline and consequential leaks. The condition of the coating system is surveyed using a DCVG technique on a risk based frequency and repairs are carried out as necessary. Cathodic protection system's effectiveness is conducted on an annual basis to ensure the pipeline is protected if there is any defect on the coating system.

Intelligent pigging surveys will be conducted in accordance with AGIO's philosophy. Facility HSE Inspections are undertaken every six months by maintenance personnel to ensure implementation of environmental controls.

5.7.1. EP Review and Compliance Audit

The FRGP shall be subject to an annual environmental compliance audit to ensure that the systems and controls detailed within this EP are both adequate and implemented, and also to identify opportunities for improvement. Additionally, AGIO may from time to time engage an independent auditor on an as needs basis. Each auditor shall complete a review of all relevant documentation prior to conducting the audit, which shall include the identification of key regulatory requirements.

5.8. Review and Improvement

The achievement of compliance with environmental management obligations shall be considered in annual business planning sessions, enabling the identification of issues to upper management and the allocation of resources where necessary to implement improvements.

5.9. Reporting

To demonstrate and maintain compliance against legislative requirements, routine external reporting to key regulatory agencies shall be conducted. FRGP does not trigger reporting thresholds for the National Greenhouse and Energy Reporting scheme (NGERs) however, still reports an annual NGER report. The FRGP reports against the the National Pollutant Inventory (NPI) requirement.

5.10. Stakeholder Consultation

AGIO will ensure that there is appropriate and timely consultation with relevant authorities and interested organisations and individuals in line with the requirements of the PGER(E)R and the DMPE EP Guidelines.

In accordance with Regulation 17 of PGER(E)R, AGIO completed a scoping exercise to determine which authorities, persons and organisations were considered to be relevant.

Stakeholders identified included:

- State and government agencies
- Private companies
- Local government and community stakeholders
- Relevant private landholders

Ongoing stakeholder consultation will take place throughout the life of the FRGP. AGIO will continue to identify new relevant stakeholders during the operation of the pipeline. New stakeholders may be identified during ongoing consultation with stakeholders identified to date or direct approach by persons that have become aware of the FRGP. If additional stakeholders are identified, they will be contacted and provided with information in relation to the FRGP and invited to make comment.
