Appendix 7

RBP Operational Environmental Management Plan

APA Group

Roma to Brisbane Pipeline

Environmental Management Plan

Nov 2010

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1 Introduction

1.1 Background

The APA Group (APA) owns 100% of the Roma to Brisbane Pipeline (RBP) in Queensland. The RBP transports natural gas from Wallumbilla to the Brisbane metropolitan area and consist of two parallel pipelines and a number of laterals and looping pipelines that have been added to increase the capacity of the original pipeline system.

The original DN250 pipeline was commissioned in 1969, running approximately 396.8 km from Wallumbilla to Bellbird Park (See Figure 1). The RBP has been upgraded with various looping exercises to increase the overall capacity of the total pipeline to match the Brisbane gas market growth. The pipeline is regulated under the *Petroleum and Gas (Production and Safety) Act and Regulation 2004*, under the instrument of Pipeline Licence (PL) number 2.

Looping upgrades, lateral pipelines and extensions to the existing pipeline have since occurred in 1998, 1990, 1998, 2000 and 2002, included:

- A DN400 mm pipeline running from Wallumbilla to Swanbank Power Station which is approximately 405.5 km long. In 1988, this pipeline was laid in parallel with the original pipeline;
- The Wallumbilla to Bellbird Park pipeline was extended to Gibson Island. This section is approximately 40.2 km long and consists of 37.6 km of DN00 mm pipeline and 2.6 km of DN200mm pipeline;
- The DN250 Peat Lateral Gas Pipeline was commissioned in 2001 and supplies natural gas from the Woodroyd Coal Seam Methane Field Treatment Plant, east of Wandoan, to the DN250 RBP, near Condamine (a distance of approximately 110.7 km);
- A 10.7 km extension of the DN250 Peat Lateral known as the Scotia extension was also constructed as part of Stage 5 looping. The pipeline runs from the Scotia Coal Seam Methane Field to the Woodroyd Coal Seam Methane Field;
- The Swanbank Lateral pipeline forms part of the RBP DN400 pipeline and was commissioned in 2002. The pipeline required the construction of approximately 8.75 km of new pipeline to deliver natural gas from the Redbank Meter Station into the Swanbank Power Station;
- A DN400mm pipeline was constructed from the Collingwood Park Inlet Station to Ellengrove Gate Station and is approximately 9.5 km long. It was commissioned in 2002.

The Peat lateral and Scotia Extension are operated in accordance with AS 2885.3: 2001. The pipeline is regulated under the *Petroleum and Gas (Production and Safety) Act* and Regulation 2004, under the instrument of Pipeline Licence (PL) number 74. APT Management Services Pty Ltd (APT) undertakes the operation and maintenance of the RBP on behalf of APA.

The major components of the RBP can be seen on Figure 1 with the relevant pipeline licence information provided in Section 4.4. A detailed description of the RBP assets, facilities, route and processes can be found in Section 2.

This Environmental Management Plan (EMP) has been prepared in accordance with the Australia Pipeline Industry Association (APIA) Code of Environmental Practice and reflects licence requirements and ongoing management of environmental issues for the operation and maintenance of the RBP.

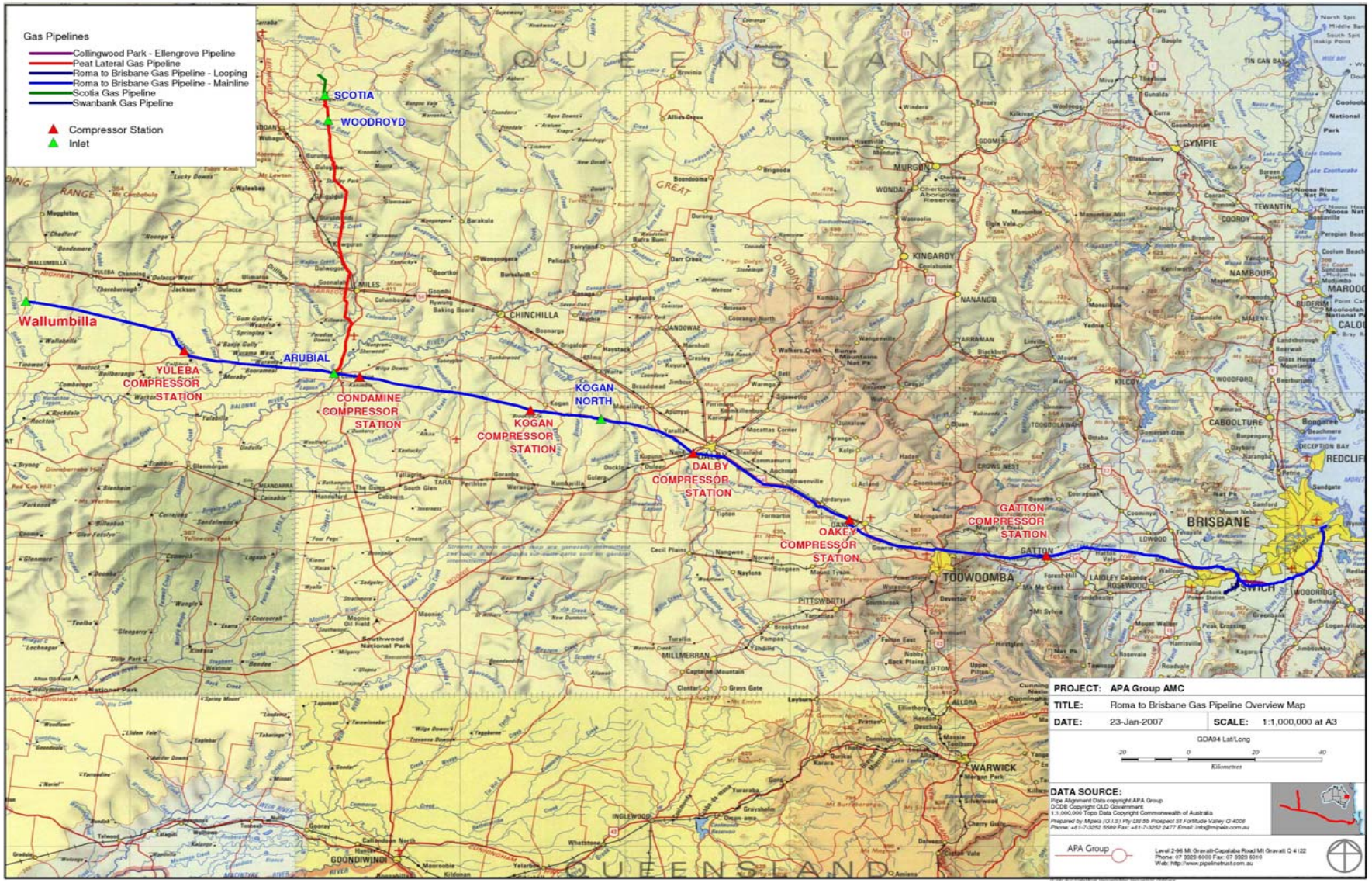

Figure 1: Major Components of the Roma to Brisbane Pipeline

1.2 Purpose and Structure of this EMP

The purpose of this Environmental Management Plan (EMP) is to outline a strategy to manage the potential environmental impacts that may occur as a result of operational and maintenance activities on the RBP. The key objectives are to ensure that:

- The delivery of natural gas from Wallumbilla to Brisbane including along all laterals is undertaken in a safe, efficient and environmentally responsible manner;
- All operational aspects are conducted in a manner that minimises adverse impacts to the physical, biological, cultural and social environment;
- All employees and contractors are aware of their environmental responsibilities, have the training to fulfil such responsibilities and are proactive in their approach to environmental management; and
- There is compliance with appropriate legislative and licence requirements for the RBP including the Peat and Swanbank Laterals.

This EMP has been prepared in accordance with the objectives and provisions of the Australian Pipeline Industry Association Code of Environmental Practice (APIA Code). The document has also been structured in accordance with:

- The APA Group Health, Safety and Environment Policy;
- AS/NZS ISO 14001; and
- QLD Environmental Protection Agency (EPA) Guidelines for Preparing EMPs.

The pipeline licences (PL2 and PL74) also require that the pipelines be managed in accordance with the Australian Petroleum Exploration Association (APEA) Code of Environmental Practice – Onshore. Whilst APA recognises this requirement it should be noted that the code was written in January 1991. The APEA has since changed its name to the Australian Petroleum Production and Exploration Association (APPEA) which produced its own Code of Environmental Practice in 1996. The Australian Pipeline Industry Association (APIA), in consultation with APPEA, produced a Code of Environmental Practice for Onshore Pipelines in 2000. This Code of Environmental Practice is referred to by AS 2885.3 Pipelines – Gas and Liquid Petroleum, which is the standard by which all pipelines are required, by their respective licences, to be operated in accordance with. APA believes that this Code of Practice represents industry best practice and has designed this EMP to be in accordance with this Code.

The general structure of the EMP includes:

- A description of the main components of the RBP including an outline of the route and location of each component. This section also has a brief description of the environmental resources found along the RBP (**Section 2**).
- A description of APA's environmental management framework including objectives, systems, roles and responsibilities and control procedures, including emergency response procedures (**Section 3**).
- A brief overview of the key legislative requirements applicable to the RBP including licence requirements from the various Pipeline Licences (**Section 4**).
- The environmental management strategies that are to be employed throughout operations to minimise and mitigate against environmental impacts (**Section 5**).
- A description of the monitoring, measurement and evaluation processes including incident reporting and notification (**Section 6**).
- A contact directory and abbreviations (**Section 7** and **8** respectively).

2 Description of the Pipeline

The original DN250 Roma-Brisbane Natural Gas Pipeline is a 396.8 km buried steel pipeline designed to operate at a Maximum Allowable Pressure (MAOP) of 7,136 kPa. A second pipeline was laid in parallel to provide additional capacity and was a DN400 diameter steel looping pipeline (approx. 405.5 km long) designed to operate at a (MAOP) of 8000 kPa. The DN400 RBP was generally constructed within the existing 15 m easement, which contained the operating DN250 RBP. There is a nominal 8 m horizontal separation between the two pipelines but separation is as small as 3 m in particular areas.

The Peat Lateral Pipeline is a 110.7 km long buried steel pipeline designed to operate at a Maximum Allowable Pressure (MAOP) of 10,200 kPa. The pipeline transports natural gas from the Woodroyd Coal Seam Methane Field Treatment Plant near Wandoan in South Queensland to the Arubial pressure reduction station at the Main Line Valve at RBP MP63.3. This section of the Peat Lateral was commissioned in 2001. The Peat Lateral runs in 30 metre wide easements or in road and rail reserves. The lateral has a nominal free flow capacity of approximately 74 TJ/day.

Specific details relating to pipeline sections lengths, outside diameters, wall thicknesses, pipe specifications and maximum allowable operating pressure are presented in the Safety and Operating Plans (SaOPs) for the RBP and Peat Lateral. A general overview of the associated facilities and equipment is presented below.

At varying intervals along the RBP pipeline, above ground facilities including 57 line valves and 6 compressor stations have been installed. These are strategically located to shut down and de-pressurise the pipeline in the event of emergency. Remotely operable line valves, associated with the Peat Lateral, are located at Scotia, Woodroyd and Arubial.

The RBP and Peat Lateral are operated to ensure that the pressure is kept at or below MAOP at all times. Each of the pipeline receipt points have an automatic Emergency Shut Down (ESD) valve that will close if the pressure at that point exceeds the MAOP by more than 5%.

Due to increased demand six compressor stations, with scraper facilities, were progressively commissioned between 1981 and 1986. Each compressor station consists of a single turbine driven compressor unit with the shaft horsepower of each gas turbine unit not exceeding 1185 kW at ISO conditions. The DN250 and DN400 pipelines have three compressor stations each along their lengths, located at Yuleba, Kogan and Oakey for the DN250 pipeline and Condamine, Dalby and Gatton for the DN400 pipeline (see Figure 1).

Scraper stations (pigging facilities) are located at regular intervals on the RBP as well as at the start and end of the Peat Lateral pipeline to facilitate in-line inspection.

The pipelines have aerial markers, pipeline markers, warning signs, CP test points, CP temporary anodes, and either CP permanent magnesium anode beds or transformer rectifier (TR) stations, all in accordance with AS 2885.

The pipelines are buried for their entire length except at valve and scraper stations. Provision of a minimum depth of cover ranges from 750 mm in rural areas, 900 mm in road reserves, 1200 mm in roadways, 1200 mm from Collingwood Drive to Ellengrove 1200 mm, 2000 mm at rail crossings and 1800 mm at watercourse/road crossings.

The locations of all above ground facilities, including compressor stations, valve stations and scraper stations for the RBP and the Peat Lateral are displayed Table 1 and Table 2 respectively.

Table 1 RBP Above-Ground Facilities

KP (from Miles)	Site Name	Pipeline	Site Type			Telemetered
MP 0	Wallumbilla	Inlet		Meter Station	Inlet	T
		DN250	Main Line Valve	Scraper Station		
		DN400	Main Line Valve	Scraper Station		
MP 6	Tamarang	DN250	Main Line Valve			
MP 14	Bendermere	DN400	Main Line Valve			
MP 20	Mongool	DN250	Main Line Valve			
MP33.4	Yuleba	DN250	Main Line Valve		Compressor Station	T
		DN400	Main Line Valve	Scraper Station		
MP40	Moraby Ck	DN250	Main Line Valve			
MP54	Condamine River	DN400	Main Line Valve			
MP63	Arubial (Peat Lateral Connection)	Inlet		Meter Station		T
		DN250	Main Line Valve			
MP67.4	Condamine	DN250	Main Line Valve	Scraper Station		T
		DN400	Main Line Valve		Compressor Station	
MP86	Kenya Blockvalve	DN250	Main Line Valve			
MP100	Kogan	DN250	Main Line Valve		Compressor Station	T
		DN400	Main Line Valve	Scraper Station		
MP106	Kogan Blockvalve	DN250	Main Line Valve			
MP117	Wilkie Ck	DN250	Main Line Valve			
MP133	Dalby	DN250	Main Line Valve	Scraper Station		T
		DN400	Main Line Valve		Compressor Station	
MP134	Dalby Town Council	Off-take		Meter Station		

Table 1 RBP Above-Ground Facilities						
KP (from Miles)	**Site Name**	**Pipeline**	**Site Type**			**Telemetered**
MP147	Bowenville	DN250	Main Line Valve			
MP152.8	Norwin Rd	DN400	Main Line Valve			
MP167	Oakey	DN250	Main Line Valve		Compressor Station	T
		DN400	Main Line Valve	Scraper Station		
MP167	Oakey Energex/ Oakey Power	Off-take			Off-take	T
MP178	Gowrie View	DN400	Main Line Valve			
MP185	Toowoomba	Off-take		Meter Station	Off-take	T
MP189	Wittcott	DN250	Main Line Valve			
		DN400	Main Line Valve			
MP201	Sandy Ck	DN250	Main Line Valve			T
		Off-take		Meter Station	Off-take	
MP207	Gatton	DN250	Main Line Valve		Scraper Station	T
		DN400	Main Line Valve		Compressor Station	
MP217	Brightview	DN250	Main Line Valve			T
		DN400	Main Line Valve			
		Off-take		Meter Station	Off-take	
MP237	Brassall	DN250	Main Line Valve			
		DN400	Main Line Valve			
MP244.3	Riverview	DN250		Meter Station		T
MP245.6	Redbank	DN400	Main Line Valve			T
		Off-take		Meter Station	Off-take	
MP251.1	Swanbank	DN400	Main Line Valve	Scraper Station		T
		Off-take		Meter Station	Off-take	

Table 1 RBP Above-Ground Facilities						
KP (from Miles)	Site Name	Pipeline	Site Type			Telemetered
MP246.2	Collingwood Drive	DN250	Main Line Valve			
MP252.3	Ellengrove Gate station	DN400		Main Line Valve		T
MP252.3	Ellengrove Energex Off-take	Off-take		Meter Station	Off-take	
MP248	Bellbird Park (City Gate)	DN 250	Main Line Valve	Scraper Station		T
		DN300	Main Line Valve			
MP255.5	Ritchie Rd	DN300		Main Line Valve		
MP263.5	Mt Gravatt	DN300		Main Line Valve		T
MP274	Southern Electrical Authority (SEA)	DN200	Main Line Valve			T
		DN300	Main Line Valve			
MP274	Murarrie	DN200	Main Line Valve			T
		Off-take		Meter Station	Off-take	
MP275	Gibson Island	Off-take		Meter Station	Off-take	T

Table 2 Peat Lateral and Scotia Extension Above-ground Facilities						
KP (Scotia-Woodroyd-Arubial)	Site Name	Pipeline	Site Type			Telemetered
KP 0	Scotia	DN250		Scraper Station		
		Off-take		Meter Station	Off-take	
KP 10.7	Woodroyd	Off-take		Meter Station	Off-take	
KP 0	Woodroyd	DN250	Inlet Meter Station	Scraper Station		
KP 51.96	L-Tree Creek	DN250	Main Line Valve	Pressure reducing station		
KP 110.685	Arubial			Scraper Station		

The pipeline is operated from a control room located at the Brisbane Control Centre in Mt Gravatt. In accordance with AS 2885.3 the control room has been provided with an uninterruptible power supply that has sufficient capacity to ensure continuous operation

through a reasonable power outage. The Brisbane Control Centre uses reliable technology and has an appropriate 24 hour a day security system.

The main operations and maintenance offices and bases for the RBP are located at Wallumbilla and Brisbane as well as at the Condamine, Dalby and Gatton Compressor Stations. Compressor stations at Yuleba, Kogan and Oakey are also used as maintenance bases. Emergency equipment is stored at Wallumbilla, Dalby and Coopers Plains. The main operations and maintenance offices and bases for the Peat Lateral are located at Wallumbilla and Condamine.

2.1 Process Description

The RBP transports dry natural gas primarily to the domestic and industrial natural gas markets of Brisbane, Ipswich and Toowoomba. Natural gas is transferred into the pipeline by compressors at the Wallumbilla interconnection hub. Gas is also transferred from the Scotia and Woodroyd Coal Seam Methane Field though the Peat Lateral to the Peat Lateral outlet, near the MLV at Arubial.

The compressors (3 on each pipeline) increase the throughput of gas as required. The compressor stations located along the route consist of pig traps to capture and launch pigs through the pipeline for cleaning and inspection purposes.

The Pipeline is available to operate 24 hours per day, 7 days per week. Emergency repair works may also need to be carried out during these hours. However, normal operation and maintenance activities are undertaken during normal business hours wherever possible.

Permanent access roads are provided to all above ground facilities. The RBP and Peat Lateral pipeline route predominantly traverses major roads and agricultural land. Generally existing roads and access tracks are used to access the easement.

A summary of the key design specifications of the RBP is provided in Table 3.

Table 3 RBP Summary					
Design Parameter	**RBP**	**Parallel RBP**	**Peat Lateral**	**Scotia Extension**	**Swanbank Lateral**
Nominal Bore	DN250	DN400	DN250	DN250	DN400
Length of pipeline (km)	396.8	405.5	110.7	10.7	8.75
Outside diameter	273.1mm	406.4mm	273.1mm	273.1mm	406.4mm
Wall Thickness	4.78-6.35mm	6.4-9.5mm	4.78-5.7mm	4.78-5.7mm	5.7-8.1mm + 9.5mm, 9.8mm
Pipe specification	API 5L X46	API 5L X60	API 5L X60	API 5L X60	API 5L X70,+X60
Maximum Allowable Operating Pressure (kPa)	7,136kPa	8000kPa	10,200 kPa	10,200 kPa	8000kPa
Year Completed	1969	1988	2001	2002	2002
Design Life	30 years		40 years	40 years	

2.2 Existing Environment

Various sections of the RBP easement were surveyed for landforms and vegetation prior to construction of the looping sections. The results of these surveys are detailed in the Initial Advice Statements prepared for the looping of the main pipeline (Document No: VQ0740-TR-D001).

There is currently no evidence of declared plant infestations along the pipeline easement. Environmental weeds that occur should be managed according to Section 5.3 Weed Management.

Cultural Heritage Management Plans (CHMP's) were also required prior to construction of the looping sections of the RBP and the Swanbank and Peat Laterals. As part of this, representatives of University of Queensland Archaeological Services Unit (UQASU), the Traditional Owners and AGL Construction undertook cultural heritage surveys along the pipeline corridor. CHMP's were agreed with the following traditional owners: Barunggum Daylight, Barunggum Warner, Dawson River Jiman, Iman, Jaggera, Jarowair, Mandandanji, Mandandanji Wambo, Turball, Ugurapul, Western Wakka Wakka, Yuggera and Yuggerabul peoples. Any works undertaken with the potential to impact upon these sites must be undertaken in accordance with Section 5.10 of this document. In total 136 Cultural Heritage Sites were identified along the RBP during construction of the looping sections of the pipeline.

The following sections summarise key environmental and heritage aspects identified during these surveys.

2.2.1 Roma to Brisbane Pipeline

The RBP route extends through the Yuleba State Forest, south east of Roma and through the cultivated land of the Darling Downs south east of Dalby. The route traverses down the Toowoomba Range, over the Minden Range and extends eastward through the Bremer River, to the west bank of the Moggill Ferry in the suburb of Riverview, Ipswich. The pipeline route traverses through cleared, undulating terrain dissected by drainage lines and gullies.

The RBP passes through a number of areas considered as 'Endangered' or 'Of Concern' Remnant Ecosystems (refer Table 4).

Table 4 Locations of Significant Vegetation Areas Adjacent to the RBP Easement

Start	Finish	Scientific Name	Protection Status
GMP 6.0	GMP 14.2		Yuleba State Forest
GMP 14.0	GMP 25.3	(a) Acacia harpophylla and/or Casuarina cristata with Geijera parviflora and Eremophila mithcellii	"Endangered" Remnant Ecosystem (RE) 11.9.5
GMP 54	GMP 67	(b) Acacia harpophylla and/or Ca*suarina cristata* with Geijera parviflora and Eremophila mithcellii	"Endangered" RE 11.4.3
		(c) Eucalyptus tereticornis or Eucalyptus camaldulensis fringing woodland	"Of concern" RE 11.3.25
GMP 86.05	GMP 100.5	(d) Dodonaea macrossanii	Rare plant

Table 4 Locations of Significant Vegetation Areas Adjacent to the RBP Easement			
Start	**Finish**	**Scientific Name**	**Protection Status**
GMP 106.27	GMP 117.6	(e) Eucalyptus populnea woodland	"Of concern" RE 11.3.2
		(f) Eucalyptus tereticornis or Eucalyptus camaldulensis fringing woodland	"Of concern" RE 11.3.25
GMP 137	GMP 147.24	(g) Eucalyptus populnea open woodland	"Of concern" RE 11.3.2
GMP 217.55	GMP 236.97	(h) *Acacia harpophylla* open forest with or without *Casuarina cristata* and vine thicket	"Endangered" RE 12.9/100.6
		(i) Melaleuca tamariscina subsp *irbyana* low open forest or thicket	"Endangered' RE 12.9/10.11
Kruger Parade	Stuart Street	(j) Narrow leaved Gum , Pink Bloodwood, Swamp Box and Coast Banksia remnant woodland on northern side of easement	"Endangered" RE 12.9/10.12
		(k) Gum Topped Box, Spotted Gum and Pink Bloodwood on southern side of easement	"Endangered" RE 12.9/10.12
Sandy Creek	Cobalt Street	(l) Gum Topped Box, Pink Bloodwood, Brush Box and Forest Red Gum remnant woodland west of Cobalt Street	"Endangered" RE 12.9/10.12
Cobalt Street	Centenary Highway	(m) Spotted Gum, Broad Leaved Red Ironbark and Grey Gum remnant woodland on southern side of proposed pipeline route	"Endangered" RE 12.9/10.12
Centenary Highway	Browns Plains Road	(n) Scribbly Gum and Pink Bloodwood remnant woodland along the northern and southern side of easement.	"Endangered" RE 12.9/10.12
Greenbank Training area:		*(o)* Remnant woodland	Three endangered Regional ecosystems and one of concern Regional Ecosystem
		(p) Plectranthus harbophyllus	Threatened Plant Species

Sources:

Initial Advice Statement for Looping of the Roma to Brisbane Pipeline Stage 4 (Egis Consulting, 1999);

Roma to Brisbane Natural Gas Pipeline CS Energy Project Looping Stage V Initial Advice Statement (Cardno MBK, 2001);

Roma to Brisbane Natural Gas Pipeline Looping Stage VI Initial Advice Statement (Cardno MBK, 2002)

2.2.2 Peat Lateral

The Peat Lateral pipeline route traverses sections of three provinces of the Brigalow Belt biogeographical region: Taroom Downs, Southern Downs, and Barakula. Vegetation along the pipeline route was identified by community and classified by regional ecosystem, conservation status and the presence of protected plants. The results of this investigation are outlined in *Environmental Management Plan AGL Peat Lateral Gas Pipeline Project* (Ecos Consulting (Aust). Pty Ltd, 2000).

The natural vegetation encountered along the route is predominantly eucalypt tall woodland/open woodland and cypress pine (*Callitris* spp.) open forest/woodland. The route for the pipeline moves through farmland adjacent to roads. Subsequently, much of the natural vegetation, which once occurred along the Peat Lateral route, has been cleared to make way for agricultural pursuits. More than 50% of the proposed route is situated in cleared agricultural or pastoral land, mainly along the northern portion of the route. The remainder of the route passes through areas of natural vegetation, about 17% of which is situated within road reserves.

Protected vegetation under the *Nature Conservation Act 1992* has been identified within a 15 kilometre section of the Peat Lateral Pipeline route.

Along the Peat Lateral Pipeline a total of 22 Cultural Heritage Sites were identified including 6 artefact scatters of varying densities and at least 654 individual artefacts such as a grindstone and four scarred trees. Details of the 654 individual artefacts are contained within the individual UQASU Reports, which were submitted to the EPA.

2.2.3 Swanbank Lateral

The Swanbank Lateral runs in a north-easterly direction from Swanbank Power Station to Redbank Plains, traversing primarily freehold land. The topography of the area is characterised by undulating slopes, with some steep ridges. The primary geological formation of the region is shale, sandstone and conglomerate. There are three small creeks in the area, Six Mile, Goodna and Bundamba Creeks, which feed into the Bremer River.

A large proportion of the pipeline route has previously been disturbed (due to mining and industrial activity in the area) resulting in the area being dominated by regrowth vegetation.

The major vegetation associated with the study area is Open-forest, where eucalyptus trees are the dominant species with a grass or low shrubby understory. There are also some dispersed areas of Woodland, which follows the three creeks in the area. No rare flora species have been recorded within or adjacent to Swanbank Lateral Pipeline corridor

There is a mix of both European and Aboriginal cultural heritage in the area although there are no sites registered on the Queensland Heritage Register along the pipeline route. There are also sites in the region known to be culturally significant to Aboriginal groups, although there are no known significant sites along the pipeline route.

3 Environmental Management Framework

3.1 APA Environmental Management System

The APA Health, Safety & Environment (HSE) Policy governs the development of APA's HSE Management System and is contained in Appendix A. The policy and management system are key tools used to manage APA's environmental responsibilities, issues and risks. The system drives the development and implementation of comprehensive, documented management plans within APA Business Units. The relationships and linkages between this

EMP and the APA's environmental management system framework are represented in Figure 2.

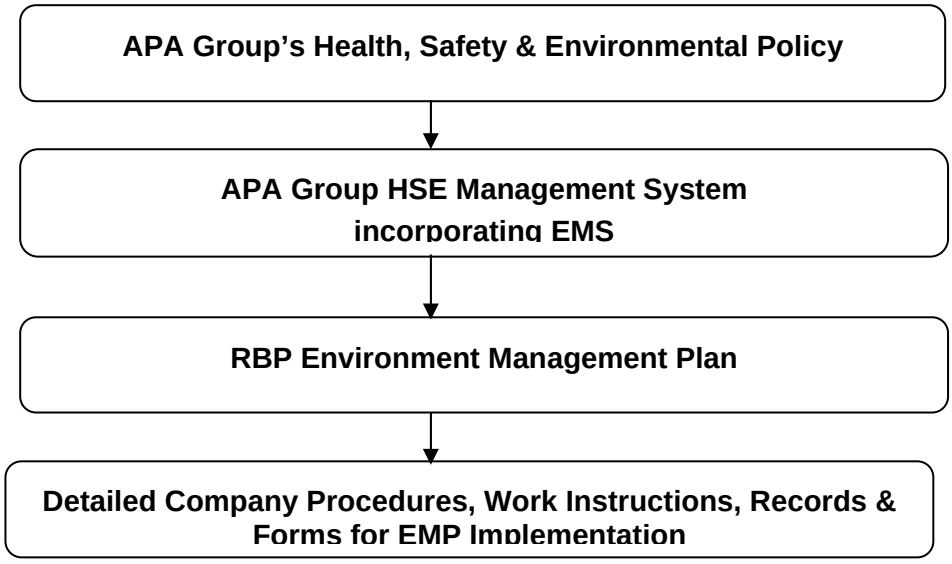

Figure 2: Linkage between RBP EMP and APA HSE Management System

The environmental standards and processes within the HSE Management System are aligned with the international standard AS/NZS ISO14001:2004. The HSE Management System has been established to ensure that environmental issues have been identified and managed throughout each construction and operation project.

Specifically, the HSE Management System Standards are comprised of 15 Standards:

1. Leadership, organisation responsibility & authority;
2. Legislation compliance;
3. Hazard & risk management;
4. Planning, goals & targets;
5. Health & hygiene;
6. Training, awareness & competence;
7. Communication & consultation;
8. Incident management;
9. Maintenance, Repair and Integrity Control;
10. Design, construction & commissioning;
11. Contractors, suppliers & visitors;
12. Emergency preparedness;
13. Community;
14. Performance, measurement & reporting; and
15. Evaluation & Review.

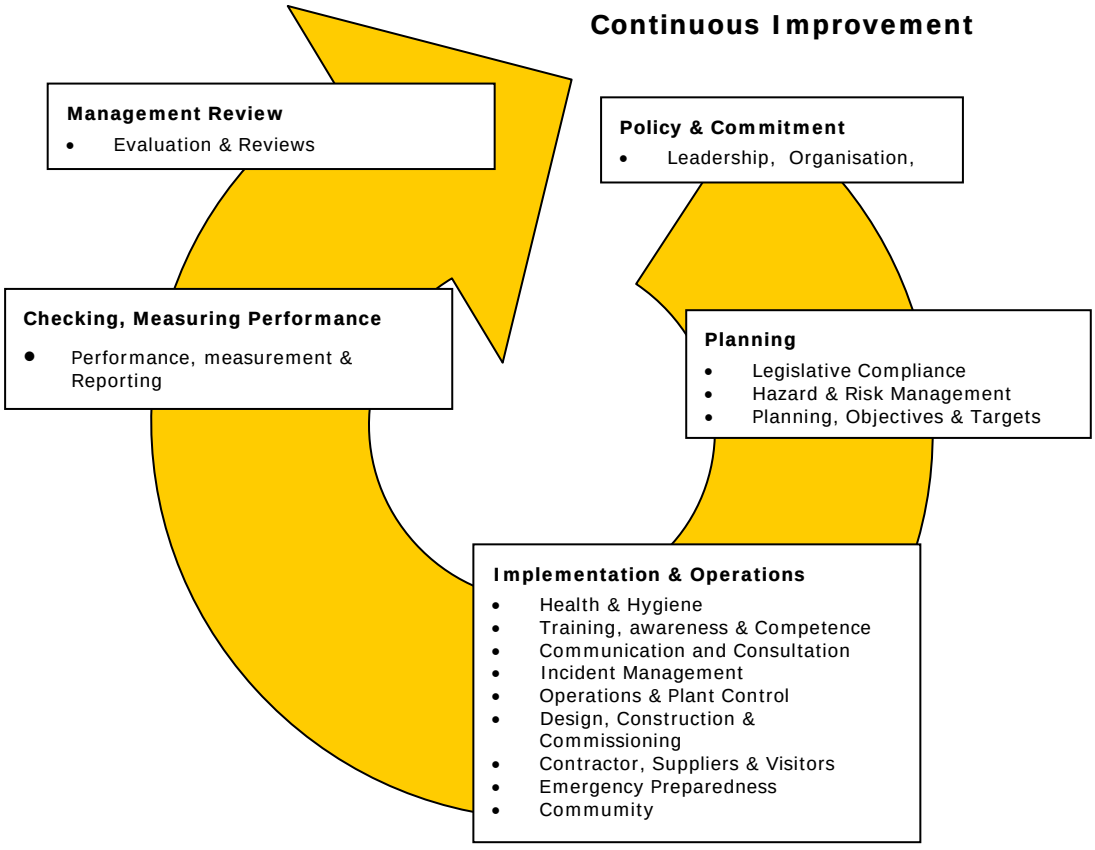

Figure 3: APA Group HSE Environmental Management System Standards

These principles are implemented and managed by a series of corporate and operational documents including: corporate policies, project planning strategies, environmental performance indicators, management plans, procedures and guidelines, and project specific documentation. Key documents and policies relevant to environmental management of the RBP are referred to and summarised below. This OEMP forms part of APA's environmental management framework and is in accordance with APA's values and commitments

In many cases, the detailed information on how site issues will be managed is included in specific APA Group procedures, guidelines and work instruction. These may include, but are not limited to:

- Safety and Operating Plan for all QLD facilities (POL 1-33);
- Queensland Transmission Policy Manual (POL 1-22);
- RBP Right of Way Surveillance (O&M 2-01);
- Excavation of Pipeline with Machinery (O&M 8-01);
- Easement Maintenance Procedure (MGT 6-11);
- Permit to Work Procedure (O&M 1-04);
- Easement Encroachment (MGT 6-06);
- Instructions for Work (MGT 6-02);
- Incident / Near Miss Reporting and Investigation (MGT 1-01);
- Queensland Emergency Response Plan (POL 1-07);
- Integrated Environmental Management System Abrasive Blasting - Integrated Authority No. WT0451 (POL 1-25);
- Abrasive Blast Cleaning (O&MG 3-18);
- Control of Hazardous Substances (MGT 1-21);
- Handling and disposal of asbestos gaskets (O&M 1-16);
- Continuous Improvement Overview (MGT 3-00); and
- APA's Incident Notification, Reporting and Investigation Standard (the Standard).

3.2 RBP Organisational Structure

The RBP organisational structure is shown in Figure 4. For more detailed information about the organisation structure and key responsibilities, refer to the Safety and Operating Plan for these pipelines (Pipeline Licence No.'s 02 and 74).

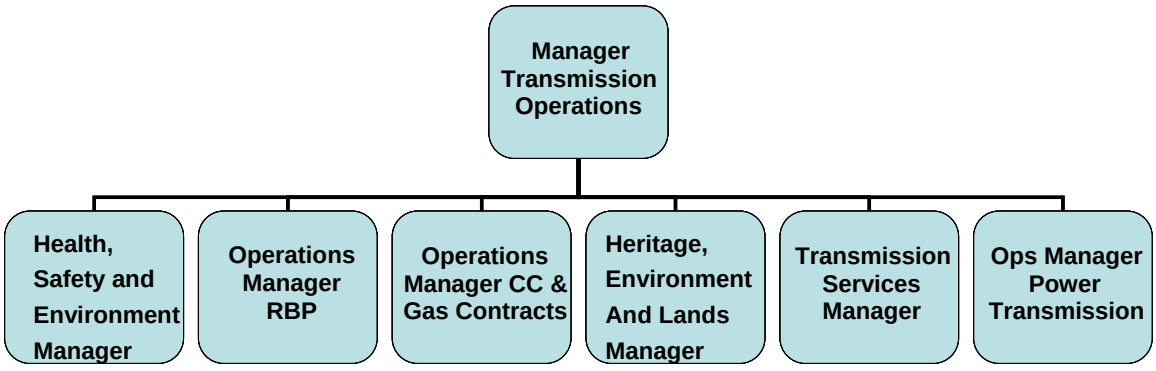

Figure 4: Transmission Qld Organisational Structure

3.3 Environmental Responsibilities

APA is responsible for the environmental management of the ongoing operation of the RBP. However, all personnel and contractors are accountable through conditions of employment or contracts. Each individual is responsible for ensuring that their work complies with the stated procedures and obligations of this EMP and APA's HSE Management System. Specific environmental responsibilities are assigned to particular positions as outlined in Table 5.

Table 5 Environmental Responsibilities for the RBP

Position Title	Environmental Responsibilities
Operations Manager RBP	▪ Implement the RBP EMP including inspections, work order follow-up actions and sign-offs. ▪ Ensure environmental procedures for maintenance of the ROW are followed and actions are completed as per the Works Program. ▪ Report environmental non-compliances with EMP and legislation to Manager Transmission Operations Qld. ▪ Management and upkeep of the RBP Training and Competency Register for field employees under their control. ▪ Timely training of all RBP employees under their control on environmental matters relating to this EMP. ▪ Ensure environmental incidents are reported to the EPA and input to the Incident Management System (IMS). ▪ Maintain liaison with Fire Authorities/Police and Emergency Services as required. ▪ Participate in Emergency Exercises and environmental risk assessments. ▪ Raise work orders for preventative and corrective maintenance following environmental inspection into RBP Work Order Management System. ▪ Raise work orders for preventative and corrective maintenance on environmental issues from aerial surveillance patrols and ROW inspections into the RBP Work Order Management System. ▪ Report on progress of environmental work orders to Manager Transmission Operations Qld with regard to meeting environmental obligations. ▪ Ensure annual completion of environmental works in the Works Program. ▪ Report significant environmental non-compliances with EMP and legislation to Manager Transmission Operations Qld and Technical Compliance Specialist. ▪ Participate in environmental training and emergency response exercises. ▪ Induct new employees in environmental matters.

Table 5 Environmental Responsibilities for the RBP	
Position Title	**Environmental Responsibilities**
Management Review Committee	▪ Ensure HSE Management System standards are maintained across the Company. ▪ Review external environmental audit results and apply to the HSE Management System. ▪ Review significant non-conformances, underlying issues and monitor completion of corrective and preventative actions as they impact on the HSE Management System. ▪ Review compliance to legislation, licences, standards and codes of practice.
Manager Transmission Operations Qld	▪ Implement the Company's Health, Safety & Environment Policy. ▪ Ensure responsibilities are adequately resourced. ▪ Liaise with government agencies regarding environmental issues at a working level. ▪ Reporting non-compliance to regulatory authorities in accordance with legislative requirements.
Transmission Services Manager	▪ Assist the Operations Manager to develop and integrate the Company's Emergency Response Plan. ▪ Co-ordinate externally provided emergency training and exercises.
Technical Compliance Officer	▪ Identification of all environmental legislative requirements and changes. ▪ Liaison with government regulatory authorities at a senior level regarding proposed updates of the EMP. ▪ Review and update of RBP EMP in accordance with Pipeline Licence conditions and maintaining consistency in environmental practices between transmission pipelines. ▪ Reporting to National Pollutant Inventory. ▪ Maintain Obligations Register. ▪ Review and update of RBP Environmental Aspects & Impacts Register in accordance with the Company's HSE Management System. ▪ Monitor the compliance of operational activities with regulatory requirements. ▪ Carry out and/or coordinate environmental audits including the compliance of operational activities to regulatory requirements with regards to environmental performance. ▪ Maintain a register of Non-conformances and Corrective Action Reports resulting from audits of the EMP by regulating authorities, internal audits and/or from incidents recorded on the RBP. ▪ Ensure EMP incorporates appropriate integrity of technical/engineering issues. ▪ Devise annual works program to meet environmental requirements.

Table 5 Environmental Responsibilities for the RBP	
Position Title	**Environmental Responsibilities**
Environmental Compliance Specialist	▪ Liaise with land management groups, community representatives, local state and regulatory authorities on environmental issues (e.g. erosion, weeds) as required; ▪ Identify and maintain currency with relevant industry best practice on environmental management and input appropriate information for the efficient and effective operation of the RBP OEMP ; ▪ Conduct training related to environmental issues to RBP employees; ▪ Collation of environmental data for reporting to Manager HR & HSE; ▪ Develop and maintain operational procedures for compliance with this EMP.
HSE Advisor	▪ Coordinate and assist Operations Managers in the implementation of the requirements of the EMP. ▪ Manage review and update of the EMP. ▪ Monitor compliance with the EMP and ensure Manager Transmission Operations is informed of non-conformances. ▪ Ensure environmental conditions in the EMP are reflected in the Emergency Response Plan. ▪ Record greenhouse gas emissions and report against National Pollution Inventory (NPI). ▪ Ensure operational input into the HSE Management Systems and specifications including this management plan. ▪ In conjunction with Operations Manager RBP, develop and coordinate a structured inspection and monitoring program. ▪ Maintain Material Safety Data Sheets (MSDS) and Chemical inventory for RBP.
Lands Manager	▪ Liaise with land management groups, community representatives, local state and regulatory authorities on land management issues (e.g. access, surveillance) as required. ▪ Assist in monitoring third party activity on RBP ROW. ▪ Report on, and address as required, existing and emerging Cultural Heritage issues. ▪ Identify and maintain currency with relevant land management industry best practice. ▪ Conduct training related to land issues.
Specialist Environmental Advisers	▪ Specialist environmental advisers shall be employed from time to time to carry out specific tasks such as weed control, environmental audits and noise and air monitoring as determined by consultation between Operations Manager, RBP and the Technical Compliance Specialist.

Table 5 Environmental Responsibilities for the RBP	
Position Title	**Environmental Responsibilities**
Pipeline Operators / Technicians	▪ Maintain the Right of Way in accordance with the stated requirements of the RBP EMP and as directed by the delivery Manager RBP. ▪ Undertake Pipeline ROW Patrols regularly in accordance with environmental work orders. ▪ Responsible for ensuring that all works under their control are carried out in accordance with this EMP Conduct Station checks on a regular basis. ▪ Sign off completed environmental work orders in accordance with RBP Work Order Management System. ▪ Liaise and/or undertake awareness programs on environmental matters with landholders, councils, public authorities, emergency services and/or contractors in their designated ROW area of responsibility. ▪ Maintain Material Safety Data Sheets (MSDS) and Chemical inventory for RBP. ▪ Maintain licences under the Agricultural Chemicals Distribution Control Act. ▪ Participate in environmental training and emergency response exercises. ▪ Participate in risk assessment programs in their designated ROW area of responsibility and assist in other ROW areas.

3.4 Training and Induction

Operations personnel, contractors and sub-contractors (regardless of company position or work duties) shall attend HSE inductions and training programs prior to commencing work. Qualified staff will conduct inductions to ensure that all personnel are aware of environmental responsibilities and have obtained a basis to fulfil such responsibilities.

HSE inductions will cover general environmental management issues, including:

- Role of EMP;
- Personal responsibilities;
- Water quality protection;
- Waste management;
- Storage and handling of fuels, oils and chemicals;
- Spill prevention and response; and
- Incident / non-conformance reporting procedures.

3.5 Risk Management

As part of its HSE Management System, APA has developed risk management guidelines and procedures. This framework identifies techniques for the evaluation of risk and provides a description of risk criteria and metrics to allocate risk ratings. These guidelines provide guidance for employees to assess and identify financial, environmental, community and health & safety hazards. In the context of environmental factors, the risk assessment process evaluates the likelihood that adverse environmental impacts may occur as a result of exposure to one or more stressors (US EPA 1998).

APA's risk methodology was developed in accordance with the principles and guidelines contained in:

- AS/NZS ISO 14001:2004 Environmental Management Systems- Specification with guidance for use;
- AS2885.3-2001 Pipelines - Gas and liquid petroleum – Operation and maintenance; and
- AS/NZS 4360:2004 Risk Management.

Environmental risks are assessed by:

- Identifying the environmental aspects, i.e. those activities carried out on the RBP that interact with the environment;
- Determining the severity and frequency of each aspect;
- Assessing risk according to severity and frequency, thereby identifying 'Significant Aspects';
- Identifying actions or treatments to further mitigate the risk for significant aspects to reduce risks to a level 'as low as reasonably practicable' (ALARP); and
- Allocating 'Responsibility' to manage 'Significant Aspects'.

Environmental aspects with a risk deemed 'extreme', 'very high' or 'high' have specific programs in place which are monitored at management level or higher to reduce risk. An example of a management-level program would be an EMP or an Environmental Improvement Plan (EIP) which control the implementation of mitigation measures and thus control risk minimisation. Where the risk cannot be reduced to a tolerable level then the management team must modify the project or operation's objective or obtain written approval from the Manager, Transmission Operations QLD to accept the risk.

3.5.1 Risk Assessment Methodology

APA's risk assessment follows the methodology outlined in Figure 5. The definitions of Consequence, Likelihood and Levels of Risk are found in Appendix B.

Each of the RBP aspects that have the potential to impact on the environment are summarised in Table 8 to Table 23 within Chapter 5. Their risks have also been assessed, taking into account control measures to be implemented and persons responsible for implementation with each impact having a Likelihood, Consequence and overall Risk rating applied.

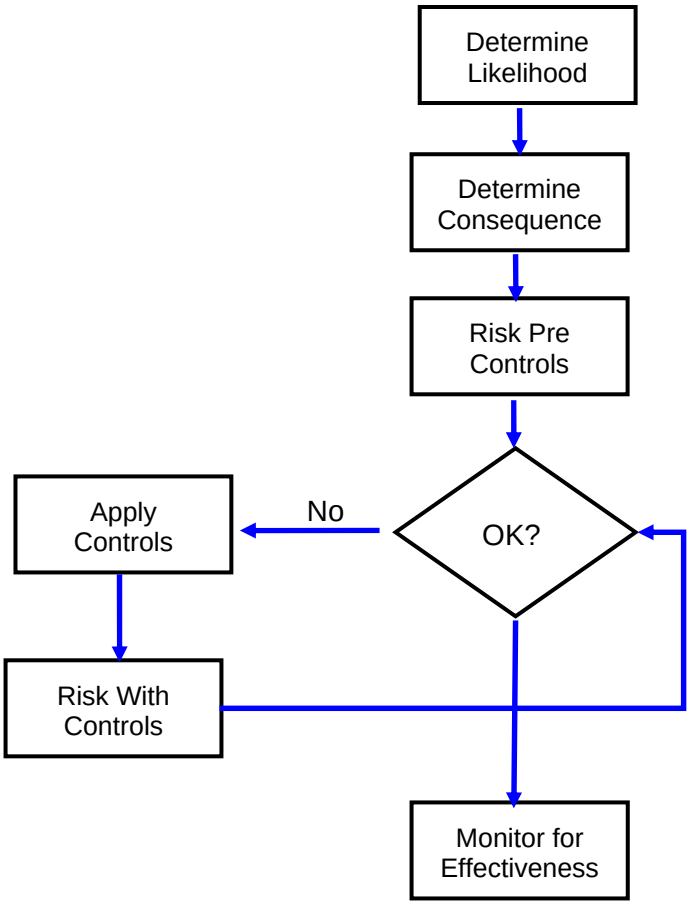

Figure 5: Risk Assessment Flowchart

3.6 Emergency Preparedness and Response

It is recognised that emergencies of the RBP may lead to serious, long term environmental damage. Environmental emergencies may include (but is not limited to):

- Fire/explosion;
- Gas leaks from pipeline;
- Chemical spills;
- Natural events (bushfires, flooding, earth slippage); and
- Third party damage.

3.6.1 Emergency Response Plan (POL 1-07)

In meeting the policy objectives described above, the Queensland Transmission business unit of the APA Group, of which RBP is a part, has developed an Emergency Response Plan. (Emergency Response Plan POL 1-07).

The Emergency Response Plan for the APA Group is maintained to provide an efficient, safe, effective co-ordinated operational plan to deal with the emergency and to maintain and restore normal business operations as quickly and safely as possible. It is the responsibility

of each of the Operations Managers to ensure that their staff is conversant with the emergency response requirements and to ensure that training sessions are attended.

All incidents and situations with the potential to develop into an emergency shall be reported to Pipeline Control in the first instance. An emergency is defined as: any incident or occurrence, not forming part of the normal operations and maintenance of the pipeline and its facilities, which causes or has the potential to cause a reduction or cessation of gas supply to one or more delivery points and/or has potential to cause significant harm to persons, property, or the environment (refer Table 6).

The Qld Emergency Response Plan comprises the following:

- Provides a framework for the management of emergencies for Transmission assets in Queensland;
- Defines the emergency organisation to be established for different levels of emergency and defines the roles, responsibilities and participants in the emergency response organisation;
- Provides guidelines for response to various types of emergency situations which may arise;
- Contains lists of the resources and equipment to be used in the emergency response and initial repairs; and
- Provides a basis for training requirements for emergency response preparedness Contact.

This Emergency Response Management Plan is designed to provide a framework to respond to and manage the following types of emergencies.

Table 6 Emergency Response Classification

Number	Description
1	Serious Personal Injury (includes vehicles)
2	Missing personnel (Refer Travel Policy)
3	Fire/Explosion
4	Major Leak
5	Minor Leak OR Damage -no leak
6	Equipment Malfunction
7	Reported Hit
8	Environmental incident – (serious)
9	Bomb Threat/Terrorist action
10	Causing Property Damage

These codes are used on the emergency forms to assist with defining actions associated with each type of emergency. It is possible that more than one type is applicable, for example, there may by a case where both 3 and 1 are ticked on the initial assessment report.

3.6.1.1 Training and Simulations

All personnel are required to undergo emergency response training according to their individual training plans.

Emergency response training for all personnel commences with a generic "Emergency Response Training" module that must be completed within twelve months of commencing work. Thereafter, all personnel must complete emergency response refresher training annually. The training required will depend on the designated role of the employee and will be set out as per their individual training plan developed by their leader.

The regular use of simulated exercises is a key resource for emergency training. Areas addressed through this type of training are:

- Individual response to the emergency, their reporting techniques, review of personal protective equipment, condition and evacuation techniques;
- Supervisory actions through controlling and monitoring the emergency situation, handling issues that arise from the emergency and implementing control procedures;
- Team response through controlling and handling repair and isolating procedures;
- Control centre actions and response through communications and supply notifications; and
- All clear and reinstatement procedures.

4 Legislative Framework and Requirements

This EMP aims to ensure that all operation and maintenance activities are performed in a manner consistent with applicable legislation, regulations and codes of industry practice. The following sections outline the key Acts and codes relevant to pipeline operations within the Commonwealth (Section 4.1), Queensland (Section 4.2) and Australian Standards and industry codes (Section 4.3) as well as the specific pipeline licence requirements for the RBP.

4.1 Commonwealth Legislation

The relevant Commonwealth legislation includes, but is not limited to the following:

- *Aboriginal and Torres Strait Islander Heritage Protection Act 1984;*
- *Australian Heritage Commission Act 1975;*
- *Environmental Protection and Biodiversity Conservation Act 1999; and*
- *Ozone Protection Act 1989.*

4.2 State Legislation

The relevant Queensland legislation includes, but is not limited to the following:

- *Aboriginal Cultural Heritage Act 2003;*
- *Aboriginal Lands Act 1991;*
- *Agricultural and Veterinary Chemicals (Queensland) Act 1994;*
- *Agricultural Chemicals Distribution Control Act 1966;*
- *Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987 (now superseded by the Aboriginal Cultural Heritage Act 2003);*
- *Dangerous Goods Safety Management Act 2001;*
- *Environmental Protection (Waste Management) Regulation 2000;*
- *Environmental Protection Act 1994;*
- *Environmental Protection Policies for Air 1997, Noise 1997, Water 1997 and Waste Management 2000;*
- *Fire and Rescue Service Act 1990;*
- *Fisheries Act 1994;*
- *Forestry Act 1959;*
- *Integrated Planning Act 1997;*
- *Land Act 1994;*
- *Land Protection (Pest and Stock Route Management) Act 2003;*
- *Native Title (Queensland) Act 1993;*
- *Nature Conservation Act 1992;*
- *Petroleum (Submerged Lands) Act 1982;*
- *Petroleum and Gas (Production and Safety) Act 2004;*
- *Petroleum and Gas (Production and Safety) Regulation 2004;*
- *Plant Protection Act 1989;*
- *Queensland Heritage Act 1992;*
- *Queensland Workplace Health and Safety Act 1995;*
- *Soil Conservation Act 1986;*
- *Transport Infrastructure Act 1994;*
- *Vegetation Management Act 1999;*
- *Water Act 2000.*

4.3 Australian Standards and Industry Codes

In addition to legislative requirements, this EMP has also given consideration to relevant Australian and Industry standards, including:

- AS 2885.3 - 2001: Pipelines – Gas and Liquid Petroleum Part 3: Operation and Maintenance;
- AS 2885.5 - 2002: Pipelines – Gas and Liquid Petroleum Part 5: Field Pressure Testing
- AS1678 Emergency Procedure Guides;
- AS2809 Road Tank Vehicles for Dangerous Goods;
- AS2931 Selection and Use of Emergency Procedure Guides for the Transport of Dangerous Goods;
- AS 1940 Storage and Handling of Hazardous Substances;
- ANZECC/ ARMCANZ. 2000 Australian and New Zealand Guidelines for Fresh and Marine Water Quality;
- Australian Code for the Transport of Dangerous Goods by Road and Rail;
- Australian Petroleum Exploration Association (APEA) Code of Environmental Practice – Onshore;
- Australian Petroleum Production and Exploration Association (APPEA) Code of Environmental Practice, 1996;
- Australian Pipeline Industry Association (APIA) Code of Environmental Practice Onshore Pipelines 2005 Rev 1;
- National Code of for the Control of Workplace Hazardous Substances [NOHSC: 2007(1994)];
- National Code of Practice for the Labelling of Workplace Substances [NOHSC: 2012(1994)];
- National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC: 2011(1994)]; and
- National Environment Protection Measures – National Pollutant Inventory.

4.4 Licence Requirements

The RBP and Peat Lateral are operated under Pipeline Licence No.2 and No. 74, respectively (refer Table 7). The licences were issued under the Petroleum Act 1923, and Petroleum and Gas (Production and Safety) Act 2004.

The individual licences have sections which refer specifically to requirements for environmental management measures. These requirements have been incorporated into the environmental management strategies outlined in Chapter 5.

Table 7 Roma to Brisbane Pipeline System Licence Information			
Pipeline Licence	**Asset**	**Date of Issue**	**Issued to**
PPL 02	• Original DN250 RBP • DN300/DN200 extension to Gibson Island • DN400 RBP looping running parallel to the original DN250 RBP including the section between Collingwood Park and Ellengrove • Swanbank Lateral.	21st December 1967 (currently an open licence)	Previously Associated Pipelines Limited (APL), now APT Petroleum Pipelines Limited.
PPL 74	• Scotia/Woodroyd to Roma-Brisbane Pipeline including the DN250 Peat Lateral and Scotia extension	3rd September 2000	Previously APT Petroleum Pipelines Limited and Interstate Pipelines Pty Ltd now APT Petroleum Pipelines Limited.

5 Environmental Management Strategies

This chapter discusses the potential aspects and impacts posed to the environment by the operation and maintenance of the RBP. Management strategies that will be implemented to reduce potential impacts to an acceptable level of risk are also outlined.

The key activities that may have an impact on the environment are:

- Easement access;
- Soil and ground stability;
- Vegetation and weed management;
- Control of diseases;
- Earthworks and land use;
- Bushfire prevention;
- Air emissions;
- Noise emissions;
- Heritage – natural and built environments;
- Watercourse management;
- Management of pipeline facilities;
- Waste management;
- Pipeline spill prevention;
- Fuel and chemical storage; and
- Decommissioning and restoration.

These activities are also represented in the Australian Pipeline Industry Association's Code of Environmental Practice – Onshore Pipelines (Oct 2005). Each of these activities is considered in more detail in the following sections.

The management strategies outlined have also been cross-checked against recommendations made during the 2006 Environmental Audit Report.

5.1 Easement Access

Access to the easement is required for surveillance and maintenance activities that aim to protect the integrity of:

- The pipelines;
- The condition of the local environment; and/or
- Third party property.

Surveillance is the most common activity along the easement. The easement is inspected daily in the metropolitan area, decreasing to fortnightly at the western end of the pipeline. Contracted aircraft and helicopters are utilised to conduct aerial patrols on the Peat Lateral pipeline on a regular basis or after an extreme weather event.

Access to the easement is also required to carry out other preventative, risk specific, and corrective maintenance activities such as erosion control works, vegetation control works, coating defect repairs and cathodic protection monitoring. APA uses existing public roads and farm tracks to carry out these works, where possible. Permanent access is usually maintained to the above ground facilities.

The key environmental impacts resulting from easement access requirements are:

- Disturbance to native vegetation, wildlife and heritage areas;
- Damage to agricultural production or other land uses; and
- Soil compaction, erosion or release of sediment to land and water.

Table 8 shows the specific management measures to be implemented to mitigate environmental impacts through easement access activities, as well as the responsibilities for those activities. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Moderate* for impacts related to soils compaction, erosion and release of sediment to land and water. The risk assessment process identified all other impacts as having a *Low* risk.

Table 8 Easement Access Management

Related Documents:

Targets and Objectives of Management

- No unapproved disturbance to native flora, fauna or Heritage items to minimize disturbance;
- No complaints relating to access creating impacts on residents, landowners and third parties;
- No complaints relating to soil erosion or sedimentation to minimize impacts on soil and water.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Maintaining permanent access along the easement	8-1 Disturbance to native vegetation, wildlife and heritage areas (*e.g.,* vehicular movement, track clearing and repairs) 8-2 Damage to agricultural production or other land uses 8-3 Temporary disruption to residents, landowners and third parties 8-4 Soil compaction, erosion or release of sediment to land and water	Limit direct physical access for activities essential to ensure the continued safe operation and protection of the local environment.	All	**8-1** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **8-2** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **8-3** Likelihood – *Possible (3)* Consequence – Important *(1)* Risk – **MODERATE (3)** **8-4** Likelihood – *Rare (1)* Consequence – *Important (1)* Risk – **LOW (1)**
		Do not allow public access along corridor unless that right already exists. Public access shall be controlled by measures such as disguise, physical barriers and signs.	Pipeline Technicians / Operations Manager	
		Develop an Environmental Impact Assessment and EMP for new access tracks.	Operations Manager	
		Use permanent access tracks to access above ground facilities.	All	
		Maintain access tracks to the minimum practicable width.	Pipeline Technicians	
		Manage vegetation and ground stability in accordance with EMP for continued access and safe navigation.	Pipeline Technicians	
		Use existing farm tracks and public roads wherever possible. Obtain landowner permission to utilise private tracks 24 hours before access is required or by ongoing arrangement.	All	
		Erect barrier fencing around any unattended excavations and use appropriate sediment control devices where necessary.	Pipeline Technicians / Project Managers	
		Minimise landowner access restrictions around properties. Consult with landowners regarding restrictions.	Pipeline Technicians / Project Managers	
		Consult landowners regarding timing of activities when activities are undertaken, near to residences. However, unlimited access is required during an emergency.	All	

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Maintaining permanent access along the easement	8-1 Disturbance to native vegetation, wildlife and heritage areas (*e.g.*, vehicular movement, track clearing and repairs) 8-2 Damage to agricultural production or other land uses 8-3 Temporary disruption to residents, landowners and third parties 8-4 Soil compaction, erosion or release of sediment to land and water	Restrict vehicle access in sensitive environments such as wetlands, water crossings and areas under rehabilitation/restoration.	All	
		Avoid or limit vehicle access in eroded, unstable areas and areas containing soils with high erosion potential, particularly after excessive rain.	All	
		Avoid or limit vehicle access in areas that have been recently revegetated.	All	
		Manage the spread of weeds by controlling access and in accordance with the EMP.	All	
		Monitor and record access related impacts as part of routine surveillance and record into Incident Management System.	Pipeline Technicians / Operations Manager	
		Minimise potential disruptions to access of adjacent sensitive environments and residences.	Pipeline Technicians / Operations Manager	
		Install, maintain and reinstate property fences and gates to at least pre-existing conditions.	All	
		Consult with relevant utility authorities to identify other potentially affected infrastructure.	Pipeline Technicians / Operations Manager	
		Advise other utility authorities of works adjacent to their easements in the event that access to infrastructure could be interrupted.	Pipeline Technicians / Operations Manager	

5.2 Soil and Ground Stability

The majority of the easement is on flat or undulating land (85%) which limits the likelihood of soil and ground stability issues occurring. However routine surveillance is used to identify and monitor any trench subsidence and erosion issues along the easement. Susceptible areas, such as steep slopes and watercourses are given specific attention during surveillance activities. Previous audits of the pipeline have also recorded areas of erosion along the route which have required remedial action.

The potential development of new soil and ground stability issues during ground surveillance and routine maintenance activities is controlled by limiting access to the pipeline easement. In addition, all routine and non-routine maintenance activities must comply with APA procedures including the APT Excavation of Pipeline with Machinery and Easement Maintenance procedures (O&M 8-01 & MGT 6-11 respectively). Any soil and ground stability issues are also considered within the Job Hazard Analysis for the activity. Surveillance and maintenance activities are identified and monitored by the Works Management System (WMS).

Soil and ground stability issues that do develop are addressed during easement maintenance.

The key environmental impacts to soil and ground stability are:

- Damage to agricultural production or other land uses;
- Damage to native vegetation and wildlife habitat; and
- Soil erosion, sedimentation (land and water) and land subsidence.

Table 9 outlines the key management measures that need to be employed to mitigate soil and ground stability impacts, as well as the responsibilities for those activities. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Moderate* for two of the three impacts identified.

Table 9 Soil and Ground Stability Management

Related Documents:

Targets and Objectives of Management Plan

- No significant erosion impacting the easement to minimise the potential for soil erosion;
- Sediment and erosion controls in place and maintained to adequately prevent or control sediment release to land and water;
- No unapproved vegetation clearance or disturbance of cultural and heritage areas to avoid unacceptable damage to native vegetation or wildlife habitats and areas of cultural and heritage significance;
- No landholder / third party complaints relating to restriction or loss of land use to prevent damage to other legitimate land uses;
- No exposure of buried pipeline due to erosion to minimise the risk of the exposure of buried pipelines;
- Any reported subsidence issues repaired as soon as practicable to adequately control subsidence of the pipeline trench.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Soil erosion, sediment release to land and water, subsidence of pipeline trench from: • Excavation works during scheduled maintenance or emergency response. • Patrols and inspections. • Vegetation control activities. • Management of storm water runoff and soil protection measures at facilities.	**9-1** Soil erosion, sediment release to land and water, subsidence of pipeline trench. **9-2** Damage to agricultural production or other land uses). 9-3 Damage to native vegetation and wildlife	Identify and monitor potential soil and ground stability problems during routine surveillance and in accordance with EMP.	Operations Manager / Pipeline Technicians & Surveillance Crew	**9-1** Likelihood – *Possible* (3) Consequence – *Important* (1) Risk – **MODERATE (3)** **9-2** Likelihood – *Unlikely* (2) Consequence – *Important* (1) Risk – **MODERATE (2)** **9-3** Likelihood – *Unlikely* (2) Consequence – *Minor* (0.5) Risk – **LOW (1)**
		Provide suitable controls to protect from erosion and promote ground stability particularly in areas that have been revegetated, rehabilitated or restored.	Pipeline Technicians / Operations Manager / & Project Managers	
		Undertake erosion control, management strategies and remedial action in accordance with appropriate codes and industry practice.	Pipeline Technicians / Operations Manager / & Project Managers	
		Monitor the stability of restored or rehabilitated surfaces during routine surveillance.	Pipeline Technicians / Operations Managers	
		Revegetate areas of poor ground cover, eroded / unstable areas and disturbed areas in accordance with the EMP.	All	
		Limit access to where required to reduce erosion risk and promote ground stability.	All	

		Inspect and maintain all erosion control structures.	Pipeline Technicians / Operations Manager / & Project Managers	
Environmental Aspect	**Impact**	Mitigation	Responsibility	**Residual Risk Rating**
Soil erosion, sediment release to land and water, subsidence of pipeline trench from: • Excavation works during scheduled maintenance or emergency response. • Patrols and inspections. • Vegetation control activities. • Management of storm water runoff and soil protection measures at facilities.		Consider potential soil erosion and ground instability during EIA and Job Hazard Analyses.	Operations Manager / & Project Managers	
		Record any subsidence on Third Party assets within the easement and refer to the Third Party for repair as soon as practicable.	Pipeline Technicians / Operations Manager	
		Maintain water crossings in a stable condition.	Pipeline Technicians / Operations Manager	
		Consult QLD Department of Natural Resources and Mines prior to placing fill in or excavations in any watercourse.	Pipeline Technicians / Surveillance Crew / Operations Manager	
		Consult QLD Department of Natural Resources and Mines prior to inferring with the flow of water.	All	
		Monitor the pipeline corridor for erosion and instability issues associated with unauthorised use of the easement, especially around Brown Plains Road in the Brisbane metropolitan area.	All	
		Report all incidents where erosion and sedimentation have resulted in environmental degradation.	Manager Pipeline Operations	
		Manage water in accordance with EMP to reduce sedimentation in watercourses.	All	
		Review checklist used during surveillance activities with respect to ground stability identification and monitoring.	Pipeline Technicians	

5.3 Vegetation Management

Clearing of trees and tall shrubs is required along the easement so as to comply with the requirements of AS2885.3. This code dictates that there should be a clear line of sight between pipeline marker signs and that the pipeline coating should be protected from damage by roots.

The majority of the RBP easement lies within pastoral lands (70 %) and generally in remote, arid areas with inherently poor vegetation cover. As a result, clearing has minimal impacts upon native vegetation. Even so, clearing of the easement is only undertaken on an as-needed basis, which is highly dependant upon rainfall in particular areas. This enables the existing vegetation along the easement to continue to protect the RBP against the impacts of erosion and weed growth as well as providing habitat for native fauna.

The key environmental impacts to vegetation along the pipeline include:

- The spread of weeds along the easement and the introduction of new weed species to the easement;
- Excessive vegetation re-growth;
- Competition from weed species leading to displacement of agricultural crops or native flora;
- Poor vegetation cover that may lead to erosion or loss of agricultural capacity; and
- Removal of habitat.

Routine ground surveillance identify and monitor vegetation and weed management issues. Areas of poor vegetation cover, excessive vegetation cover and areas of excessive weed growth are targeted during this surveillance.

Table 10 shows the specific management measures to be implemented to identify and monitor any vegetation and weed issues. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Moderate* for impacts resulting from poor vegetation cover leading to erosion and loss of agricultural capacity. All other assessed criteria were recorded as *Low*.

Table 10 Vegetation Management

Related Documents: APIA Code Part A Section 4.1.8 Clean-up and Restoration, Lands Protection Act 2002, Agricultural Chemicals Distribution Control Act and Regulation, APIA, Code of Environmental Practice.

Targets and Objectives of Management Plan

- No evidence of erosion or sedimentation due to a lack of vegetation cover that is inconsistent with the surrounding landscape to promote and maintain stable vegetation cover;
- No unauthorized vegetation clearing (*i.e.,* outside of easement) or disturbance of cultural or heritage areas to minimize impacts to native flora and fauna and areas of cultural and heritage significance;
- All erosion control measures and access tracks maintained to minimize soil erosion and sedimentation;
- No landholder complaints relating to loss of agricultural production;
- No evidence of weeds being of a higher density within the easement than the surrounding landscape to enable prompt identification and control of weeds to eliminate noxious weed species;
- No evidence of new weed species being recorded on the easement to minimize the introduction and spreading of weeds;
- No landholder or third party complaints relating to visual impacts of the pipeline or associated facilities to reduce visual impacts.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Maintaining permanent access along the easement	10-1 Poor vegetation cover that may lead to erosion or loss of agricultural capacity 10-2 Excessive vegetation re-growth especially of weeds 10-3 Removal of key vegetation from habitat areas 10-4 Introduction and competition from weed species leading to displacement of agricultural crops or native flora	Use routine surveillance activities to identify and monitor potential areas of poor or excessive vegetation cover and for the presence of weeds.	All	**10-1** Likelihood – *Unlikely (2)* Consequence – *Important (1)* Risk – **MODERATE (2)** **10-2** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **10-3** Likelihood – *Unlikely (2)* Consequence – *Important (1)* Moderate – **(2)** **10-4** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)**
		Revegetate bare or eroded areas in accordance with appropriate industry standards. Select plant species appropriate to the local area and in consultation with landowners.	Pipeline Technicians / Operations Managers	
		Promote ground stability in revegetated areas in revegetated areas in accordance with EMP.	Pipeline Technicians / Operations Managers	
		Monitor success of revegetation activities during routine surveillance.	All	
		Limit vehicle movements in recently revegetated areas, where possible in accordance with EMP.	All	
		Reseed cropping areas affected by maintenance works, where required by the landholder.	Pipeline Technicians/ Project Manager	
		Maintain minimum ground cover levels (*e.g.,* 150-300mm) to promote soil and ground stability.	Pipeline Technicians	

		Remove regrowth trees within 3m of either side of the pipe centreline at the seedling or sapling stage to ensure the roots do not create a safety risk to the pipeline.	Pipeline Technicians/ Operations Manager	
Environmental Aspect	**Impact**	**Mitigation**	**Responsibility**	**Residual Risk Rating**
Maintaining permanent access along the easement	10-1 Poor vegetation cover that may lead to erosion or loss of agricultural capacity 10-2 Excessive vegetation re-growth especially of weeds 10-3 Competition from weed species leading to displacement of agricultural crops or native flora	Trim or slash vegetation along access tracks.	Pipeline Technicians	
		Reduce damage to vegetation outside the easement unless unavoidable and only with landowner consent & approval of regulatory authorities where required.	All	
		Allow native ground covers & shrubs to regenerate and then maintain them by slashing.	Pipeline Technicians	
		Consult with the QLD Department of Natural Resources (DNR) and Mines prior to the destruction of vegetation in a watercourse, lake or spring.	Pipeline Technicians/ Operations Manager	
		EPA Guidelines provide that vegetation within 50 m of a watercourse is protected as buffer zones. However vegetation clearance that ensures bank stability is acceptable.	All	
		Consult the local DNR (Forestry) office in the event of tree removal including regrowth from the Yuleba State Forest.	Operations Manager	
		Develop a weed control program in accordance with the APIA Code of Environmental Practice.	Supplier / Pipeline Technicians / Project Managers	
		Monitor weed growth along the easement during routine surveillance activities. Manage weeds in accordance with relevant regulatory requirements.	Pipeline Technicians / Operations Managers/ Project Managers	
		Train pipeline technicians in weed identification.	Pipeline Technicians / Operations Managers	

5.4 Weed Management

The operation and maintenance activities for the pipeline have the potential to introduce and spread environmental weeds. The key environmental impacts relating from weed establishment and infestation include:

- Competition from weed species and displacement of agricultural crops or native flora;
- Reduced primary industry productivity and produce quality;
- Impacts to sensitive environments adjacent to weed infected areas; and
- Loss of visual amenity.

Weeds have the potential to adversely alter ecosystem function, reduce primary industry productivity and profitability, and seriously limit the long-term sustainability of agricultural and natural resources. This potential is controlled by limiting access to the pipeline easement as described in Section 5.1. Of particular significance to landholders will be the potential to introduce and spread declared and other agricultural weeds. Introduction and spread of declared weeds can render land less productive and in some cases have serious health impacts on livestock (and on people in the case of Parthenium).

Routine aerial and vehicle surveillance is undertaken to identify and monitor vegetation and weed management issues. Areas of poor vegetation cover, excessive vegetation cover and areas of excessive weed growth are targeted during this surveillance. The 2006 audit of the pipeline route observed environmental weeds at various locations along the ROW, primarily along the Ipswich to Withcott sections of the line.

Site specific management measures need to be implemented to identify and monitor any vegetation and weed issues. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Moderate* for impacts to primary industry productivity. The other impacts assessed had a risk rating of *Low*.

5.4.1 Parthenium (*Parthenium hysterophyorus*)

Parthenium is a weed of national significance (WONS) that aggressively colonises disturbed sites and can have major impacts on pasture and cropping industries in Australia. In Queensland, Parthenium is declared a Class 2 plant under the *Land Protection (Pest and Stock Route Management) Act 2002*, which requires landholders to control declared pests on the land and waters under their control. Due to its invasiveness, potential for spread and economic and environmental impacts, Parthenium is regarded as one of the worst weeds in Australia (CRC 2003). Large infestations of the weed are found in central Queensland, with serious outbreaks in the south and west of the state.

The presence of Parthenium has been identified at various locations along the pipeline ROW as indicated in Table 11 below and Figure 6: RBP Parthenium Distribution and Density. The Annual Pest Distribution 2008 Survey's classification of infestation density has been utilised to classify Parthenium density along the ROW as follows:

1. Abundant: infestations that have reached their full potential and provide little opportunity for additional plants to survive in that area;
2. Common: a middle measure between occasional and abundant; and
3. Occasional: single plants spaced apart at wide intervals.

Generally, Parthenium infestation density along the pipeline is classified as occasional and localised, however infestations classed as common and widespread occur between KP305 - KP322.

Table 11 Infestation Density by KP Location	
KP Location	**Infestation Density**
49-73	Occasional and Localised
123-139	Occasional and Localised
190-210	Occasional and Localised
269-305	Occasional and Localised
305-322	Common and Widespread
322-373	Occasional and Localised
390-435	Occasional and Localised

5.4.1.1 Parthenium Control Measures

Control methods are site dependent and should aim to contain the spread of the weed, as well as minimise the impact of established infestations. Construction managers need to be particularly vigilant in monitoring areas close to infestations and be proactive in the adoption of best practice management techniques to minimise incursion of the weed into clean areas.

As there is a high risk of spread via vehicles and machinery during pipeline maintenance operations, it is essential that any Parthenium present along the ROW be managed. General weed management measures are listed in Table 12 and include measures suitable for dealing with Parthenium; however, the following management measures are of particular importance for the control of Parthenium along the ROW:

1. The adoption of inspection and wash-down procedures, including checking all machinery and vehicles prior to moving onto a clean property.
2. Chemical spraying using a herbicide registered for Parthenium use and following the guidelines as set out in the DPI&F Factsheet for Parthenium Weed (DPI&F 2007). The correct procedure, as detailed in the National Weeds Program manual titled *Parthenium Weed Management* (2004), is to mark and spray, then spot-spray isolated outbreaks with a registered residual herbicide and mark sprayed plants with a steel post. Check the site every 21 days or within ten days following rain and re-spray if required.
3. Preventing establishment of self-regenerating populations by managing isolated outbreaks and treating new outbreaks promptly. It is important not to pull out seeding plants as disturbance will encourage further germination.

The above management measures are also detailed in APA's Pipeline Operations; Planting and Weed Guide (APA 2009).

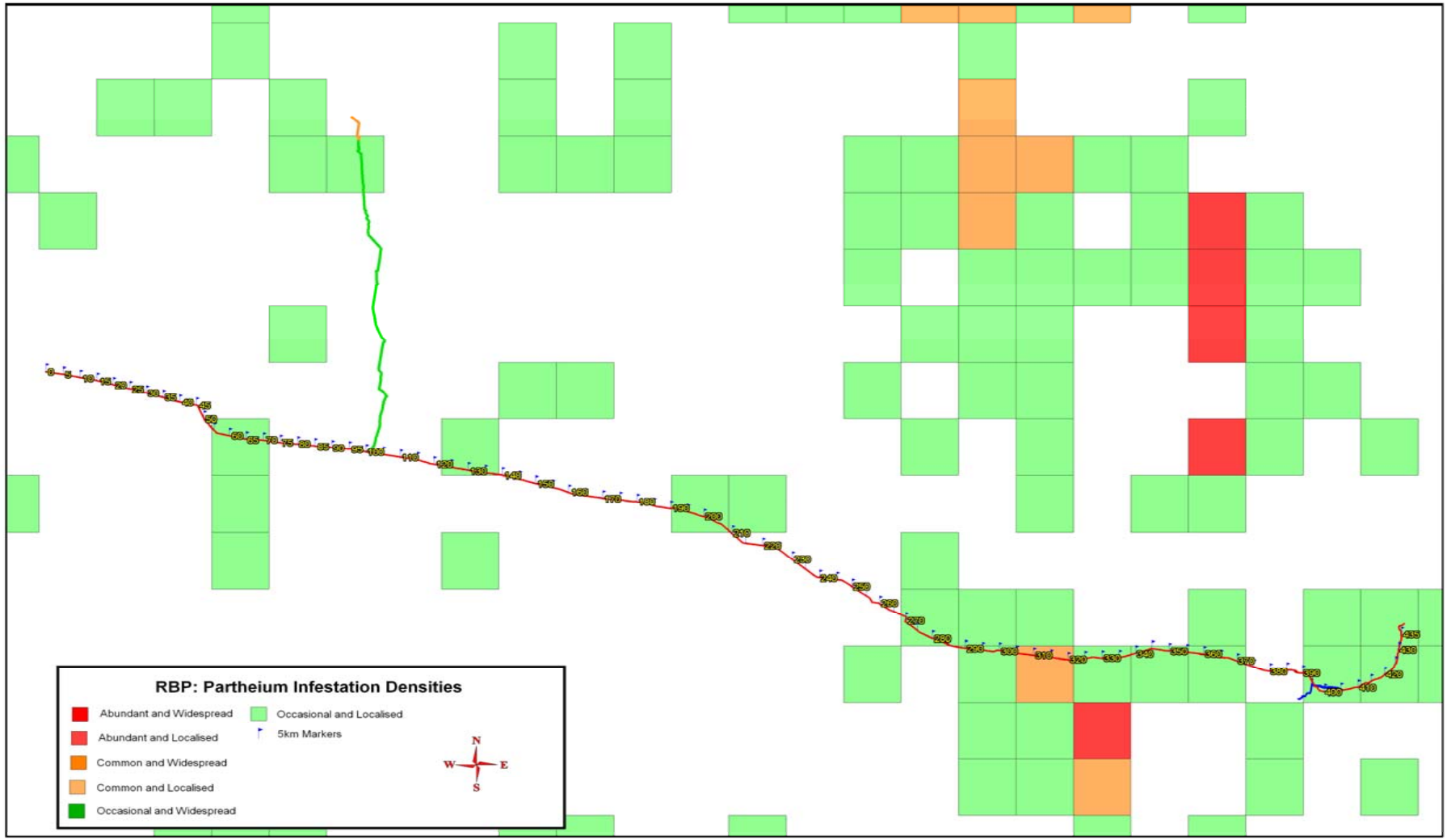

Figure 6: RBP Parthenium Distribution and Density

Table 12 Weed Management

Related Documents: APIA Code Part A Section 5.1.4 Weed Management, Lands Protection Act 2002, Agricultural Chemicals Distribution Control Act and Regulation, APIA, Code of Environmental Practice.

Targets and Objectives of Management

- To avoid impacts to primary industries;
- No evidence of weeds being of a higher density within the easement than the surrounding landscape to enable prompt identification and control of weeds to eliminate noxious weed species;
- No evidence of new weed species being recorded on the easement to minimize the introduction and spreading of weeds;
- No landholder or third party complaints relating to visual impacts of the pipeline or associated facilities to reduce visual impacts.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Maintaining permanent access along the easement	11-1 Reduced primary industry productivity and produce quality 11-2 Excessive vegetation re-growth especially of weeds 11-3 Introduction and competition from weed species leading to displacement of agricultural crops or native flora	Use routine surveillance activities to identify and monitor potential areas of poor or excessive vegetation cover and for the presence of weeds.	All	**11-1** Likelihood – *Unlikely (2)* Consequence – *Important (1)* Risk – **MODERATE (2)** **11-2** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **11-3** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)**
		Limit vehicle movements in recently revegetated areas, where possible in accordance with EMP.	Pipeline Technicians / Operations Managers	
		Wash all vehicles including excavating machinery prior to arrival on site and get a pipeline technician to inspect prior to unloading.	Pipeline Technicians / Operations Managers	
		Undertake machinery wash downs in accordance with guidelines under the Lands Protection Act 2002.	All	
		Consult with landowners to determine if machines used in slashing are to be washed down prior to use on their property. Record consultation activities.	All	
		Wash slashing equipment before moving from a known weed infestation area to a weed free area. Record inspections and washdowns.	Pipeline Technicians/ Project Manager	
		Monitor weed growth along the easement during routine surveillance activities. Manage weeds in accordance with relevant regulatory requirements.	Pipeline Technicians	
		Train pipeline technicians in weed identification.	Pipeline Technicians/ Operations Manager	

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Maintaining permanent access along the easement		Supervise maintenance contractors and ensure they are aware of obligations and responsibilities in regards to weed management.	Pipeline Technicians	
		Use trained technicians holding a commercial operator's licence to spray weed control chemicals.	All	
		Only Conduct spraying near watercourses after consultation with an Environmental Engineer.	Pipeline Technicians	
		Obtain a permit to use pesticide chemicals in accordance with the Agricultural Chemicals Distribution Control Act and Regulation.	Pipeline Technicians/ Operations Manager	
		Develop a weed control program in accordance with the APIA Code of Environmental Practice and add to the Works Management System	Operation Manager	
		Avoid importing soil, where practicable. Obtain landholder approval if imported soil is required, if necessary. Soil should be free of weeds.	Operations Manager	
		Clean demountable buildings used on the easement prior to removal from site.	Supplier / Pipeline Technicians / Project Managers	

5.5 Control of Diseases and Pests

Plant and animal diseases have the potential to cause serious environmental, economic and social problems. In particular, the spread of disease along the RBP corridor could potentially impact on commercial crop and stock production in the region.

Currently there are no reported areas affected by agricultural diseases along the RBP easement. With appropriate management strategies, the possible spread of diseases and pests can continue to be minimised.

Diseases and pests may be present in soil, manure and organic matter attached to vehicles and machinery. Subsequently, diseases and pests may be transported between properties as a result of pipeline operations. In general, communication with, and notification from, landowners with respect to any potential diseases on their properties will be relied upon. Such diseases might include (but not be limited to) Equine Influenza, footrot, Ovine Johne's Disease, foot and mouth disease, Newcastle Disease and Asparagus Stem Blight.

Equine Influenza (EI) has been detected in horses in Queensland and New South Wales. EI is a highly contagious viral disease that affects all horse species. People are not affected by Equine Influenza. However, if people come into contact with infected horses they can carry the disease and pass it onto other horses. Several properties in Brisbane's western suburbs have previously been identified as having infected horses with those properties being quarantined by the DPI. Further information about the Equine Influenza is available on the DPI website **http://www.dpi.qld.gov.au**

Pests such as fire ants have recently been discovered in Southern Queensland, particularly in the Ipswich area. Fire ants are notifiable under section 12 of the *Plant Protection Act 1989* and the *Plant Protection Regulation 2002 (Qld)* (Chapter 3, Part 2). Accordingly, there is a legal obligation to inform the Department of Primary Industries (DPI) of suspected Fire Ant infestations within or adjacent to the pipeline easement. All reports of possible fire ant infestations should be made to the DPI Call Centre on 13 25 23.

Fire ants can spread through high risk materials such as soil, mulch, baled hay and earthmoving machinery and equipment. APA has an approved *Fire Ant Risk Management Plan* which outlines all controls and mitigation needed to reduce the risk of Fire Ant spread along the RBP (ARMP No: 1860). All operational activities must comply with this plan.

Table 13 outlines the specific management measures to be implemented to control the spread of pests and diseases. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Moderate* for all three of the identified impacts.

Table 13 Control of Pests and Diseases

Related Documents: APIA Code; Approved Fire Ant Risk Management Plan (ARMP No: 1860); DPI Fact Sheets.

Targets and Objectives of Management

- No landholder or third party complaints regarding possible transmission of disease to minimize the spread of disease
- No landholder or third party complaints regarding possible transmission of disease to prevent the introduction of disease to new areas.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Spread of pests and diseases by maintaining permanent access along the easement	12-1 Reduction in agricultural productivity and livestock health. 12-2 Damage to native flora and fauna, possibly leading to death. 12-3 Loss of biodiversity and poor regeneration.	Leave gates as they were found to prevent the possible integration of separated herds / flocks.	All	**11-1** Likelihood – *Unlikely (2)* Consequence – *Important (1)* Risk – **MODERATE (2)** **11-2** Likelihood – *Unlikely (2)* Consequence – *Important (1)* Risk – **MODERATE (2)** **11-3** Likelihood – *Unlikely (2)* Consequence – *Important (1)* Risk – **MODERATE (2)**
		Include potential disease issues, controls and the need for notification by landholders in routine liaison and communication with landholders.	Lands Manager	
		Consult with landholders of properties involving intensive farming (i.e. poultry farming, piggeries) with regards to disease control and access requirements. Specific property controls shall be complied with at all times.	Lands Manager	
		Consult with landholders with regards to agricultural diseases prior to all projects on their land.	All	
		Ensure excavation equipment received on-site for pipeline works is received free of soil and organic matter. Inspect all equipment prior to offloading. Record inspections.	Operations Manager/ Project Manager	
		Wash down all equipment with high pressure sterilised water prior to departure from site, in the event of works in a disease area.	Operations Manager/ Project Manager	
		Include all vehicle and equipment wash downs in a project register.	Operations Manager/ Project Manager	
		Avoid importing soil where practicable. If required, imported soil must be from disease-free areas and approved by the landholder.	Operations Manager	
		Contact QLD Agriculture in regards to regular identification/notification of disease/pest areas along	All	

		the RBP and Peat Lateral.		
		Comply with the Company's *Fire Ant Risk Management Plan* at all times.	Environmental Engineer	
		Avoid touching horses, horse equipment, bedding, and manure.	All	
		Where possible schedule works in non-quarantined horse properties last and then wash down at nearest washbay	All	

5.6 Earthworks and Land-use

Earthworks along the easements are required from time to time. Excavations may be undertaken to inspect the pipelines, pipeline repair and coating issues and to replace or repair cathodic protection (CP) system components. Excavation may also be required for general easement repairs and track maintenance. In most cases excavations occur within the pipeline easements.

In general, the pipelines are protected physically against corrosion by internal and external coatings and electrically against corrosion by the installed CP systems limiting the needs for pipeline integrity digs and repairs. Coating repairs are more common and are undertaken as required, based on results from in-line pipeline inspection (pigging) results and other coating surveys.

In some cases third parties may also excavate along the easements. This is usually associated with installation and maintenance of other services, utilities and other pipelines, either in parallel of perpendicular to the easements (crossings). Such activities are performed under strict supervision by representatives of APA.

Earthworks are controlled by the following procedures:

- MGT 6-01 Guidelines for Work;
- MGT 6-02 Instructions for Work;
- O&M 8-01 Excavation of Pipeline with Machinery;
- MGT 6-06 Easement Encroachment; and
- MGT 6-11 Easement Maintenance Procedure.

The key issues associated with earthworks that may also affect land use are:

- Soil erosion and sediment release;
- Interruption to natural surface and groundwater flows;
- Disturbance to native vegetation and wildlife;
- Temporary disruption to residents, landowners and third parties; and
- Introduction of weed species.

Table 14 outlines the key management measures to be used to mitigate the potential issues resulting from earthworks along the RBP. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Moderate* for impacts related to the spread of weeds and soil erosion. The risk assessment process identified all other impacts as having a *Low* risk.

Table 14 Earthworks and Land Use Management

Related Documents: MGT 6-02 Guidelines for Work, O&M 8-01 Excavation of Pipeline with Machinery, MGT 6-06 Easement Encroachment, MGT 6-11 Easement Maintenance; Section 4.1 of the APIA Code (Part A); Soil Erosion and Sediment Control Engineering Guidelines for Queensland Construction Sites" (Institute of Engineers, 1996), Local Council Erosion and Sediment Control guidelines.

Targets and Objectives of Management

- No reports of erosion or flow disruption at new earthworks to minimize impacts of erosion, sedimentation and disruption of environmental flows;
- No unapproved disturbance of vegetation outside of the easement or of cultural or heritage areas to minimize disturbance to native flora and fauna; and cultural or heritage areas;
- No landholder or third party complaints relating to new earthworks to minimize disruption to residents, landowners and third parties;
- No landholder or third party complaints relating to new earthworks to minimize disruption to agricultural production or other land uses;
- Effectively manage disruption to existing land use rights and practices as a result of Company activities to minimise disruption to existing land use rights and practices;
- Effectively manage all potential disturbances to residents, landowners and third parties;
- Engage in appropriate consultation with all landowners with regards to Company activities.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Earthworks for maintenance activities or for the installation of new infrastructure.	13-1 Soil erosion and sediment release 13-2 Interruption to natural surface and groundwater flows 13-3 Disturbance to native vegetation and wildlife 13-4 Temporary disruption to residents, landowners and third parties; and 13-5 Introduction of weed species.	Develop and implement a Construction Environmental Management Plan in accordance with the APIA Code for all non-routine excavation activities.	Operations Managers / Project Managers	**13-1** Likelihood – *Possible (3)* Consequence – *Important (1)* Risk – **MODERATE (3)** **13-2** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **13-3** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **13-4** Likelihood – Unlikely *(2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **13-5** Likelihood – *Possible (3)* Consequence – *Important (1)* Risk – **MODERATE (3)**
		Minimise the footprint of disturbance of all excavations.	All	
		Inspect all excavation equipment for soil and organic matter prior to unloading at site.	Supplier / Pipeline Technicians / Project Managers	
		Perform all excavations along the pipeline using an open permit under the PTW system and supervised by an accredited Excavation Permit Officer.	Pipeline Technicians / Operations Manager / Project Manager	
		Remove and separately stockpile topsoil and substrate during excavations. Replace soils in the reverse order to aid in re-establishing ground cover during restoration and rehabilitation works.	All	
		Undertake erosion control and management strategies and remedial action for ground instability in accordance with appropriate industry standards.	All	
		Return disturbed surfaces as a result of excavations as close as possible to pre-work and natural conditions.	Pipeline Technicians	

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Earthworks for maintenance activities or for the installation of new infrastructure.		Rehabilitate all disturbed surfaces at the completion of excavation activities to promote soil and ground stability.	All	
		Consult the QLD Department of Natural Resources and Mines prior to excavating or placing fill in a watercourse, lake or spring (clauses 50 & 51 QLD *Water Regulation 2002*).	Pipeline Technicians / Operations Managers /	
		Consult the QLD Department of Natural Resources prior to excavations which may interfere with the water flows along the easements (clauses 50 & 51 QLD *Water Regulation 2002*).	Project Managers	
		Avoid disturbing native vegetation during excavation activities wherever practicable.	Pipeline Technicians /Operations Managers / Project Managers	
		Place adequate barricading around excavations to prevent the ingress of persons and animals.	Pipeline Technicians / Project Managers	
		Leave excavations battered or place ramps into the excavation, when unattended to prevent the entrapment of animals.	Pipeline Technicians / Project Managers	
		Notify landowners and potentially affected parties prior to the commencement of all excavation work or other disruptive activities.	Pipeline Technicians / Project Managers	
		Schedule works to prevent disruptions to surrounding residents, except in emergency situations.	Pipeline Technicians / Project Managers	
		Use clean fill when additional soil is required during excavation activities. Fill material should be in character with soil of the surrounding area.	Pipeline Technicians / Project Managers	
		Follow EMP measures with respect to weeds and diseases when importing fill material.	Pipeline Technicians / Project Managers	
		Assess for Acid Sulphate Soils prior to excavations in coastal areas underneath an elevation of 5m above sea level. Develop and implement appropriate management measures in accordance with the *Queensland Acid Sulphate Soil Technical Manual* .	Pipeline Technicians / Project Managers	

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Earthworks for maintenance activities or for the installation of new infrastructure.		Erect barrier fencing around unattended excavations to prevent ingress of humans and animals.	Pipeline Technicians / Project Managers	
		Consider developing a Complaints Handling policy or procedure. This document should include personnel responsibilities, actions, reporting requirements and appropriate response time frames.	Resource Manager	
		Avoid excavating soils at GMP 152 as the property formerly operated as a petrol station. Conduct investigations as to the contamination and remediation status of the site if excavation or soil disturbance is necessary. Develop and implement specific controls to safe guard the environmental and personnel.	Pipeline Technicians / Operations Managers / Project Managers	

5.7 Bushfire Protection

The risk of creating a bushfire as a result of operation and maintenance of the pipeline is considered low. Ignition can only occur whilst personnel and machinery are physically accessing the easement. Access to the easement is minimised by the methods discussed in Section 5.1.

Bushfires may also occur to due hot work carried out on the pipeline (for example welding and grinding). From time to time sections of the pipeline or associated equipment may be vented or flared.

The key environmental issues associated with bushfires are:

- Injuries to public or personnel;
- Damage to or loss of flora, fauna and habitat;
- Damage to agricultural production; and
- Damage to, or loss of, third party infrastructure.

Table 15 outlines the key management measures to mitigate potential bushfires during the operation and maintenance of the RBP. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Low* for all of the impacts assessed.

Table 15 Bushfire Management

Related Documents: AS 1940 – The Storage and Handling of Flammable and Combustible Liquids, Qld Rural Fire Service's website (www.ruralfire.qld.gov.au)

Targets and Objectives of Management

- Evidence that control measures have been implemented to minimize bushfire risk;
- No reports of injury to public or personnel due to bushfire caused by the Company to protect the public and personnel;
- No reports of damage or loss due to bushfire caused by the Company to protect property and minimize damage or loss;
- No bushfires started as a result of pipeline operations maintenance to prevent the spread of bushfire in the event of ignition;
- Response to fire situation in accordance with Incident Management Strategy to provide adequate response in the event of ignition.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Fire resulting from operation or maintenance of the pipeline	14-1 Injury to public or personnel 14-2 Damage to, or loss of, flora and fauna 14-3 Damage to agricultural production 14-4 Damage to, or loss of, third party infrastructure	Undertake any slashing, welding, grinding or cutting works under a permit to work.	Operations Managers / Permit Issuing Officer	**14-1** Likelihood – *Rare (0.5)* Consequence – *Serious (1.5)* Risk – **LOW (1)** **14-2** Likelihood – *Rare (0.5)* Consequence – *Important (1)* Risk – **LOW (1)** **14-3** Likelihood – *Rare (0.5)* Consequence – *Important (1)* Risk – **LOW (1)**
		Check the status of total fire bans prior to any works involving potential ignition sources. Contact either the local Fire Warden or the local Rural Fire Service. Such works during these periods shall not proceed except under proper authority.	All	
		Conduct operations during the bushfire season (generally 1st October to 31st March. Note: the season can be extended when necessary), in accordance with regulatory requirements and local fire authorities.	All	
		Fit machinery or other equipment used along the easements during the bushfire season with spark arrestors where appropriate. If not fitted, the machine or equipment must carry a minimum of 1X 20L knapsack and 1X 9L fire extinguisher (foam).	All	
		Carry a minimum of 1X 20L water spray knapsack and 1X 9L fire extinguisher (foam) when slashing.	All	
		Clear or wet down a 3 m area around any cutting or welding work. Carry a minimum of 1X 20L water spray knapsack and 1X 9L fire extinguisher (foam).	All	
		Use an observer to monitor welding or cutting works.	All	
		Maintain cleared gravel areas around all aboveground facilities.	Pipeline Technicians / Operations Manager	

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Fire resulting from operation or maintenance of the pipeline		Maintain firebreaks on the easements around any above ground facilities.	Pipeline Technicians / Operations Manager	
		Firebreaks outside the easement are subject to landholder and fire authority approval. Consult the Environmental Engineer prior to installing new firebreaks off the easement.	Pipeline Technicians	
		Use equipment that complies with relevant fire safety standards to ensure that explosion or ignition of gas or other substances does not occur.	All	
		Preferentially use diesel vehicles over petrol as they have no hot catalytic converters that can contact flammable vegetation.	All	
		Regularly inspect the undersides of the vehicles to remove any built up flammable materials.	All	
		Store flammable or combustible chemicals at major facilities only and in accordance with AS 1940 – The Storage and Handling of Flammable and Combustible Liquids.	All	
		Park machinery and vehicles not in use in areas of low fire risk (e.g. not over shrubs, tall grass or cleared vegetation residue).	All	
		Store and maintain fire fighting equipment at all operational sites and storage locations for flammable fuels in accordance with regulatory requirements.	Pipeline Technicians / Operations Managers / Project Managers	
		Adequately train pipeline technicians in regard to fire prevention and safety, personnel responsibilities and basic fire suppression	Operations Manager	

5.8 Air Emissions

Potentially adverse effects on air quality created along the easement are associated with dust and gas emissions from leaks, controlled purging and venting activities and vehicle movements. Aerial surveillance is used where possible to minimise dust being created by vehicles driving along the corridor. The following strategies are employed to reduce adverse effects on air quality.

The potential for leaks due to corrosion is very limited as the pipelines are protected against corrosion by internal and external coatings and electrically by CP systems. The pipeline is also constantly monitored for the presence of leaks by telemetered valve sites. If a leak is detected the valves are shut down manually. Above ground facilities are leak surveyed annually as part of routine maintenance. Due to the high pressure contained within the pipelines and associated facilities, any leaks would be easily detectable by ear over a very wide area.

Activities such as purging and flaring only occur on an as-needed basis (i.e. infrequently) and, as such, are considered to have a minimal impact on air quality. Approximately 75 kg of unburnt natural gas is released to the atmosphere each time a compressor is started. There are 6 compressors on the RBP. Compressors are operated on an as needed basis to maintain line pack and operating pressure. As gas demand is generally are during the winter months, compressor starts are more frequent during winter. A very minor quantity (i.e. less than 1kg) of gas is released to the atmosphere at each actuator valve when the valve actuates.

Major venting (between two MLV's) is estimated to occur once in every 5 years. When major venting is necessary, an individual Risk Assessment or Job Hazard Analysis will be undertaken which identifies environmental issues, including air quality. Venting of above ground pipe work (scraper stations and compressor stations) occurs annually.

Dust issues may result from time to time due to land-based surveillance activities or from excavations. Dust issues are generally addressed in project specific EMPs and JHAs. Utilisation of aerial patrols as the predominant form of surveillance in some areas minimises the likelihood of dust issues. Subsequently dust impacts are considered very minor.

The key issues associated with air emissions are:

- Release of air pollutants;
- Greenhouse gas emissions;
- Odour emissions;
- Temporary reduction in amenity associated with dust; and
- Impacts to flora and fauna.

Table 16 outlines the key management measures to mitigate air emissions during the operation and maintenance of the RBP. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Moderate* for impacts related to the spread of weeds and soil erosion. The risk assessment process identified all other impacts as having a *Low* risk.

Table 16 Air Emissions Management

Related Documents: Part A Section 4.1.6 of the APIA Code.

Targets and Objectives of Management

- Purging or venting activities carried out on an only as needed basis to minimize atmospheric and greenhouse emissions, the creation of safety hazards, and disturbance to the community.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Adverse effects on air quality from: • Purging and flaring during maintenance activities, • Accidental or fugitive gas release • Dust and exhaust along the easement from vehicle and machinery operation	15-1 Release of air pollutants 15-2 Greenhouse gas emissions 15-3 Odour emissions 15-4 Temporary reduction in amenity associated with dust 15-5 Impacts to flora and fauna	Conduct purging, venting and compressor starts only as needed. Undertake major venting between two mainline valves and complete an individual Risk Assessment or Job Hazard Analysis.	All	**15-1** Likelihood – *Possible (3)* Consequence – *Minor (0.5)* Risk – **LOW (1.5)** **15-2** Likelihood – *Possible (3)* Consequence – *Minor (0.5)* Risk – **LOW (1.5)** **15-3** Likelihood – *Possible (3)* Consequence – *Minor (0.5)* Risk – **LOW (1.5)** **15-4** Likelihood – *Possible (3)* Consequence – *Minor (0.5)* Risk – **LOW (1.5)** **15-5** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)**
		Favour flaring over venting wherever technically feasible (excluding emergency situations) for pipelines and associated facilities and equipment.	Operations Managers / Resource Managers	
		Conduct planned releases under favourable meteorological conditions to facilitate rapid atmospheric dispersion, where practicable.	All	
		Advise adjacent residents and local authorities of pending major venting operations.	Operations Managers/ Project Manager	
		Direct pipeline operators to proceed slowly to minimise the amount of dust generated, especially passed residential areas.	All	
		Conduct annual checks to detect gas leaks from above ground facilities. Fit rupture detection equipment to the pipeline to detect significant leaks.	Operations Manager	
		Remediate areas prone to bulldust, where necessary by stripping the topsoil and watering the subsoil to provide a firm base.	Pipeline Technicians / Operations Managers	
		Cover soil that is to be stockpiled for more than one week with hessian or other suitable material.	Pipeline Technicians / Operations Managers / Project Managers	
		Seed soil that is to be stockpiled for periods of longer than three months with sterile grass.	Pipeline Technicians / Operations Managers / Project Managers	

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Adverse effects on air quality from: • Purging and flaring during maintenance activities, • Accidental or fugitive gas release • Dust and exhaust along the easement from vehicle and machinery operation		Manage dust problems in accordance with the APIA Code.	Pipeline Technicians / Operations Manager	
		Work shall cease temporarily during projects if dust impacts become unacceptable and can not be adequately controlled.	Project Manager	
		Compressors starts shall be limited to an as needed only basis to reduce air emissions.	Qld Control Centre Manager	
		Vehicles shall be regularly maintained to ensure that emissions are minimised.	All	
		An assessment shall be made to determine if the emissions from the compressor stations must be reported to the National Pollution Inventory.	Environmental Engineer	
		Consideration shall be given to becoming a member of and reporting greenhouse gas emissions as part of the Australian Greenhouse Gas Challenge.	Resource Manager	
		Particulate air emissions from abrasive blasting shall be managed in accordance with Agility document *Integrated Environmental Management System Abrasive Blasting.*	Operations Managers / Project Managers	
		Large uncontrolled releases of gas shall be considered as environmental incidents and reported in accordance with Section 7.3 of this Document.	All	
		The Pipelines shall be operated and maintained in accordance with AS2885 to minimise the risk of pipeline failure.	Resource Manager	

5.9 Noise Emissions

Due to the remote and sparsely populated areas through which the pipelines traverse, there is generally minimal potential for noise impacts resulting from the operation of the pipeline. However, the potential for noise impacts does increase in areas with proximity to residential and urban areas.

Noise emissions resulting from the operation and maintenance of the RBP have been minimised by:

- Using aerial surveillance which, although can have a noise impact, is a very brief disturbance as the aircraft passes over.
- Operating noisy facilities such as compressor stations on an on-demand basis.

Other operational facilities such as MLV's and scraper stations typically do not generate excessive noise levels under normal operating circumstances. Unusual flow conditions may result in elevated noise levels at these facilities.

The six compressor stations on the RBP are generally operated only as necessary to maintain the minimum pipeline outlet pressures as stated in the Gas Transportation Agreements (GTAs). In general, more compressor stations are online towards Friday each week as the line pack in the pipeline is depleted to maintain the minimum pressure at Swanbank. The number of compressors on line is then reduced across the weekend and through the early part of the week. The Swanbank power station operates for approximately 14 hours each week day (Monday to Friday), and consumes gas at a relatively high rate whilst it is in operation. The compressor stations are normally brought on line early, in anticipation of the high draw of the power station on the pipeline.

Non-routine corrective and preventative maintenance activities such as flaring, purging or pigging have a greater potential to create elevated noise levels. However, these activities occur very infrequently and only on an as-needed basis (typically 5-10 yearly).

The key issues associated with noise emissions are:

- Disturbance to local residents and other land users; and
- Disturbance to stock and wildlife.

Table 17 outlines the key management measures to mitigate noise emissions during the operation and maintenance of the RBP. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Low* for all of the impacts assessed.

Table 17 Noise Management

Related Documents:

Targets and Objectives of Management

- No complaints from landholders or third parties relating to noise issues during normal operations to minimize operational noise impacts on adjacent residents and other land users;
- No complaints from landholders or third parties relating to noise impacts on stock or wildlife during normal operations to minimize operational noise impacts on wildlife and livestock.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Operation of stationary and non – stationary equipment *e.g.*, generators, water pumps and air compressors	16-1 Disturbance to local residents and other land users 16-1 Disturbance to stock and wildlife	Locate equipment at appropriate distances from residents, sensitive stock or other sensitive environments, where possible.	All	**16-1** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **16-2** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)**
		Fit and maintain noise abatement devices on noise generating equipment, where required.	All	
		Select noise generating equipment with consideration of noise emissions and proximity to residents.	All	
		Schedule noisy non-routine maintenance activities for periods that are less likely to result in noise nuisance. Record consultations with potentially affected parties.	All	
		Inform local residents of potential noise prior to the commencement of non-routine activities, where necessary. Record consultation.	All	
		Investigate and close out complaints. Record the complaint and actions taken on a complaints register.	All	
		Undertake aerial surveillance activities to reduce disturbance of livestock.	Surveillance Crew	
		Conduct noise monitoring as needed.	Operations Manager/ Project Manager	
		Comply with regulatory requirements and guidelines regarding noise control.	Operations Manager/ Project Manager	

5.10 Heritage- Natural and Built Environment

The greatest risk to the heritage of the natural and built environment is the disturbance or destruction of identified sites. Routine maintenance activities are unlikely to disturb heritage areas, as any surface sites within the easement would have been disturbed during the clean and grade operations undertaken across the entire width of the easement during pipeline construction.

Non-routine maintenance activities, such as installing new cathodic protection beds, have a higher likelihood of creating damage to heritage areas. Accordingly, if works are required outside the easement or works are being undertaken in an area not previously surveyed, an archaeological assessment may be required, depending on the nature of surface disturbance at the proposed location. Excavation work outside of the easement is infrequent and is subject to the Permit to Work Procedure (O&M 1-04).

Pipeline personnel are aware that they may uncover areas of unknown burial sites or buried artefacts within the easement. If, during the process of a maintenance activity involving excavation, artefacts, bones or other evidence of a burial site are found, excavation is to stop and DNRW and traditional owners notified.

The location of known cultural heritage material shall be considered prior to maintenance operations and appropriate site-specific management strategies developed and implemented.

Table 18 outlines the key management measures to mitigate disturbances to cultural heritage during the operation and maintenance of the RBP. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Low* for all of the impacts assessed.

Table 18 Heritage Management - Natural and Built Environment

Related Documents: Heritage Consultation Protocol (which reflects the requirements of the Aboriginal Cultural Heritage Act 2003 and the Cultural Duty of Care Guidelines gazetted in April 2004)

Targets and Objectives of Management

- No unapproved disruption of cultural or heritage sites to avoid impacts to sites on or near the pipeline corridor or in the vicinity of associated facilities;
- Inspections carried out and approvals obtained for disturbance of any known site on the easement or for any works carried out off the easement (i.e. new CP installations) to implement an effective consultation program with regulatory authorities and other relevant stakeholders, where required.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Excavation or disturbance of soils for general operations and maintenance activities	17-1 Disturbance or destruction of heritage sites	Review the inventory of aboriginal sites (Appendix C) prior to work along the easement. Develop controls to project adjacent heritage items as appropriate.	Operations Manager / Project Manager	**17-1** Likelihood – *Rare (1)* Consequence – *Minor (1.5)* Risk – **LOW (1.5)**
		Use a heritage consultant to conduct an investigation prior to works if known heritage items will potentially be affected.	Operations Manager	
		Consult relevant authorities and stakeholders when works are to be undertaken in the areas of known cultural heritage.	Pipeline Technicians / Operations Manager	
		Train pipeline technicians and corrosion engineers in heritage issues and management.	Pipeline Technicians / Corrosion Engineer	
		Adequately protect heritage sites on or adjacent to the easement when projects may impact upon them e.g. erect and maintain physical barriers and/or signage.	Operations Manager / Project Manager	
		Monitor works adjacent to or in areas of known heritage.	Pipeline Technicians / Project Manager	
		Survey areas on the easement not previously surveyed or off the easement by a suitably qualified heritage consultant prior to the works being undertaken, if necessary. Develop management measures and obtain permits, if required.	Pipeline Technician / Operations Manager / Project Manager	
		Report any disturbance to heritage sites. Develop response actions in consultation with the Department of Natural Resources and Mines and local Aboriginal Parties where appropriate.	Pipeline Technicians	

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Excavation or disturbance of soils for general operations and maintenance activities		Stop excavation if artefacts, bones or other evidence of a burial site are found. Notify the local Aboriginal Party.	All	
		Notify the Department of Natural Resources and Water if undertaking a cultural heritage survey and forward them a copy of the survey findings.	Resource Manager	
		Develop a Heritage Management Procedure for operations.	Environmental Engineer	
		Include known sites of aboriginal significance in GIS.	Manager Pipeline Operations	

5.11 Water Management

Potential water related issues are primarily related to run-off and erosion control. Routine maintenance activities have limited potential to create adverse impacts and the potential for new issues to occur is further limited by using existing tracks to access pipeline facilities wherever practicable. Non-routine maintenance activities and other projects are rarely required within the easement. Potential impacts to water quality associated with such activities are evaluated and addressed prior to commencement of these activities.

Routine surveillance activities monitor the entire pipeline easement for the presence of run-off related issues. Run-off/erosion controls are created during construction or operation of the pipeline in susceptible areas. The condition of these controls is monitored during routine surveillance. Specific attention is given to steep sections, watercourses and drainage lines that cross the easement. Any run-off/erosion issues that are identified are addressed as soon as possible as described in Section 5.2 of this EMP.

The key issues associated with water management are:

- Reduction in water quality as a result of increased sediment loads;
- Contamination of surface or groundwater;
- Altered drainage patterns and water flow regimes; and
- Spillage of chemicals or other pollutants.

Table 19 outlines the key water management strategies to be employed during the operation and maintenance of the RBP. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Low* for all of the impacts assessed.

Table 19: Water Management

Related Documents: Section 206 of the *Water Act 2000,* Section 237 of the *Water Act 2000, Queensland Acid Sulphate Soil Technical Manual*.

Targets and Objectives of Management

- No reports of excessive erosion to control erosion in all operational areas.
- No reports of sedimentation of waterways to minimise the volume of sediment entering the waterways from the pipeline corridor, associated facilities or operational activities.
- No complaints relating to altered flow regimes to manage surface water flows and to minimise potential adverse impacts associated with altered flow regimes.
- No evidence of impacts to such flora and fauna to minimise impacts to riparian, aquatic and water dependant flora and fauna.
- No evidence of contaminated water bodies to prevent contamination of surface water, water courses and groundwater.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Changes to water flow patterns or quality resulting from: • Above ground gas processing and pipeline facilities. • Use of heavy machinery and vehicles. • Vegetation control activities	18-1 Reduction in water quality as a result of increased sediment loads 18-2 Contamination of surface or groundwater 18-3 Altered drainage patterns and water flow regimes 18-4 Spillage of chemicals or other pollutants	Inspect and monitor easement conditions including watercourse banks during routine surveillance.	Surveillance Crew / Pipeline Technicians	**18-1** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **18-2** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **18-3** Likelihood – *Rare (1)* Consequence – *Important (1)* Risk – **LOW (1)** **18-4** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)**
		Manage soil and ground stability issues in accordance with EMP.	Pipeline Technicians	
		Install, inspect and maintain erosion control measures in accordance with EMP, especially after heavy rain.	Pipeline Technicians	
		Obtain a water license from QLD DNRM prior to taking water from a watercourse and using the water on any land.	Pipeline Technicians/ Operations Managers / Project Managers	
		Store, transport and handle fuels, oils and chemicals in accordance with the EMP.	All	
		Minimise the risk of spills (particularly of harmful substances) in accordance with the EMP.	All	
		Divert surface water around storage areas and stockpiles to prevent potential contamination.	Pipeline Technicians / Operations Managers / Project Managers	
Environmental Aspect	**Impact**	**Mitigation**	**Responsibility**	**Residual Risk Rating**

Changes to water flow patterns or quality resulting from: • Above ground gas processing and pipeline facilities. • Use of heavy machinery and vehicles. • Vegetation control activities		Appropriately dispose of waste test water from hydrostatic testing, if required. The Environmental Engineer is to be consulted prior to the works being undertaken.	Operations Manager / Project Manager	
		Store wastes in accordance with EMP.	All	
		Restore drainage patterns and water flow regimes as near as practicable to the original profile, if altered during maintenance activities.	Pipeline Technicians / Operations	
		Manage incidents in accordance with the Company's emergency response plan, the Incident Response Manual and the spill response procedures.	Manager / Project Manager	
		No maintenance or refuelling of vehicles or machinery is to be undertaken with 150m of a watercourse or water body. Use suitable controls to prevent water contamination.	All	
		Install new surface water control structures, with consideration for downstream environments as appropriate. Monitor changes to water flow patterns. Consult an Environmental Engineer for major works.	All	
		Implement appropriate monitoring programs to identify potential impacts to riparian, aquatic and water dependant flora and fauna, as required.	Pipeline Technicians / Operations Manager	
		Assess for Acid Sulphate Soils in coastal areas below an elevation of 5m above sea level, prior to excavation. Develop and implement management measures in accordance with the *Queensland Acid Sulphate Soil Technical Manual*. Consult and Environmental Engineer.	Operations Manager / Project Manager	
		Manage works to protect groundwater quality. E.g. conducting works between Sandy Creek and Cobalt Street during the dry season to reduce impacts of the perched aquifer during excavations.	Operations Manager / Project Manager	

5.12 Pipeline Facilities Management

Pipeline facilities have the potential to create noise emissions, increase traffic and have safety issues, in addition to the specific issues discussed in previous sections of this Chapter. A list of the facilities associated with this pipeline is included in Table 1. In general, above ground facilities associated with pipeline operations include: a compressor station, MLV's, delivery facilities and scraper stations. Activities at these pipeline facilities are mostly routine surveillance and periodic scheduled maintenance activities. Very occasionally other activities are undertaken, such as station modification or emergency work.

The key issues associated with managing pipeline facilities are:

- Safety hazards resulting from increased traffic;
- Bushfire and internal fire risk;
- Noise disturbance to local residents, other land use and wildlife or stock;
- Reduction of visual amenity; and
- Chemical spills.

Compressor stations are inspected daily to monitor the overall condition of the sites and any possible leakage. The compressor stations are located either off major roads in the Brisbane metropolitan area or in sparsely populated areas west of Brisbane. MLVs, scraper stations and delivery facilities are inspected during routine pipeline patrols. General housekeeping, such as vegetation management and painting is generally performed at these times on as needed basis.

All the sites are fenced and securely locked to prevent entry of unauthorised persons. The security of the facilities is monitored during routine surveillance.

The pipeline facilities do not emit excessive levels of noise during normal operations. The compressor stations have been fitted with purpose built noise reduction facilities to minimise the level of noise emitted from the sites. Noise is only generated at main lines valves, scraper stations and delivery facilities when these facilities are being operated. This occurs very infrequently.

The venting of components of pipeline facilities is item required during maintenance activities. Due to the high pressure of the natural gas, this can create large amounts of noise. However, these events occur very infrequently on a scheduled program and are noise impacts are generally very short lived.

Table 20 outlines the key strategies to manage pipeline facilities during the operation and maintenance of the RBP. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Low* for all of the impacts assessed.

Table 20 Pipeline Facilities Management

Related Documents:

Targets and Objectives of Management

- Site compounds free from combustible materials or vegetation to minimise the risk of bushfire;
- No complaints relating to noise, odour, visual impact or traffic to minimise the impact of noise, visibility, odour and traffic to the local community.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
General routine and non-routine maintenance activities	19-1 Safety hazards resulting from increased traffic 19-2 Bushfire and internal fire risk 19-3 Noise disturbance to local residents, other land use and wildlife or stock 19-4 Reduction of visual amenity 19-5 Chemical spills	Store fire fighting equipment at major sites (e.g. compressor stations) and inspect every 6 months.	Operations Manager	**19-1** Likelihood – *Rare (1)* Consequence – *Minor (0.5)* Risk – **LOW (0.5)** **19-2** Likelihood – *Rare (1)* Consequence – *Serious (1.5)* Risk – **LOW (1.5)** **19-3** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **19-4** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **19-5** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **19-6** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)**
		Check security of facilities (e.g. locked gates and fences) during surveillance patrols.	Pipeline Technicians	
		Monitor all above ground facilities for gas leaks.	Pipeline Technicians	
		Implement bushfire prevention methods in accordance with Bushfire Prevention EMP.	All	
		Fit and maintain major noise-emitting devices with noise reduction equipment or contain them within noise attenuating buildings/structures.	Operations Manager	
		Manage noise emissions in accordance with EMP.	All	
		Keep all facilities in a tidy manner and maintain visual treatments (e.g. painted surfaces) as appropriate.	All	
		Keep all facilities free of vegetation and weeds.	Pipeline Technicians/	
		Consider planting screening shrubs, where necessary.	Pipeline Technicians / Operations Manager	
		Store and handle fuels and chemicals in accordance with EMP.	All	
		Gravel (or similar) surfaces inside all stations to reduce fire risk.	Operations Manager	
Pigging	19-6 Contamination of soil or water	Capture all residuals exiting the pipeline in appropriate drums or other impermeable containment device.	Pipeline Technicians	

5.13 Waste Management

Routine maintenance and surveillance activities along the easement generate few waste materials. Oil and water at compressor stations is pumped into sumps. Waste contractors empty these sumps as required. Impacts to the environment due to the wastes from these activities are very low.

Non-routine corrective and preventative maintenance activities have a greater possibility of generating waste than routine activities. The types of waste produced could include:

- General rubbish;
- Human wastes (sewage); and
- Putrescible waste.

During cleaning and integrity check pigging operations, large volumes or water and waste oils may be generated. The collection, transfer and disposal of such water and waste will be addressed in project-specific EMPs developed for the project.

Major repair activities involving excavation and welding along the easement may generate small amounts of more harmful wastes. Such wastes could include:

- Cleaning fluids;
- Radiography fluids; and
- Waste oils.

These activities are rarely required and waste volumes will typically be small (less than 20L of fluids). The risk of impact to the environment from these activities is limited.

The key issues associated with waste management are:

- Contamination of land, soil and water, including ground water;
- Health risks to the community and the workforce;
- Adverse effects on native vegetation and wildlife; and
- Reduction of visual amenity.

Table 21 summarises the key strategies to manage waste created during the operation and maintenance of the RBP. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Low* for all of the impacts assessed.

Table 21 Waste Management

Related Documents: Australian Dangerous Goods Code; Australian Standard 1940 and Environmental Protection (Waste Management) Regulation 20, *Handling and disposal of asbestos gaskets procedure* (O&M 1-16), *Integrated Environmental Management System Abrasive Blasting*.

Targets and Objectives of Management

- No reports of soil or water contamination due to waste produced during operation to avoid the contamination of soil and water.
- No reports of illness or injury due to waste produced during operation to minimise the potential risks to workers and the public.
- No reports of illness or injury in native flora and fauna due to waste produced during operation to minimise the adverse effect to native vegetation and wildlife.
- Implement recycling and reuse to minimise the amount of waste generated and maximise the efficiency of resource use.
- No complaints relating to the visual effects of waste produced during operation to minimise visual impacts.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Storage and disposal of wastes generated by: • Maintenance of plant and equipment • Internal cleaning and inspection of pipeline (pigging) • General office activities.	20-1 Contamination of land, soil and water, including groundwater 20-2 Health risks to the community and the workforce 20-3 Adverse effects on native wildlife and vegetation 20-4 Reduction of visual amenity	Dispose of sewage in approved septic systems.	Operations Manager / Project Manager	**20-1** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **20-2** Likelihood – *Rare (1)* Consequence – *Serious (1.5)* Risk – **LOW (1.5)** **20-3** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **20-4** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)**
		Pump out and collect waste from portable toilet facilities during large maintenance projects by suitably licensed waste contractors.	Operations Manager / Project Manager	
		'Reduce, Reuse, Recycle' in all operations.	All	
		Remove general rubbish after all maintenance activities.	All	
		Provide suitable storage areas for all wastes including soil, water and spills.	Operations Manager / Project Manager	
		Install separate storage areas for recyclable materials at depots and stations where recycling facilities exist in the surrounding area.	Operations Manager / Project Manager	
		Provide safe storage areas for potentially hazardous wastes that are not in the vicinity of drainage lines and watercourses.	All	
		Collect, transport and dispose potentially hazardous wastes in accordance with industry standards and using a suitably licensed waste contractor.	Operations Manager / Project Manager	
		Manage soil contamination in accordance with EPA and legislative requirements. Consult the Environmental Engineer.	All	
		Monitor and remove rubbish (including illegally dumped rubbish) as required.	Surveillance Crew / Pipeline Technicians	

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Storage and disposal of wastes generated by: • Maintenance of plant and equipment • Internal cleaning and inspection of pipeline (pigging) • General office activities.		Handle, store, transport and dispose of encountered asbestos products in accordance industry procedures.	Operations Manager / Project Manager	
		Develop a waste management plan including waste tracking records.	Environmental Engineer	
		Handle, store and dispose of abrasive blasting wastes in accordance with internal procedures.	Operations Manager / Project Manager	

5.14 Pipeline Spill Prevention

The potential for pipeline spills is limited as:

- Spills associated with pipeline rupture are not an issue for gas pipelines.
- Large volumes of liquids are not used during routine maintenance and surveillance of the pipeline. The possibility of a spill occurring during these activities is very limited. Any spill will likely be very minor in nature.
- During major non-routine maintenance activities on-site storage of small volumes of liquids may be required. However, such activities occur very rarely. The potential for adverse environmental impact due to spills can be considered to be very low.
- Larger volumes of liquids (such as water and oils) may be generated during pigging operations, which occur roughly at 5-10 year intervals. The collection and transfer of such wastes would be addressed in project-specific EMPs for each pigging project.

Any fuels or chemical storage facilities along the pipeline corridor shall be managed in accordance with Section 5.15. The key issues associated with pipeline spill prevention are:

- Safety hazards to the workforce and the public; and
- Contamination of soil and water, including groundwater.

Table 22 summarises the key strategies to reduce potential spills during the operation and maintenance of the RBP. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Low* for all of the impacts assessed.

Table 22 Pipeline Spill Prevention Management

Related Documents: AS2885, Emergency Response Plan, Safety and Operating Plan, Fuel and Chemical Storage Plan

Targets and Objectives of Management

- No safety hazards due to pipeline spills to avoid unacceptable safety hazards;
- No contamination of soil and water due to pipeline spill to prevent contamination of soil and water;
- No impact (visual evidence) on vegetation communities or fauna to prevent direct and indirect impact to vegetation communities and fauna.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Chemical or fuel spill resulting from operations or maintenance activities.	21-1 Safety hazards to the workforce and the public 21-2 Contamination of soil and water, including groundwater	Operate the pipeline in accordance with Australian Standards.	Resource Manager	**21-1** Likelihood – *Unlikely (2)* Consequence – *Important (0.5)* Risk – **LOW (1)** **21-2** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)**
		Minimise liquids required to be stored onsite.	Operations Manager	
		Develop spill prevention procedures for refuelling vehicles and plant.	Operations Manager	
		Refuel vehicles and plant off easement at suitable refuelling locations, where possible.	All	
		Train pipeline operation and/or maintenance personnel on spill response and recovery procedures. Keep training records.	Operations Manager	
		Keep spill kits on hand and train personnel in their use during all refuelling activities or the handling of any chemicals, fuels, oils and lubricants.	Pipeline Technicians	
		Keep Material Safety Data Sheets (MSDS) in vehicles for chemicals currently in use. Conduct toolbox talks for new chemicals.	All	
		Respond to spills in accordance with relevant spill response procedures and MSDS.	All	
		Store, transport and handle all fuels, oils and chemicals in accordance with Fuel and Chemical Storage EMP.	All	
		Classify, report and investigate spills in accordance with EMP environmental incidents.	All	
		Remove and appropriately dispose of contaminated materials in accordance with EMP.	All	
		Develop Fuel and Chemical Handling and Spill Response procedures for pipeline operations.	Environmental Engineer	

5.15 Fuel and Chemical Storage

Where fuels, oils and chemicals are required for maintenance activities along the easement the personnel performing the works carry them to the site. In general, fuels oils and other chemicals are not stored along the easement.

Permanent storage facilities are located at the Compressor stations and at the Wallumbilla and Brisbane Maintenance Bases. Small amounts of chemicals may be stored at the Compressor stations including weed control chemicals such as Round-up, general cleaning products such as surfactants and solvents and oil and other lubricants. Generally less than 1000 L of oil is stored at stations.

Fuel, oil and chemical storage may be required on-site during larger maintenance activities. In these situations, fuel and chemical storage areas are developed on a project by project basis.

The key issues associated with fuel and chemical storage are:

- Contamination of soil and water including groundwater;
- Safety hazards to the workforce and the public; and
- Air and odour emissions.

Table 23 summarises the general storage procedures required for fuels and chemicals during the operation and maintenance of the RBP. A risk assessment of the key impacts was undertaken with the highest level of risk being identified as *Low* for all of the impacts assessed.

Table 23 Fuel and Chemical Storage Management

Related Documents: Material Safety Data Sheets (MSDS), AS1678, AS2809, AS2931, AS1940, Procedure for *Control of Hazardous Substances* (O&M 1-05).

Targets and Objectives of Management

- All fuels and chemicals stored appropriately to prevent contamination of soil and water, to avoid unacceptable safety hazards and to minimize atmospheric emissions.

Environmental Aspect	Impact	Mitigation	Responsibility	Residual Risk Rating
Chemical or fuel spill resulting from operations or maintenance activities or storage	22-1 Safety hazards to the workforce and the public 22-2 Contamination of soil and water, including groundwater 22-3 Air and odour emissions	Store and transport minimum practicable volumes in accordance with all relevant legislation and standards.	All	**22-1** Likelihood – *Unlikely (2)* Consequence – *Important (0.5)* Risk – **LOW (1)** **22-2** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)** **22-3** Likelihood – *Unlikely (2)* Consequence – *Minor (0.5)* Risk – **LOW (1)**
		Comply with all relevant legislation, licences and standards while storing and handling fuels, lubricants and chemicals.	All	
		Store materials away from watercourses, natural drainage paths and built drainage paths in appropriately sized and secure storage containers or facilities.	All	
		Train all relevant personnel in aspects of fuel and chemical storage, including contractors.	Operations Manager	
		Wear appropriate PPE when handling and using chemicals in accordance with MSDS and company procedures.	All	
		Keep spill kits wherever chemicals are stored.	Operations Manager	
		Keep Material Safety Data Sheets (MSDS) with vehicles at all times. Keep copies at all major facilities. Conduct toolbox talks for new chemicals.	Operations Manager	
		Store fuel, oils and chemicals in bunded or purpose built chemical storage cabinets, as appropriate. Secure all storage areas.	Operations Manager	
		Minimise chemical use where practicable.	All	
		Minimise spill risk by handling, transporting and storing fuel, oil and chemicals in accordance with EMP.	All	
		Classify, communicate, report and respond to spills in accordance with EMP environmental incidents.	All	
		Purchase new chemicals in accordance with procedure on *Control of Hazardous Substances* (O&M 1-05)	Manager Pipeline Operations	

5.16 Decommissioning and Restoration

When required, APA shall decommission individual components of the RBP and associated infrastructure in accordance with the licence and regulatory requirements and accepted environmental best practice of the day.

The most likely options are:

- **Moth-balling** - this would involve depressurising the pipeline, capping and filling with an inert gas such as nitrogen. The cathodic protection would be maintained to prevent the pipe corroding. This will prevent ground subsidence associated with the corrosion of the pipe that may result in surface water diversion, ponding and erosion.
- **Abandonment** - this could involve purging the pipe of natural gas, disconnecting it from the manifolds and removing all above ground facilities. The pipe would then be left to corrode in-situ. Removing the pipe from the ground is unlikely to be an environmentally or commercially viable option. A detailed rehabilitation program would be developed and implemented in consultation with landholders and relevant Regulatory Authorities at the time of abandonment.

Prior to either mothballing or abandonment of the pipeline service and the facilities, an investigation into the potential environmental problems associated with either of these options shall be undertaken.

5.16.1 Rehabilitation

The relevant PL's (PL2 and PL74) state that APA, as soon as practicable and within six months (or longer period agreed in writing with the administering authority) of the completion of the pipeline licence that APA will remove all surface equipment associated with the pipeline. After this period, rehabilitation of the areas disturbed by the pipeline must begin.

Subsurface equipment and pipelines will be decommissioned in accordance with AS 2885 or in a manner requested by the licence authority at the time. Any contaminated land will be remediated in accordance with *Environmental Protection Act 1994* requirements.

For the safety of the public and wildlife, all above ground structures, such as compressor stations, scraper barrel stations, valves, meter stations, sales taps, control stations and dedicated communication systems, shall be removed. All sites shall be left clean and safe.

Consideration shall be given to alternate use of buildings as circumstances allow, and the sites restored accordingly. If necessary, groundwater or soil testing shall be undertaken to ensure that sites are free of contamination. If contamination is found, the site shall be cleaned using the appropriate reclamation methods. If buildings are removed completely, the ground shall be ripped and rehabilitated accordingly.

As the removal of below ground structures will cause unnecessary environmental impacts, the pipeline shall very likely be left in the ground. Below ground facilities will be cut off and blinded below ground level. All sites shall be rehabilitated following completion of termination.

6 Monitoring, Measurement and Evaluation

Environmental inspection, monitoring and auditing shall be undertaken to assess if operational activities are in compliance with regulatory requirements and the objectives outlined in this EMP and APA HSE Management System. This process aims to minimise environmental and cultural impacts of the operations and maintenance activities associated with the pipeline.

Monitoring, measurement and evaluation of pipeline operations include:

- Environmental inspections including patrols of Right-of-Way (ROW) from the ground and air, inspections of above-ground facilities and specific surveys for cathodic protection and gas leak detection;
- Mechanisms and requirements for reporting results of inspections and patrols; and
- Compliance and systems reviews and audits including mechanisms for corrective actions.

6.1 Environmental Inspection and Patrols

Environmental patrols include regular aerial and ground patrols and partial patrols carried out from time to time as pipeline personnel travel along the ROW. Special ground and/or aerial patrols may also be undertaken after heavy storms or earthquakes to check for damage to the pipeline, its facilities, and erosion and sediment control structures, as required.

The type of surveillance and the frequency required for safe pipeline operation has been determined to adequately address the identified risks and implemented control measures, as prescribed in the pipeline's Risk Assessment. Scheduled patrols of the pipeline route are mandatory under pipeline regulations and are a condition of the pipeline licence.

The purpose of the pipeline surveillance is to check for changing conditions on the pipeline easement. The type of surveillance shall be by foot, vehicle or aircraft such that the patroller can clearly identify the pipeline and observe all the surveillance criteria. The route shall be patrolled and inspected whenever it is considered that damage or threats to the integrity of the pipeline may have occurred or may be expected to occur. Corrective action shall be initiated immediately a condition requiring such action is detected.

The pipeline surveillance shall be carried out by the pipeline technician to ensure that the pipeline is free from any identifiable leaks, and to identify any new or changed threats to the pipeline or environment, particularly any un-notified external interference near the pipeline. Meter stations, MLV's and scraper stations will also be inspected on a regular basis and as-required for repairs and maintenance. Gas leak detection surveys will be undertaken every 5 years, or as required by the AS2885 risk assessment or other assessment

Surveillance activities shall be conducted in accordance with the APA Group Safety and Operations Plans (SaOP) and Easement Maintenance (MGT 6-11).

When activities or adverse conditions are found, follow up action shall be required, such as stopping, controlling, monitoring of the anomaly. Reports and records of the changed conditions shall be collated, with an entry reported.

6.2 Environmental Incidents

APA's Incident / Near Miss and Reporting and Investigation Procedure (MGT 1-01) outlines the correct method of reporting incidents and near misses in the workplace. The procedure also defines what constitutes an incident, a near miss or a Class A Near Miss and determines when to carry out an investigation. The procedure applies to all staff and contractors employed by the APA Group.

In the event of an incident or near miss occurring, the Manager Transmission Operations Qld, or his delegated responsibility, shall be informed by the relevant Leader, or nominated responsible person within one (1) hour of the event occurring. The Manager Transmission Operations Qld will determine whether to escalate notification to the appropriate APA General Manager. This process is to be followed in conjunction with current emergency management processes.

Table 24 Incident reporting timeframes

Incident Type	Notify Who	Timing	Follow-up Investigation and Report
HSE	Colleague's Leader, HSE Adviser, then	Immediately	Formal investigation may be required. All formal investigations to be completed within 10 working days.
	Manager Transmission Operations QLD	Within 1 hour of event occurring	
	HSE Manager Qld	Within 10 days	
Asset Related	Apply APA's existing Emergency Management processes, and as a minimum:		
	Colleague's Leader, then	Immediately	Interim Report within 24 hours, then
	Transmission Manager	Within 1 hour	Investigation completed within 10 working days

All incidents shall be investigated under the guidelines provided within this document. It is important that the investigation results in root cause analysis that may assist in preventing the same of similar incident re-occurring.

The relevant Operations Manager shall determine what level of investigation the incident requires. Incidents that have a low risk and severity rate may not require the level of investigation of an incident with a high risk and severity rate. Where a Formal Investigation has been undertaken, then the investigation report shall be documented on the Incident Report Template (see Appendix C) and may be altered to suit the investigation.

6.2.1 Hazard Alert / System Improvement Form (HASIFs)

APA's Queensland Transmission Group utilises an electronic Integrated Management System (IMS) that enables all personnel to report environmental and other hazards via the Hazard Alert and System Improvement Form (HASIF Reporting MGT 1-02). This system has been devised as a preventative strategy for early control of environmental and safety issues, and will be incorporated into the operation of the RBP. The electronic version is mirrored into a handbook and HASIF booklets are made available to all employees and contractors.

Personnel at all levels enter issues directly into the database, or complete a HASIF and submit it to the Health, Safety, and Environment Quality (HSEQ) Manager for entry into the

database. The database contains HASIF details and the required actions to implement arising from the issue / event. Each employee can monitor the status of any HASIF from entry into the database through to HASIF completion.

6.2.2 Statutory Reporting

In the event of an incident which may be in breach of statute requirements, the Manager Transmission Operations QLD (or delegate), in consultation with the Environmental Manager, is responsible for submitting any Environmental Incident Reports to Statutory Authorities.

The Company will also maintain reports to satisfy the Environmental Authority. Note: For the purposes of this condition, access roads and tracks required for the necessary maintenance of the pipelines are excluded from the area of significant disturbance.

6.3 Compliance and System Reviews and Audits

6.3.1 Environmental Auditing

Environmental audits shall be conducted on a routine basis to ensure continuous improvement and compliance with updated legislation and regulatory requirements, with regards to the effective management of environmental impacts resulting from the operation of the pipeline. Audits will be conducted by a Technical/Environmental Compliance Specialist who is either a suitably qualified internal environmental professional or, if not available internally, a suitably qualified environmental consultant.

Internal auditing procedures are outlined within MGT 3-02 Internal Auditing. The purpose of this document is to define the system used for planning, performing and reporting (internal) integrated management system audits.

An audit of the EMP shall include all components of the EMP, including all associated procedures and work instructions, and shall further take into account the manner in which the activities are completed. An audit shall not need to inspect the entire pipeline easement.

Compliance audits of the EMP are to be completed at a minimum of 2-year intervals. To date, audits of the system have been conducted in 1999, 2001, 2003, 2005 and 2007.

The findings of environmental audits shall be submitted to the Manager Transmission Operations QLD. Copies of the results of the audits will be available to regulatory authorities upon request. (or sent to Queensland Transport and the Department of Minerals, Mines and Natural Resources?).

Any corrective actions resulting from environmental audits will be incorporated into the Company's IMS through 'System Improvement Requests' where priorities and responsibilities are assigned. Improvement Requests (e.g. Corrective Actions Request or Non-conformance Report) are the mechanism in the Company to generate corrective actions towards any non-conformance. The IMS entry must be addressed and closed out by the Manager Transmission Operations QLD or relevant Operations Manager. The records will be contained in the database for historical reference.

6.3.2 EMP Review

This Environmental Management Plan shall be reviewed to ensure that:

- Information and environmental management procedures contained remain current;
- All opportunities for improvement are identified; and

- Any changes to legislation, licence and approval conditions are adhered to.

Reviews shall take the following forms:

- APA Group shall consider the above issues on an ongoing basis; and
- On completion of the first 12 months of full implementation of this EMP, the first annual review will be undertaken.

The EMP will be reviewed whenever, any of the following occurs:

- A non-conformance is detected in the EMP;
- The EMP no longer reflects the actual work practices; and
- The operational program is amended.

6.3.3 Corrective Action

Corrective and preventative actions are utilised to improve any identified system deficiencies and / or areas of environmental performance requiring improvement. Corrective and preventative actions may be generated as an outcome from work site inspections, incident report / investigations, audits or as a result of community complaints. These actions will be documented by utilising HASIF forms and the Integrated Management System electronic database.

6.3.4 External Communication

Consultation with relevant regulatory authorities shall continue during operation of the RBP. Consultation will ensure that stakeholders are kept informed, and that local knowledge and expertise are utilised appropriately. The respective Operations Manager shall be responsible for coordinating external communications. The Environmental Compliance Specialist is available to provide assistance where necessary.

Local Councils are also contacted at least once a year and are encouraged to contact the Company if any developments are occurring in the vicinity of the pipeline easement.

6.3.5 Complaints Management

APA maintains a comprehensive landowner liaison program that includes:

- An annual mail out of a landowner package with safety, contact details and other relevant information;
- Visiting the landowner from time to time on an as needed basis; and
- Maintaining a landowner database along the pipeline easement.

Landowners are encouraged to phone APA if they wish to ask any questions or make any complaints with regard to the condition of the pipeline easement. Records are kept of all landowner contact and of any complaints received.

Once a complaint is received it is the responsibility of the relevant Pipeline Technician and their respective Operation Manager to ensure that the complaint is resolved to the satisfaction of both parties. Records are to be kept of all actions taken by personnel.

A landowner complaints database is maintained so that all complaints can be monitored on-line. The complaints database should record the complainant's details (name, phone no., address, property affected) and actions taken to remedy the situation.

7 Contact Directory

7.1 RBP Management

Position Title	Contact Phone Numbers
Operations Manager, RBP	Phone: (07) 3323 6156 Mobile: 0410 440 793
Lands Manager	Phone: ((07) 3323 6148 Mobile: 0411 879 441
HSE Advisor	Phone: (07) 3323 6128 Mobile: 0418 819 412
Manager Transmission Operations Qld	Phone (07) 3323 6070 Mobile: 0419 792 243
Engineering Manager – Gas Transmission	Phone: (07) 3323 6140 Mobile: 0438 568 939

7.2 APA Group

Position Title	Contact Phone Numbers
APT Control Room - Brisbane	1800 017 000 (24 Hr General Enquiry Number)
Manager HR & HSE (Qld)	Phone: (07) 3323 7634 Mobile: 0413 353 271
Engineering Manager (APA Group)	Phone: (02) 9693 0001 Mobile: 0407 101 802

7.3 Emergency Services

Authorities	Contact Phone Numbers
Emergency	000
Queensland Fire & Rescue Service	000
Air Traffic Control	13 17 57
Queensland Workplace Health & Safety (QWHS)	(07) 3896 3363 (accident notification) or 1300 369 915
Environmental Protection Agency (EPA)	1 300 130 372 (Incident Number)
Electrical Safety Office (ESO)	(07) 3235 4596 or 1300 650 662

7.4 State EPA and Government Departments

Government Departments	Contact Phone Numbers
Department of Emergency Services (DES)	(07) 3247 8821
Department of Mines & Energy (DME) - John Fleming, Chief Inspector, Petroleum & Gas	Phone: 07 32371415 Mobile: 0417 729 512
Department of Primary Industry (DPI)	13 25 23
Animal and Plant Health Service (APHS)	13 25 23
Qld Parks and Wildlife Service	(07) 3227 8185

8 Abbreviations

Throughout this EMP, a number of acronyms and terms have been used which are described in Table 25.

Table 25 Abbreviations

Abbreviation	Description
APT	APT Management Services Pty Ltd - a member of the APA Group
AHD	Australian Height Datum
ALARP	As Low As Reasonably Practicable
ANZECC	Australian New Zealand Environment Conservation Council
APEA	Australian Petroleum Exploration Association (APEA) - it has changed its name to the Australian Petroleum Production and Exploration Association (APPEA)
APHS	Animal and Plant Health Service -Department of Primary Industry (DPI)
APIA	Australian Pipeline Industry Association
APPEA	Australian Petroleum Production and Exploration Association (originally Australian Petroleum Exploration Association)
ARMCANZ	Agriculture Resource Management Council of Australia and New Zealand
AS	Australian Standard
ASS	Acid Sulphate Soils
CEMS	Corridor Environmental Management Strategy
COO	Chief Operating Officer
DME	Department of Mines and Energy
DPI	Department of Primary Industries
EIP	Environmental Improvement Plan
EMP	Environmental Management Plan
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPI	Environmental Performance Indexes
GASS	Gas Accounts and Service System
GIS	Geographical Information System
HASIF	Hazard Alert and System Improvement Form
HR	Human Resources
HSE	Health, Safety and Environment
IMS	Integrated Management System
ISO	International Standards Organisation
KP	Kilometre Point
MAOP	Maximum Allowable Operating Pressure
MCMS	Mica Creek Meter Station
MTIC	Miscellaneous Transport Infrastructure Corridor
MIM	Mt. Isa Town Lateral
MLV	Main Line Valve

Table 25 Abbreviations	
Abbreviation	**Description**
MSDS	Materials Safety Data Sheet
NOHSC	National Occupational Health & Safety Commission
NZS	New Zealand Standards
OHS	Occupational Health & Safety
PCC	Pipeline Control Centre
PJ/A	petajoules per annum
QPWS	Qld Parks and Wildlife Service
RMT	Risk Management Technologies
ROW	Right of Way
SES	State Emergency Service

Appendix A

APA Group Health, Safety & Environment Policy

APA Group

Health Safety & Environment

Health, Safety & Environment Policy

APA Group is committed to providing an injury free work environment and a sustainable future by maintaining a positive culture based on continual improvement in health safety and environmental performance and ensuring that all business activities are conducted in a manner that protects all of our people, the environment and greater community with which we interact.

To achieve this APA Group will:

- comply with applicable health, safety & environment legislation and best practice requirements to which APA Group subscribes.
- provide leadership and direction to drive management accountability for the performance of our health, safety & environment management systems.
- assess the risks to health, safety and the environment that may be affected by the groups activities in order to eliminate or minimise that risk.
- provide and maintain safe systems of work and codes of practice.
- provide adequate and appropriate training, supervision and specialist support to health, safety & environment matters.
- proactively reduce the risk of accidents, incidents and near misses. Investigate all reported accidents, incidents and near misses promptly and take appropriate actions to prevent a reoccurrence.
- keep employees, contractors and other relevant parties informed in relation to relevant parties our health, safety & environment systems and processes.
- partner with contractors having the same health safety & environmental standards and values as APA Group.
- regularly monitor our health safety & environmental performance against established internal & external standards.

General Responsibilities for Health, Safety & Environment

Every employee (permanent or temporary) has an obligation to look after their own health and safety, and the safety of those who may be affected by their acts or omissions. They must also comply with the group's HSE policies and procedures. They must report all accidents, incidents and near misses.

All managers and supervisors are responsible for managing HSE in accordance with group policy as an integral and mandatory duty of their position.

Contractors and sub-contractors have an obligation to look after their own health and safety, and the safety of those who may be affected by their acts or omissions. They must also comply with all applicable health, safety and environmental legislation and local site rules and APA has a duty of care to ensure the APA worksites where contractors and sub-contractors are working are safe.

Mick McCormack – Managing Director

This policy statement will be reviewed periodically to ensure that it remains relevant and appropriate to the organisation.
Revised date: August 2010
For Review: August 2012

Appendix B

APA Group Risk Assessment Methodology

Risk definition and classification

Where possible, the use of quantitative data and risk expressions to measure likelihood and consequence of any identified risks can be applied. In some circumstances this may not be possible nor efficient or effective. Therefore a qualitative approach is acceptable. APA Group's qualitative approach applies the following measures.

Level	Descriptor	Description	Frequency
5	Almost certain	Is expected to occur in most circumstances	At least once per year
4	Likely	Will probably occur in most circumstances	At least once every 3 years
3	Possible	Might occur at some time	At least once every 10 years
2	Unlikely	Could occur at some time	At least once every 25 years
1	Rare	May occur only in exceptional circumstances	Less than once every 25 years

Qualitative Risk Analysis Matrix – Level of Risk

For each component of the activity subject to a risk analysis, the evaluation of likelihood and consequences will apply the matrix below to determine the level of risk as per Standards Australia guidelines - AS/NZS 4360:2004 - Risk Management.

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
5 Almost Certain	H	H	E	E	E
4 Likely	M	H	H	E	E
3 Possible	L	M	H	E	E
2 Unlikely	L	L	M	H	E
1 Rare	L	L	M	H	H

Legend:	
E	**Extreme risk** – Immediate action required and risk monitored at Board level
H	**High risk** – Senior Management attention needed and risk monitored
M	**Moderate risk** – Management responsibility must be specified
L	**Low risk** – Manage by routine procedures

Consequence

Level	Descriptor	Example Impacts Descriptions				
		Health & Safety	Financial impact	Environment	Compliance, Legal & Other Requirements	Reputation impact
1	Insignificant	• No significant injury or illness • A 'near miss'	• Less than $10,000	• On-site release immediately contained with no detectable change to the environment • Impact duration of < 1 week • Isolated to a confined area	• No breach of compliance with legal and other requirements	• May result in isolated public comments
2	Minor	• First aid injuries • Medical treatment with return to normal duties • Acute or short term illness with no lost time	• $10,000 - $1 million	• On-site release not contained or off-site release immediately contained with minor change to the environment • Impact duration of < 1 month • Minor impact to a site	• Non-conformance with company requirement or voluntary standards • Voluntary explanation to a regulator necessary	• May result in repeated public complaints
3	Moderate	• Restricted work case • Loss time injury or illness	• $1million - $5 million	• Off-site or ongoing release requiring ongoing management with moderate change to the environment • Impact duration < 1 year • Moderate impact to a local area	• Non-compliance with licence conditions • Formal explanation required • Regulator enquiry • Possible on-the-spot fine for operational practices	• Widespread public complaints or isolated adverse local media
4	Major	• Disabling injury or chronic health ailment • Single fatality	• $5 million - $20 million	• Off-site release not contained requiring management with substantial external assistance and resources causing major damage to the environment • Impact duration < 10 years • Wide area affected	• Serious breach of regulations with penalty notice and fine issues • Regulator or Authority investigation, report required	• Isolated adverse coverage in national media
5	Catastrophic	• Multiple fatalities or disabilities	• Greater than $20 million	• Off-site release not contained requiring management with substantial external assistance and resources causing severe damage to the environment • Impact > 10 years • Wide areas severely affected	• Major breach of regulations • Significant fines and/or litigation	• Extended adverse coverage in national / international media

Appendix C

APA Group Incident Investigation Template

Incident Investigation:

{Name of incident
any references to contracts etc}

{Date}

Author: {Name}

Introduction
An incident investigation of a near miss with …….

The incident investigation was undertaken by {name} at the request of {name} and has resulted in this report. The people interviewed as part of this incident investigation were:

{Name} – {Title}
{Name} – {Title}
{Name} – {Title}
{Name} – {Title}

Description of Incident
…….

Immediate Causes
…….
…….
…….
…….
Root Causes
…….
…….
…….
Immediate Actions
…….
…….
…….

Long Term Actions

……
……
……

Further Investigations and Actions

……
……
……

Conclusion