# Millennium Expansion Project

## Environmental Impact Statement

### CHAPTER 18:

### HAZARD AND RISK

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# TABLES

# 18.0 HAZARD AND RISK

## 18.1 EXECUTIVE SUMMARY

### 18.1.1 Values

Values to be enhanced or protected within the Millennium Expansion Project (MEP) are the protection of the community, visitors, employees and contractors by the early identification of hazards and assessment of risks at the MEP.

### 18.1.2 Issues

The MEP's hazard and risk issues include:

- identifying all relevant hazards at the MEP;
- assessing all relevant hazards for their likelihood and consequence ratings to develop a risk ranking;
- minimising hazards associated with the storage and handling of dangerous goods and hazardous substances;
- ensuring the safe storage and use of explosives; and
- implementing appropriate procedures to manage hazards and risks at the MEP.

### 18.1.3 Mitigation Strategies

Strategies to mitigate the MEP's hazards and risks include the following:

- developing and maintaining a site hazard and risk assessment process that conforms to accepted leading practice;
- ensure ongoing risk identification and risk minimisation during MEP operations;
- maintaining a site risk register;
- developing and maintaining a site Emergency Response Plan;
- ensuring site inductions cover the significant hazard and risk management processes;
- using ChemAlert or similar program to identify correct handling and storage procedures for hazardous substances; and
- develop a closure plan that identifies risks and mitigating strategies at the end of mine life.

## 18.2 HAZARD AND RISK SYSTEMS

This section describes the potential hazards and risks to people, property and the environment that are associated with the operation and decommissioning of the MEP. This section describes Peabody's integrated approach to hazard identification and risk management, however controls for hazards and risks relating to health and safety have been detailed in **Chapter 16-Health and Safety** and environmental risk controls are covered through the relevant sections of this EIS.

Both natural and man-made hazards and risks have been considered in this assessment.

### 18.2.1 Hazard Identification

This section presents the assessment method and results for the hazards and risks associated with the proposed MEP. The hazards and risks were identified as part of the Preliminary Hazard Analysis (PHA). A representative from Emergency Management Queensland reviewed the risks, hazards and controls presented in this section to ensure a complete and thorough assessment was undertaken and to check that appropriate risk controls were proposed.

Potential incident scenarios from the operations at the mine were identified through consideration of:

- the range of activities carried out, including construction of water supply infrastructure, use of explosives, hauling of overburden and coal, and the operation of support facilities (offices, ablutions, crib sheds, access roads etc);
- the facilities constructed for mine operations, including workshops, hazardous materials storage areas, surface water storages, waste rock emplacements and haul road crossings over New Chum Creek; and
- the range of potentially hazardous incidents that might be associated with each of the activities and facilities identified at the site.

The process of risk management for an operational project is dynamic, requiring ongoing monitoring of the tasks, controls and human elements, to ensure that changes in the work or work environment trigger a timely review of the adequacy of the controls. What has been assessed in this section is the best estimate of hazards and risks based on the existing Millennium Mine operations and the proposed mine plan for the MEP.

The hazard categories for the operational and decommissioning phases of the MEP are categorised in **Table 18-1**.

### 18.2.2 Integrated Risk Management Plan

Within the MEP, an integrated approach to risk management of the operations will be adopted, recognising the hazards at all points in the operations and how these are controlled. The risk assessment will follow the *AS 4360:2004-Risk Management* and will include the following:

- setting the context of the hazard;
- risk identification;
- evaluating the risk, including a preliminary hazard analysis (PHA); and
- risk treatment of the identified risks as per the hierarchy of controls.

**Table 18-1 Potential Hazards Identified for the MEP**

| Mining Phase | Potential Hazards |
|---|---|
| Operations | • transportation of personnel, equipment and materials to, from and within the site;<br>• interaction with vehicles, machinery and equipment;<br>• dust (blasting and roads);<br>• emissions from blasting;<br>• noise and vibration impacts from blasting and machinery;<br>• storage of chemicals/dangerous goods and fuel on-site;<br>• loss of containment from tailings dams;<br>• physical injuries from manual handling;<br>• fatigue (travel related);<br>• excavation and management of voids;<br>• coal handling, stockpiling and washing;<br>• spontaneous combustion;<br>• wildlife, such as snakes;<br>• waste disposal;<br>• transportation of coal;<br>• chemical release and leaks;<br>• contact with high voltage electricity; and<br>• grass fire and other natural disasters. |
| Decommissioning | • demolishing and removing mine infrastructure (e.g. equipment, demountables, etc.) from the site;<br>• unauthorised access to the mine site and the potentially dangerous structures and landforms such as high walls, final voids, dams, pits and dumps;<br>• loss of containment of mine water from final voids;<br>• erosion and overburden management; and<br>• landslides. |

## 18.3 HAZARD AND RISK ASSESSMENTS

### 18.3.1 MEP Site

Having identified the range of hazardous actions and locations likely to occur at the site, the following matters were considered for each hazard:

- appropriate control and mitigation factors;
- the consequences of each of the hazardous incidents if they were to occur. Assessment of the severity of the consequences takes into consideration the proposed mitigation measures listed;
- possible causes and the probability of these causes occurring and leading to the hazardous incident identified. The probability of each hazardous incident occurring takes into consideration the proposed control measures; and
- where an extreme or high risk was identified, additional controls and mitigation measures were identified and the hazardous incident reassessed with these controls in place.

These potential incident scenarios were assessed using the Peabody Risk Assessment Matrix (RAM) system to assign a risk ranking. **Table 18-2** shows the Peabody Likelihood and Consequence Table used to assign ratings to a particular hazardous incident. Consequence is given a rating from 1-6, while likelihood is assessed as Rare/Unlikely/Possible/Likely/Almost Certain. These ratings are then aligned against the RAM in **Table 18-3** to give the calculated risk ranking.

## Table 18-2 Consequence and Likelihood Table

| | STEP 1 DETERMINE THE CONSEQUENCES | | | STEP 2 LIKELIHOOD | |
|---|---|---|---|---|---|
| | **Financial Impact** | **Workforce** | **Environment and Community** | **Category** | **Time** |
| 6 | $100 M+ loss | One or more Fatality | Extreme long term environmental impact<br>National sustained stakeholder outcry | Rare | 100 Years |
| 5 | $10 M-$99 M loss | Permanent Disability | Regional sustained medium term environmental impact<br>Ongoing serious social issues in the community | Unlikely | Several Years |
| 4 | $1 M-$9 M loss | Long Term Lost Time Injury/RDI | Serious short to medium term environmental localised impact<br>Heightened concern by local community/media | Possible | <1 Year |
| 3 | $100 K-$900 K loss | Short Term Lost Time Injury/RDI | Minor localised effects felt outside project boundary<br>Minor short term community outrage | Likely | Weeks to Months |
| 2 | $10 K-$99 K loss | Medical Treatment Injury | Minor localised effects within boundary<br>Local public concern restricted to attention on one issue | Almost Certain | Days to Weeks |
| 1 | <$10 K loss | First Aid Injury | One off incident with no significant impact<br>One off compliant | | |

## Table 18-3 MEP Risk Assessment Matrix

| Consequences | | | | | | |
|---|---|---|---|---|---|---|
| | 6 | B | B | A | A | A |
| | 5 | C | B | B | A | A |
| | 4 | C | C | B | B | A |
| | 3 | D | C | C | B | B |
| | 2 | D | D | C | C | B |
| | 1 | D | D | D | C | C |
| | | Rare (R) | Unlikely (U) | Possible (P) | Likely (L) | Almost Certain (AC) |
| | | Likelihood | | | | |

From the Risk Assessment Matrix, risks are assigned a risk ranking that is used to determine their priority for management. The risk rankings are:

| | |
|---|---|
| A | Critical Risks |
| B | High Risk |
| C | Moderate Risk |
| D | Low Risk |

The prevention, protection or mitigation measures for the MEP operations and decommissioning phases are outlined in the Preliminary Hazard Analysis **Table 18-4** and **Table 18-5**, respectively.

**Table 18-4 Preliminary Hazard Analysis for MEP Construction and Operations**

| Hazards | Proposed Controls | Environment | | | Health and Safety | | |
|---|---|---|---|---|---|---|---|
| | | C | L | R | C | L | R |
| Interaction with vehicles, machinery and equipment (physical) | • All vehicles and equipment will be maintained and serviced regularly;<br>• Machinery and equipment will be operated only by trained personnel in possession of a current licence; and<br>• HSMP will include an operating procedure which requires that all energy sources on-site be utilised appropriately in order to prevent physical injury. | 1 | L | C | 2 | U | D |
| Excessive fugitive dust (including dust from blasting) | • Speed limits;<br>• Regular application of water on road ways/work areas by water carts (low volume, continuous spray);<br>• Mine Traffic Rules; and<br>• Use of surfactants. | 3 | U | C | 1 | U | D |
| Traffic incidents off-site-movement of heavy equipment or construction materials to site | Traffic Management Plan, including:<br>• Police escorts; and<br>• Public notices from the police about the timing and likelihood of delays. | 4 | U | C | 6 | U | B |
| Traffic incidents on-site (including bus travel) | • Speed limits;<br>• Traffic Management Plan;<br>• Safety inductions for employees;<br>• Driver training programmes;<br>• Equipment maintenance and inspection; and<br>• Radio communications in vehicles. | 1 | U | D | 6 | U | B |
| Fatigue | • Work rosters that include rest between shifts;<br>• Fitness for Work Policy; and<br>• Training and awareness. | 1 | U | D | 4 | P | B |
| Physical injuries from manual handling | • Documented standard operating procedure;<br>• Education and training;<br>• Education and awareness program; and<br>• Job Safety Analysis's (JSAs) covering manual handling. | 1 | R | D | 2 | L | C |
| Slump of sloped ground | • Use of good engineering practices in construction of slopes;<br>• Drainage controls (e.g. install toe drains if needed); and.<br>• Clearance from site boundary or protective berm or bund. | 1 | R | D | 6 | R | B |

| Hazards | Proposed Controls | Environment | | | Health and Safety | | |
|---|---|---|---|---|---|---|---|
| | | C | L | R | C | L | R |
| Leaks of oil, fuel or chemicals from vehicles at designated fuelling stations | • Auto-shut off nozzles;<br>• Follow company fuelling procedures;<br>• Impervious containment and bunding of stationary/fixed tanks;<br>• Overfill protection;<br>• Prompt reporting and clean-up;<br>• Major equipment maintenance to be conducted in dedicated facilities; and<br>• Storage and handling in accordance with *AS1940*. | 2 | L | C | 1 | P | D |
| Major grass fire destroying wildlife habitat vegetation and public structures, as well as other natural disasters such as flood, drought, landslides, etc. | • Mine operation facilities and equipment will be inspected and tested for fire safety on a regular basis;<br>• Issue alert in drought season;<br>• Trained professionals on-site;<br>• Relevant site staff will complete fire safety training during induction;<br>• Check and maintain fire breaks around all power lines, mine entries, infrastructure and industrial areas and roads;<br>• Move all equipment out of the path of the fire onto safe ground;<br>• Water points will be located throughout the mine including the use of on-site water trucks, will be implemented;<br>• The site will have an approved fire alarm, detection, suppression and fighting system designed and installed in consultation with the relevant fire control authorities; and<br>• Put process in place to contact and alert Emergency Services for assistance when required. | 4 | U | C | 6 | U | B |
| Chemical release-liquid from leaks, ruptures, over-flows, spillage or pooling. Release to atmosphere or ground systems | • All storage and handling facilities designed and operated to relevant Australian Standards;<br>• Stormwater is directed away from potentially contaminated areas;<br>• Site drainage system designed to allow retention of spills on-site;<br>• Hazard and Operability (HAZOP) reviews conducted during detailed design;<br>• Personnel trained in appropriate storage and handling and incident response;<br>• Monitoring of sewage treatment plant (STP) to detect leaks or spills;<br>• Material safety data sheets available on-site; | 3 | U | C | 4 | U | C |

| Hazards | Proposed Controls | Environment | | | Health and Safety | | |
|---|---|---|---|---|---|---|---|
| | | C | L | R | C | L | R |
| | • Procedure for introduction of new chemicals;<br>• Appropriate personal protective equipment and maintain adequate supply of spill materials;<br>• Chemical incidents included in Emergency Management Plan; and<br>• Proper preventative maintenance. | | | | | | |
| Excessive noise and vibration impacts (e.g. blasting and/or mine equipment noise) | • Explosive materials to be handled and used in compliance with current Australian Standards (*AS2187-2006*);<br>• Explosive materials handled only by competent authorised personnel;<br>• Induction and training of all staff on safety procedures during blasting;<br>• Strict control of ignition sources;<br>• Advise surrounding neighbours, where appropriate;<br>• Design and operate all equipment to comply with the *Environmental Protection (Noise) Policy 2008;.*<br>• Personal Protective Equipment provided; and<br>• Storage of detonators in accordance with the *Explosives Act 1999*, Part 4 Division 6. | 1 | R | D | 1 | R | D |
| Blasting emissions (NOx in yellow cloud) | • Follow approved blasting plans; and<br>• Use sleeves or emulsion in wet conditions. | 2 | U | D | 3 | U | C |
| Coal fines from conveyor, conveyor transfer station dust collector stacks and rail transportation can be released to air or water | • Regular inspection and maintenance of control devices;<br>• Use of control devices such as water sprays, enclosures, dust collectors;<br>• Regular clean-up of spills; and<br>• Maintain compliance with tonnage throughput standards. | 3 | U | C | 4 | R | C |
| Spontaneous Combustion | • Coal stored in stockpiles is at risk of spontaneous combustion, resulting in the potential for fire and smoke;<br>• Remedial action will focus on the dissipation of heat, including digging out of localised hot spots, spreading and track-rolling of coal and recirculation of coal in the stockpiles; and<br>• Preventative measures include regular monitoring, compaction and management of stockpiles to reduce the residency time of coal. | 3 | U | C | 3 | U | C |

| Hazards | Proposed Controls | Environment | | | Health and Safety | | |
|---|---|---|---|---|---|---|---|
| | | C | L | R | C | L | R |
| Contact with high voltage electricity | • Crane procedures.<br>• Secured access;<br>• Qualified electricians;<br>• Control of Energy (isolations) procedure; and<br>• Equipment maintenance. | 1 | R | D | 6 | U | B |
| Pests (weeds) brought to and leaving site by earthmoving equipment | Peabody has a weed control strategy to control and mitigate against introduction and spreading of weeds. | 3 | P | C | 1 | P | D |
| Failure to provide emergency treatment and response | • Communication system for operators working alone; and<br>• On-site first aid officers. | 1 | R | D | 6 | U | B |
| Contamination of drinking water (quality) | • Water treatment plant on-site using water from Burton Gorge dam;<br>• Monthly metal, chemical and bacteria monitoring conducted; and<br>• Compliance with *ANZECC 2005 Drinking Water Guidelines.* | 1 | R | D | 2 | R | D |
| Increased contact with snakes due to land disturbance | • PPE to be worn as appropriate; and<br>• Personnel trained in basic first aid and snake awareness. | 1 | R | D | 6 | R | B |
| Increased contact with disease vectors due to additional waste | • PPE to be worn as appropriate;<br>• Covered waste bins; and<br>• Regular removal of waste off-site. | 2 | U | D | 4 | R | C |

C = Consequence, L = Likelihood, R = Risk Ranking

## Table 18-5 Preliminary Hazard Analysis-Decommissioning phase

| Hazards | Proposed controls | Environment | | | Health and Safety | | |
|---|---|---|---|---|---|---|---|
| | | C | L | R | C | L | R |
| Infrastructure and unused or unwanted equipment (hazard from demolishing and removing) | • No facilities or equipment will remain on-site unless with the written approval of the landowner or relevant authority. It is currently envisaged that all buildings, offices, plant and equipment, workshops, stockpiles and associated infrastructure will be demolished and removed from site, including conveyors, power lines/transmission lines, CHPP equipment and coal load-out facility. | 4 | R | C | 2 | U | D |
| Dust from Road and Earthworks | • Distance/buffer from sensitive receptors;<br>• Speed limit;.<br>• Regular application of water on roadways/work areas by water carts (low volume, continuous spray); and<br>• Mine Traffic Rules. | 3 | U | C | 1 | U | D |
| Traffic incidents off-site-movement of heavy equipment from site | Traffic Management Plan, including:<br>• Police escorts; and<br>• Public notices about the timing and likelihood of delays. | 4 | U | C | 6 | U | B |
| Interaction with Machinery | • HSMP will include an operating procedure which requires that all energy sources on-site be controlled. | 2 | P | C | 5 | U | B |
| Fatigue | • Work rosters which include rest between shifts;<br>• Fitness for work policy; and<br>• Training and awareness. | 1 | U | D | 4 | P | B |
| Food Hygiene | • Provision and supply of food to be undertaken by licenced contractors operating in accordance with relevant food and hygiene legislation. | 1 | R | D | 6 | R | B |
| Waste Disposal | • Waste Management Plan;<br>• Removal of rubbish for disposal at a licenced waste facility; and<br>• Particular care will be taken with residual toxic or hazardous materials including contaminated packaging and containers. | 4 | P | B | 2 | P | C |
| Pits and Dumps | • Reshaping of the waste dumps to its pre-mining habitat; and<br>• Sealing the seam in final voids and making them safe. | 4 | U | C | 6 | R | B |

| Hazards | Proposed controls | Environment | | | Health and Safety | | |
|---|---|---|---|---|---|---|---|
| | | C | L | R | C | L | R |
| Tailings Dams | • Treatment options include permanent water cover, cladding, capping, amelioration and vegetation; and<br>• Methods will be used to assist plant growth. | 4 | U | C | 1 | R | D |
| Unwanted Services | Ensure that all services are removed. | 2 | P | C | 2 | P | C |
| Unauthorised access to the mine site and dangerous structures and landforms such as high walls, final voids, or tailings dams by the public | • Restricting or preventing public access by removal or closure of access roads and tracks;<br>• Fence the perimeter to restrict access; and<br>• Signage to indicate lease boundaries. | 1 | R | D | 6 | R | B |
| Erosion (wind and water) and overburden management | Control of erosion though an adequate cover of vegetation so as to stabilise the site and prevent or control erosion. Compacted areas will be ripped, recontoured, topsoiled and reseeded. | 4 | P | B | 1 | R | D |
| Major grass fire destroying wildlife habitat vegetation and public structures, as well as other natural disasters such as flood, drought, landslides, etc. | • Observe statutory regulations and liaise with local fire control authorities;<br>• Issue alert in drought season;<br>• Trained professionals on-site; and<br>• Prepare a fire management plan for the MEP. | 4 | U | C | 6 | U | B |
| Landslides | • Landscaping (reshaping and regrading) of the site to ensure slopes are stable; and<br>• Runoff will be concentrated into drains and diversion channels and will be designed so as to reduce the velocity of runoff as the catchment of the slope increases. | 1 | R | D | 6 | R | B |

C = Consequence, L = Likelihood, R = Risk Ranking

Should the proposed controls detailed above be followed, it is considered that minimal residual risk will remain that exceeds generally accepted community standards.

A rigorous, more specific evaluation of hazards associated with the MEP will be undertaken prior to the commencement of both the construction and operational phases of the MEP, based on final detailed design and operating plans.

#### *18.3.1.1 Site Risk Register*

A Risk Register will be maintained on-site and will be reviewed annually or when a significant operational change takes place at the mine or as a result of an incident. Identified safety and health hazards will be given a risk ranking using the RAM system. A summary of the nature of the hazard, any existing and additional proposed control measures will be included. The Risk Register forms the basis of the risk management framework.

The Risk Register is an important component of the MEP Health and Safety Management Plan (HSMP) and is a high level assessment of the mine site that identifies the risks and the controls required to maintain them as low as reasonably practicable (ALARP). The register includes all known elements of concern for operational activities and is listed within the document control system.

During operations, Millennium personnel will identify and manage risks in all activities by undertaking risk assessments prior to new works being undertaken, and again when changes to work conditions, equipment, work locations, weather, processes, practices and personnel occur. Detailed risk assessments will be undertaken by relevant work crews to develop Standard Work Procedures (SWP) for regular tasks.

Hazards will be identified by task analysis and the identification of an activity, location or equipment that has potential to cause harm. Regular hazard audits will be conducted, and controls put in place, that include well defined and consistent workplace standards; processes for inspecting and reinforcing these standards; and involvement of work crews in improving the work environment.

Peabody will develop a mine closure plan that identifies and controls the major risks associated with decommissioning the operations at the end of mine life. Mine closure planning for the MEP will be undertaken once final infrastructure and final landform plans have been approved, and as required by relevant Government departments. The closure strategy will provide for the site to be left in a sustainable condition without the risk of causing harm to the community or the environment.

#### *18.3.1.2 Dangerous Goods and Hazardous Substances*

There are significant risks and hazards for the MEP associated with the storage and handling of dangerous goods[1] and hazardous substances[2] for mining and coal processing. The MEP will utilise a number of hazardous substances during its operation, such as fuel and oil that are regulated by the *Australian Dangerous Goods Code 7th Edition* (*ADG Code*).

**Table 18-6** lists the principal dangerous goods, their purpose, maximum quantity stored and the location onsite. Other dangerous goods, which may be required for the MEP in minor quantities, will be identified prior to their arrival on-site and appropriate measures implemented to manage their safe storage and use in accordance with the requirements of the relevant legislation and standards.

All Peabody sites use the software package 'ChemAlert', which lists Safety Data Sheets (SDS) for all materials onsite. SDS for all chemicals used will be available at appropriate locations such as the chemicals storage facilities and

[1] As defined under Schedule 1 of the *Dangerous Goods Safety Management Regulation 2001.*

[2] Defined as meeting the National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances; or if their name appears in the NOHSC publication titled "*List of Hazardous Substances*" and they are above the stated cut-off limits in that publication.

the CHPP. Spill prevention and spill response strategies will be implemented in accordance with the existing approved systems in use at the Millennium Mine.

All hazardous materials on-site will be managed in accordance with the relevant Australian Standards, including:

- *AS 4452:1997 The Storage and Handling of Toxic Substances (AS 4452:1997);*
- *AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids (AS 1940:2004);*
- *AS 3780:1994 The Storage and Handling of Corrosive Substances (AS 3780:1994);*
- *AS 4452:1997 The Storage and Handling of Toxic Substances (AS 4452:1997);*
- *AS 2187: Part 1 Storage of Explosives;* and
- *AS 2187: Part 2 Use of Explosives.*

Given that these materials will be correctly stored, handled and disposed of, there is negligible risk to nearby land users or to the social and natural environments.

**Construction Works**

There are no significant construction works required for the MEP. Any construction works that are required would be similar to existing maintenance works or upgrades at the Millennium Mine and will not significantly alter the storage, handling, use or disposal procedures already in place for hazardous goods and substances.

**Operational Phase**

The key hazards associated with dangerous goods during the operational phase are the same as those already identified and managed for the Millennium Mine. Dangerous goods and hazardous substances required at the MEP will be acquired from approved manufacturers and suppliers. Diesel will be the most significant hazardous substance utilised at the MEP, as shown in **Table 18-6**. Explosives, detonators and boosters will also be used in the mining process.

Peabody currently engages a specialist contractor to audit the fuel systems and explosives magazine to ensure compliance with legislation and leading practice management procedures. With the correct controls in place, there will be negligible risk to employees, adjacent land users, general public and the environment.

While the likelihood of an incident is low, the impact from any potential incident involving dangerous goods and hazardous substances would most likely occur and be contained within the site, where the materials are stored and used. Emergency response procedures are already in place at the Millennium Mine to manage any such incidents which may occur and these procedures will be incorporated at the MEP.

*18.3.1.3 Concentration of Raw Materials*

Dangerous goods and hazardous substances required at the MEP will be acquired from approved manufacturers and suppliers. The concentration of substances acquired for the MEP will comply with that stated in the relevant SDS. The concentration of goods and substances stored on-site is unlikely to change during storage however, some substances may be diluted prior to their use in order to attain optimum efficiency. It is unlikely that the concentration of any substance will be increased during storage.

## Table 18-6 Indicative List of Dangerous Goods and Hazardous Substances

| Chemical/Shipping Name | Hazardous Goods Class | Raw Conc. (Wt%) | Store Conc. (Wt%) | United Nations (UN) Number | Packaging Group | Purpose/Use | Rate of Use | Quantity Stored (Maximum) | Location On-site |
|---|---|---|---|---|---|---|---|---|---|
| Diesel Fuel Oil | Three (Class C1)* | N/A | N/A | 1202 | III | Fuel for mobile equipment | 18.5 ML/yr | 500 kL | Fuel Farm |
| Lubrication Oils (hydraulic oil) | Three (Class C2)** | N/A | N/A | N/A | N/A | Lubricate plant and equipment | 85,000 L/yr | 5,000 L | DBS Yard Workshop |
| Caustic Soda (sodium hydroxide) | Eight | 50 | 50 | 1823 | II | Concrete degreasing agent | As required | 200 kg | Warehouse |
| Detonators and Explosives | One | | | 0029/0030 and 0082/0331 | N/A | Blasting | TBD | As required | Explosives Magazine |
| Batteries and Acid | Eight | | | 2794, 2796 | II | Vehicles and equipment | TBD | 20 Batteries | Warehouse |
| Solvents | Three | 99.5 | 99.5 | 1090 | II | Workshop degreasing agent | 30 L/month | 1,000 L | Warehouse |
| Paints | Three | N/A | N/A | 1263 | III | Paint | Varies | 200 L | Warehouse |

Note: * Class C1 – a combustible liquid that has a flashpoint of 150°C or less.
** Class C2 – a combustible liquid that has a flashpoint exceeding 150°C.

## 18.4 Rail Corridor-Hazard and Risk Assessment

**Table 18-7** presents a qualitative risk assessment carried out for the transportation of coal from the MEP. The number of coal trains required for the MEP will increase from 240 trains per year to 368 trains per year, when operating at a rate of 3.5 Mtpa product coal. This is an increase of less than 130 trains per year, which equates to an extra two and a half trains per week. This is a minor increase on a train line that, from all mines in the region, experiences over 16,000 train movements a year, or over 300 movements per week.

Controls are already in place at the level crossings on relevant local and State Controlled Roads, including boom gates, signal lights and signage or adequate lines of sight to ensure the risk of collision is reduced.

**Table 18-7 Qualitative Assessment of Risk for Potential Rail Related Incidents**

| Potential Mining Incident | Public Risk | Environmental Risk | On-Site Risk | C | L | R |
|---|---|---|---|---|---|---|
| **Level Crossings** | Yes | No | No | **6** | **R** | **B** |
| **Train Derailment** | Yes | Yes | Yes | **6** | **R** | **B** |
| **Unrestricted Pedestrian Crossing** | Yes | No | Yes | **6** | **R** | **B** |

C = Consequence, L = Likelihood, R = Risk Ranking

The residual risk of train derailment is considered moderate. The increase in rail traffic has been assessed as minimal and any increase in hazard will be adequately controlled. Train derailments occur for a number of reasons including:

- compromised ballast stability;
- heavy items on train lines; and
- rail line tampering.

Ballast stability can be compromised over time or by situations where strong water flows deteriorate the packing of the ballast. Regular inspection by Queensland Rail (QR) personnel and maintenance can overcome this risk.

Heavy items on the tracks such as fallen trees or tree limbs can be overcome by vegetation maintenance along the railway line to ensure that unstable trees and overhanging limbs are addressed before they become a risk. The risk of rail line tampering is considered fairly low as it requires significant effort to undertake tampering with rail lines. QR has the responsibility of maintaining the safety of the rail line to Queensland Ports.

## 18.5 Emergency Management Plan and Response

The existing Millennium Mine has an Emergency Management Plan in place that will be reassessed and updated as required for the MEP. The Emergency Management Plan gives step-by-step guidance to handling any emergency, such as fire, flood, landslide, dam collapse, fuel spill, explosion or radiation, which could impact on the MEP and its employees. The Emergency Management Plan is a component of the HSMP and the Environmental Management System.

The current Emergency Management Plan will be reviewed, and if necessary updated, to incorporate the following components:

- an analysis of the key incidents likely to take place for each operational area;

- an assessment of the degree of impact likely to occur;
- an assessment of what constitutes an emergency for the particular operation;
- an on-site plan to handle incidents/emergencies;
- an off-site plan with reference to emergency services needed;
- communication, emergency responsibilities, control centre establishment;
- post emergency procedures, including recovery, debriefing and review of plan; and
- emergency plan training and testing sessions.

Guidelines for preparing Emergency Management Plans are available from the Queensland Government Department of Emergency Services and will be considered when preparing the Emergency Management Plan for the MEP. As a minimum the elements and response procedures described in **Table 18-8** will be incorporated into Emergency Management Plan procedures. Peabody currently consults with Emergency Management Queensland (EMQ) with respect to planning for emergency response.

Relevant associated emergency management plans will be incorporated in a comprehensive on-site training strategy for staff, including:

- the management of spills, including the identification and containment of the incident;
- the management of emissions to land, air and water to minimise the potential for environmental harm;
- incident reporting and notification; and
- mobilisation and deployment activities of staff, for fire fighting and casualty management.

Fire drills will be undertaken regularly. The MEP site will have a team of employees trained in fire fighting to coal competency standard and holding senior first aid tickets. All fire fighting facilities and equipment will be installed, serviced, maintained and inspected by a certified body. The site will have a suitably equipped water truck that can support fire response requirements. Regular fire audits of Peabody's Fire Protection Standards are conducted by external parties.

Stores, workshops and offices will be fitted with approved and certified smoke detectors. The MEP will be constructed to meet industry and Peabody fire protection standards. First aid, fire fighting equipment and exit locations will be suitably signed. All work areas will be within the required distance to reach emergency exits.

Designated first aid and emergency rescue facilities and equipment will be available during all phases. Appropriately trained attendants will be on-site throughout the life of the MEP to provide first aid and respond to on-site emergencies. First aid response and mine operating instructions will be incorporated in the workplace induction training.

Surrounding neighbours will also be notified in emergency situations, where appropriate.

All MEP employees will be inducted to the site and all contractors on-site will undergo a contractor induction prior to commencing work. Most existing mine site personnel and contractors are trained in basic first aid, emergency response techniques and the HSMP as part of the Queensland Coal Board generic induction and the Peabody site specific inductions. All visitors are escorted by mine site personnel. The induction program, which is competency based, covers the associated procedures in the HSMP for personnel to do their

duties. Refresher training is a continuing process aimed at informing all employees, including contractors, of their duties associated with the HSMP and procedures.

**Table 18-8 Emergency Plan Elements for Mine-Site Related Emergencies**

| Event | Level of Emergency | Emergency Services Required | Resources Needed | Organisational Aspects | Damage Control Actions |
|---|---|---|---|---|---|
| Vehicle Collision | Site<br>Local | Ambulance<br>Police<br>Fire and Rescue | Rescue.<br>Fire fighting capability.<br>Fuel containment measures. | People control.<br>Evacuation of immediate and nearby area. | Damage control actions.<br>Stabilise and manage situation.<br>Contain fuel spillages.<br>Control ignition sources. |
| Falls and Impact Incidents | Local | Ambulance<br>Fire & Rescue | Rescue.<br>Fire fighting capability.<br>Fuel containment measures. | Communication.<br>Evacuation of immediate area. | Stabilise.<br>Isolate source of incident. |
| Spontaneous Combustion | Site | Site fire fighting team. | Fire truck and water truck. | Communication.<br>Evacuation from area. | Extinguish/cool heat source. |
| Mechanical and Electrical Failure | Site<br>Local<br>External | Local maintenance;<br>Production staff. | Replacement or utilisation of standby equipment. | Major failure requires external communication.<br>Internal communication to maintenance groups. | Isolation and possible shutdown for repair work. |
| Fire on Mine Site | Site<br>Local<br>External | Fire & Rescue.<br>Police.<br>Ambulance-on alert. | Fire fighting trucks and water tankers.<br>Plans and maps.<br>Site fire fighting team. | Evacuation of affected mine personnel.<br>Communication.<br>Roll call.<br>Evacuation notice. | Fire control.<br>Shutdown of affected operations.<br>Evacuation from around fire sensitive areas such as fuel storage tanks and vehicles. |
| Injury to Mine Personnel | Site | First aid kit.<br>Ambulance (if life threatening). | Rescue.<br>Medical supplies. | People Control.<br>Communication. | Identify extent of injury.<br>Respond and assist where possible until medical personnel arrive at the scene. |