Millennium Expansion Project
Environmental Impact Statement

CHAPTER 4:

PROJECT DESCRIPTION

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4.0 PROJECT DESCRIPTION

4.1 LOCATION

4.1.1 Regional Context

The Millennium Expansion Project (MEP) is an extension of the existing operating Millennium Mine, located approximately 140 kilometres (km) southwest of the city of Mackay, in Central Queensland. The nearest regional centres are Moranbah, located approximately 22 km to the west and Coppabella, 16 km to the northeast. The location of the MEP in a regional context is shown in **Figure 4-1**.

There are a number of coal mines operating in the vicinity of the Millennium Mine, including Carborough Downs approximately 2 km to the north of the current Millennium pit and adjoining the MEP lease, and the Poitrel and Daunia Mines which adjoin MCPL's leases to the south. **Figure 4-2** shows the location of all mines surrounding the MEP.

4.1.2 Local Context

The existing Millennium Mine, on Mining Leases (ML) 70313 and ML 70344, is situated within the Isaac Regional Council (IRC) area. The site is accessed from the Peak Downs Highway, approximately 20 km east of the Moranbah township turnoff. The site access road traverses pastoral holdings prior to entering ML 70313 in the northwest corner. The mine access road traverses a number of New Chum Creek tributaries and eventually New Chum Creek itself, prior to reaching the main mine industrial area. The access road is a shared access road that services the Coal Handling and Preparation Plant (jointly owned by Peabody and BMC and referred to as the Red Mountain Joint Venture CHPP, located on ML 70312), and is utilised by the Poitrel and Daunia Mines that adjoin the southern boundary of the Millennium Mine.

The location of the MEP is shown in **Figure 4-3**.

4.2 CONSTRUCTION

As the MEP is an extension to the existing operations at Millennium Mine, relatively minor construction works will be required and are discussed below. The existing access road, offices, workshops, CHPP, water storages and other ancillary infrastructure will be utilised. These may require upgrade or relocation during the MEP life to improve efficiencies.

Mining works including clearing and grubbing, salvage of topsoil, stripping of overburden, extraction of coal, placement of overburden, replacement of topsoil and revegetation will be a continuation of the current mining operations and will not be undertaken as part of an initial construction phase.

4.2.1 Relocate Electricity Transmission Line and Access Road

In an effort to maximise resource recovery and because of the requirement to establish out of pit waste rock emplacements, the current overhead electricity transmission line and the Millennium/Poitrel access road may need to be relocated. The initial box cut overburden will require a large volume of waste

rock to be placed out of pit during the first two years of the MEP operations. One of the major focuses of the mine plan has been to maximise resource recovery whilst trying to minimise the land disturbance required for the out of pit waste rock emplacements.

It should be noted that no additional transmission lines or energy supply are anticipated for the MEP operations, these works being in response to the potential requirement to relocate the existing transmission line. Any change to mining methods may necessitate a separate assessment of the requirement to increase the existing energy supply infrastructure.

If the mine access road requires relocation, construction materials would be stored within the cleared road disturbance footprint. Construction equipment and materials will be sourced from the local community as part of a construction contract. Where possible, base material for road construction will be sourced from within the mining lease area. The road will be sealed and constructed to meet current road standards as described in **Chapter 8 - Transport**.

The footprint will be approximately 2.5 km long by 10 m wide and would require minimal clearing due to previous clearing for grazing. No listed species or Endangered Regional Ecosystems (EREs) are within the proposed footprint, therefore environmental impacts as a result of the road and/or powerline relocation would be minimal.

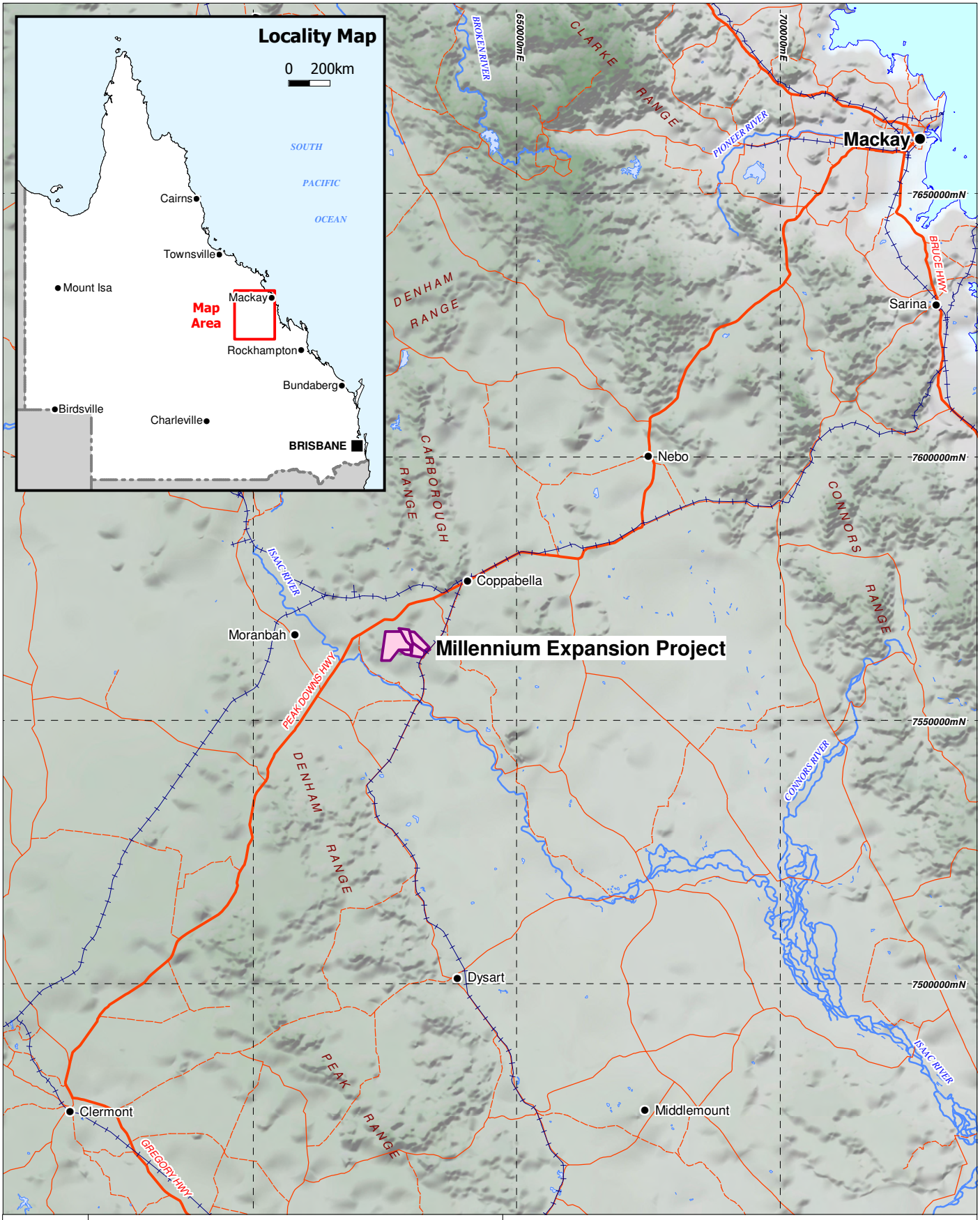
4.2.2 Clean Water Drain for New Chum Creek Drainage

Drainage waters entering the northern end of MLA 70401 will be channelled around the northernmost edge of the planned mine pit and into New Chum Creek via a clean water drain. This drain will be built to the same engineering standard as other clean water drains identified to minimise clean water runoff from entering the mining area.

The location of the drain is included in **Chapter 10 - Water Resources.**

4.2.3 Upgrade of CHPP

The existing CHPP on ML 70312 will be used to process coal from the MEP. A study has been recently completed to understand existing operational constraints within the CHPP with some minor upgrades identified to increase throughput. The timing and requirement of these minor improvements are currently being discussed and such improvements will be undertaken if and when production rates necessitate. Any major modification to the CHPP will be the subject of a separate approval process as the CHPP is owned by the RMJV.



LEGEND

- Project tenement
- Principal road
- Road (sealed)
- Road (unsealed)
- Railway
- River
- Town

MET SERVE

Peabody

Data Source:
Tenement - Minserve. Topography (250k) - Geoscience Australia.

Peabody Energy Australia Pty Ltd

Millennium Expansion Project

Regional Location of the MEP

0 20 40

Kilometres

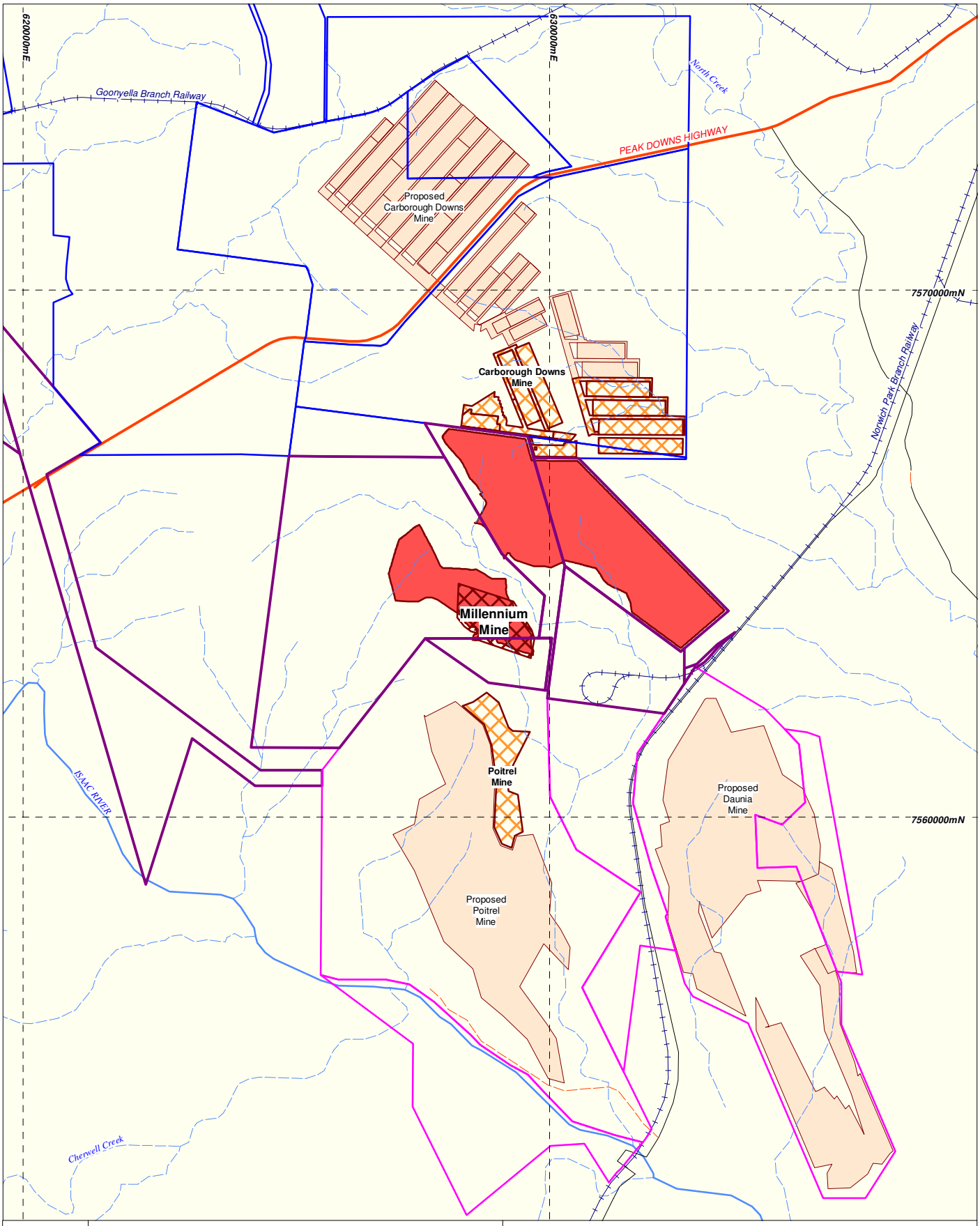
Scale: 1:1,000,000 (A4)

22/10/2010

Datum: GDA94
Projection: MGA55

FIGURE 4-1

S:\Projects\PE001 Millennium Coal EIS_MapInfo\Workspaces\PE001_M263A.wor



LEGEND

- Principal road
- Road (sealed)
- Road (unsealed)
- Railway
- River
- Watercourse
- Peabody tenement
- BMA tenement
- Vale tenement
- Existing Millennium Pit
- Proposed MEP mine
- Other existing mine
- Other proposed mine

MET SERVE

Peabody

Data Source:
Infrastructure, Tenement - Minserve. Topography (250k) - Geoscience Australia.

Peabody Energy Australia Pty Ltd

Millennium Expansion Project

Mines in the MEP Vicinity

0 2 4

Kilometres

Scale: 1:100,000 (A4)

22/10/2010

Datum: GDA94
Projection: MGA55

FIGURE 4-2

S:\Projects\PE001 Millennium Coal EIS_MapInfo\Workspaces\PE001_M264A.wor

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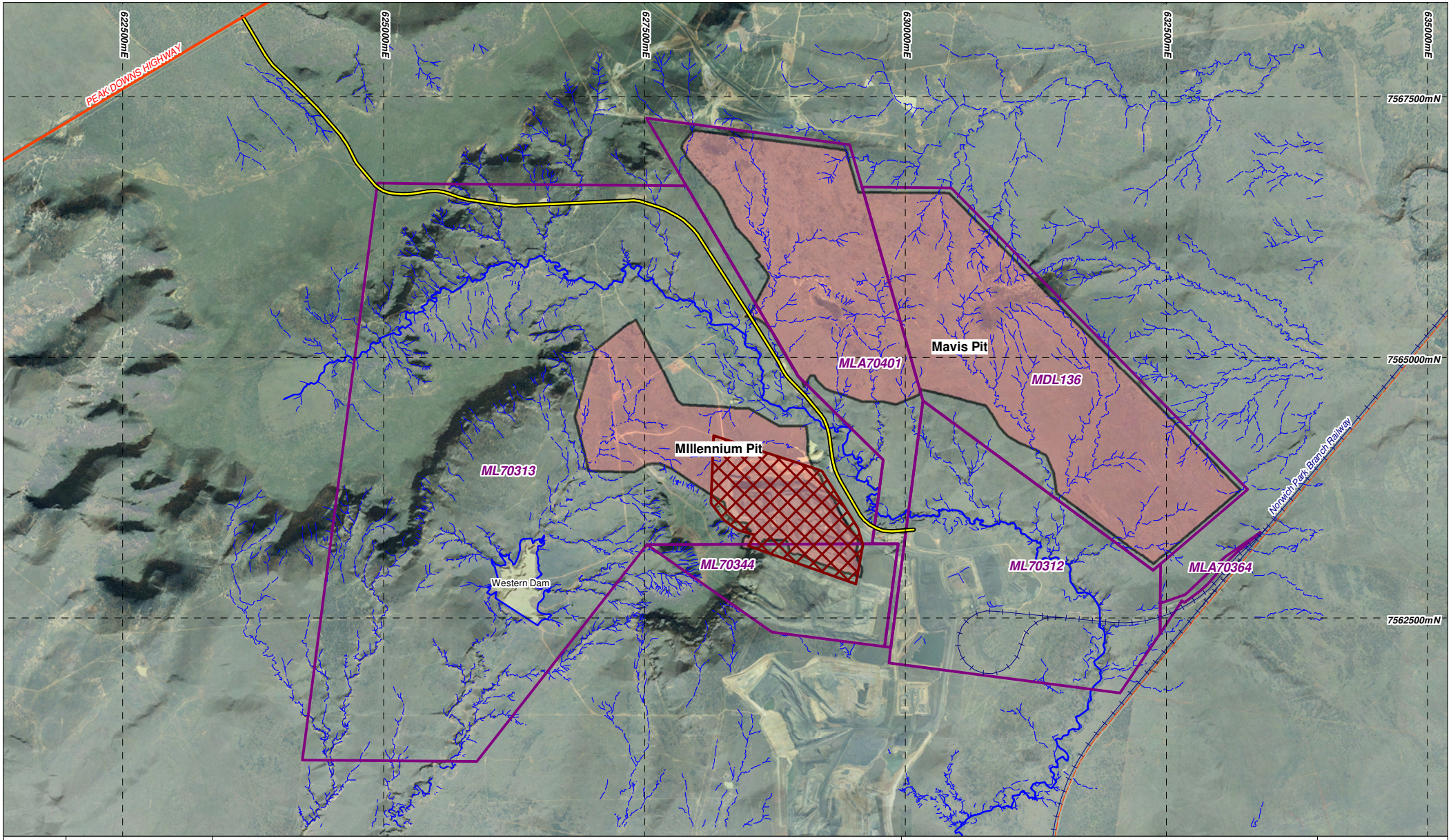

MET SERVE

Peabody

0 1
Kilometres
Scale: 1:50,000 (A4)

LEGEND

- Peabody tenement
- Existing Millennium Pit
- Proposed MEP pit
- Mine access road
- Principal road
- Road (unsealed)
- Railway
- New Chum Creek
- Watercourse

Data Source: Infrastructure, Tenement, Topography - Minserve.

Peabody Energy Australia Pty Ltd

Millennium Expansion Project

Local MEP Area

25/10/2010

Datum: GDA94
Projection: MGA54

FIGURE 4-3

4.2.4 New Water Storages

A total of 15 sediment dams are required over the MEP life to intercept runoff from waste rock emplacements around the site. Ten dams are associated with the proposed Mavis Pit, and four are associated with the Millennium Pit.

The dams will be sized to contain runoff from the 10 year ARI 24 hour rainfall event. The storage will allow coarse sediment to settle and reduce the turbidity of runoff.

The volumes of the proposed sediment dams are shown in **Table 4-1**. The dam Top-01 is required to capture runoff from a topsoil stockpile. Given the risk of environmental harm caused by runoff from this stockpile is small and temporary, this dam may be sized for the 10 year ARI time-of-concentration runoff event, and may not be pumped to the central worked water storages.

Table 4-1 Sediment Dam Characteristics

Storage	Capacity	Spills To	Pump Capacity	Modelled Active Period		Number Of
	ML		L/s	Start	Finish	Modelled Years
Mavis01	56	New Chum Ck	45	2011	2027	17
Mavis02	115	New Chum Ck	95	2011	2027	17
Mavis03	146	New Chum Ck	123	2011	2027	17
Mavis04a	18	New Chum Ck	15	2011	2027	17
Mavis04b	38	New Chum Ck	30	2011	2027	17
Mavis05	164	New Chum Ck	130	2022	2027	6
Mavis06	30	North Ck	20	2013	2027	15
Mavis07	63	North Ck	50	2017	2027	11
Mavis08	24	North Ck	65	2022	2027	6
Mavis09	11	North Ck	10	2022	2027	6
Millen01	79	New Chum Ck	65	2013	2027	15
Millen02	64	New Chum Ck	50	2011	2027	17
Millen05	67	West Ck	55	2013	2027	15
Millen06	52	West Ck	45	2011	2027	17
Top_01	12	New Chum Ck	10	2011	2027	17

The Central Runoff Water Storage will be constructed in stages:

- Stage 1: 2011-2015 - Use a new Temporary Central Runoff Water Storage excavated well ahead of the future Mavis Pit mine area;
- Stage 2: 2015-2027 - Use the final void of the Millennium Pit as a combined worked water storage.

The Central Runoff Water Storage will be constructed to provide a storage capacity of 2,600 ML in a dam excavated ahead of the advancing Mavis Pit. The available volume will be re-evaluated annually to ensure that inflows from the next two years of sediment dam operation could be accommodated by constructing additional water storage cells if required. Once mining in the Millennium Pit is complete, the final void could be used for central runoff and central pit water storage, and the temporary Central Water Storages will be mined out.

Construction works required for the MEP will be tendered and awarded in line with Peabody's purchasing system procedures and approvals.

Further details for these construction works will be developed if and when the construction is required.

4.3 OPERATIONS

The Millennium Coal Mine commenced operation in 2005 and has produced premium hard coking coal and PCI coal at an average annual rate of 1.4 Mtpa. The 2008 ROM coal output was 1.6 Mtpa. The coal resource is extracted via conventional truck and excavator mining methods.

The MEP will see a continuation of current open-cut truck and excavator mining methods however, the option to use electric shovels with larger trucks may be introduced to promote mining efficiency. The use of a dragline, highwall mining and/or underground may be considered at a later stage in the mine life. The underlying assumption of current mine planning has been to maximise resource recovery, however the mine plan may change due to future economic and/or operational constraints

The existing Environmental Authority (EA) and Environmental Management Plan (EM Plan) for the Millennium Mine authorise the extraction of up to 2 Mtpa coal. An approval of the MEP and new Environmental Authority will see an increase of the extraction rate up to a maximum of 5.5 Mtpa ROM coal.

4.3.1 Tenements and Tenures

The Millennium Coal Mine is located approximately 22 km east of Moranbah and 16 km southwest of Coppabella in Central Queensland and is comprised of the following tenements:

- ML 70313 'Millennium West';
- ML 70344 'Mountain Pit' Mining Lease (ML);
- Mining Lease Application (MLA) 70401 'North Poitrel';
- Mineral Development Licence (MDL) 135 'Morambah';
- Mineral Development Licence (MDL) 136 'Mavis Downs';
- Mineral Development Licence (MDL) 136 'Wotonga';
- Exploration Permit Coal (EPC) 728 'Millennium'; and
- Millennium Coal Pty Ltd and BHP Mitsui Coal Pty Limited (BMC) are the joint holders of ML 70312 'Millennium East'. This arrangement is referred to as the 'Red Mountain Joint Venture'.

The first tenement (EPC 728) was granted in April 2001. Following initial works within the area, applications for EPC 765 and EPC 784 were posted. EPC 765 was granted in January 2002 and EPC 784 was granted in October 2002.

Extensive exploration drilling and resource modelling along with the completion of several permits and studies including an Environmental Management Overview Strategy (EMOS), flora & fauna surveys, an Environment Authority, cultural heritage assessments, aerial survey, and washability and quality analyses, resulted in the lodgement of two mining lease applications over the three tenements in early 2003, namely MLA 70312 and MLA 70313.

4.3.1.1 MEP Tenements and Tenures

The proposed MEP is comprised of three leases namely, ML 70313, MLA 70401 and MDL 136 (**Figure 4-3**). The leases adjoin a landscape dominated by large scale coal mines and low density cattle grazing stations. The MEP leases occur on two land tenures (including three easements), as detailed in **Table 4-2** below.

Table 4-2 MEP Land Tenures and Landowners

Tenement	Real Property Description	Landowner
ML 70313	Lot 2 GV165	Beryl Anne Nielsen
	Easement P SP184913	Millennium Coal Pty Limited
MLA 70401	Lot 2 GV165	Beryl Anne Nielsen
	Easement B SP178453	Ergon Energy Corporation Limited
	Easement E SP1902563	Ergon Energy Corporation Limited
MDL 136	Lot 3 SP190266	Millennium Coal Pty Limited
	Lot 2 GV165	Beryl Anne Nielsen

Peabody owns the property, 'Mavis Downs' (Lot 3 SP190266) that covers the majority of the land on which MDL 136 is situated. There are a number of smaller land parcels held by other landholders in the west and southwest for which compensation agreements have been previously negotiated.

4.3.2 Resource Base and Mine Life

MEP is targeting three mineable seams of the Rangal Coal Measures. From the top of the coal formation these are the:

- Leichhardt Seam-On average 5 m thick; e.g. Mavis (5.0-5.3 m); Millennium Pit (5 m);
- Millennium Seam-Located 10 m-15 m below the Leichhardt Seam and on average is 0.5 m thick. Exploration results indicate that this seam is variable across the deposit;
- Vermont Upper 1 Seam-Located between 15-20 m below the Millennium Seam and on average is 1.5 m thick;
- Vermont Upper 2 Seam-Located approximately 0.5-1.0 m below Vermont Upper 1 Seam and observed to consist of an average thickness of 1.0 m;
- the Vermont Upper seams are observed to be separated by a mudstone band with a thickness of 0.5 m and may occasionally be observed to consist of a 1.0 m thick band. In other areas, such as the Millennium Mine, the Vermont Upper 1 and two seams have been identified as a single seam; and
- Vermont Lower Seam - The lowermost targeted seam, with an observed average thickness of 1.5 m

- Vermont Upper 2 and Vermont Lower Seam are observed to be separated by tuffaceous units usually comprising of either a Tuffaceous Siltstone, a Tuffaceous Claystone and, most consistently, a Tuff Band- The Yarrabee Tuff. The units have an observed total average thickness of 0.5-1.0 m.

The Leichhardt seam is a predominantly 4.5-5.5 m thick seam of clean coal. The seam can be split into two sections: the Leichardt upper (LU) which is predominantly comprised of bright-banded dull coal and the Leichardt lower (LL) which has higher vitrain content making it a much brighter coal. The Leichardt seam is relatively free of partings, intrusions and stone bands, with only one significant stone band being logged within the MEP area. The stone band is 3 to 5 cm thick and comprises a silty carbonaceous mudstone band.

The Millennium seam is a 0.3-0.7 m thick seam of predominantly bright coal. The upper section of the seam is quite uniform over the MEP area ranging from bright coal to dull-banded bright coal. Recently cored intersections of this seam demonstrated that on a typical 0.6 m intersection, the upper and basal 0.1 m of the seam appear to constitute the seams most dirty sections. The lower section of the seam is typically dull-banded bright coal and common carbonaceous phases. This lower section of the seam may be variable, depending on location within the tenements, and locally degenerates into a seam where Carbonaceous Mudstone dominates coal.

The Vermont Upper 1 seam is a 1.5-2.0 m thick seam of bright clean coal. Minor claystone bands, ranging in thickness from 1-6 cm, occur within the lower third of the seam. The upper two thirds of this seam comprise very clean bright coal with good coking potential.

Vermont Upper 2 seam comprises of a 1.0-1.5 m seam of bright coal with PCI and thermal potential. The seam is observed at the Millennium Mine to occur as a single coal body in conjunction with Vermont Upper 1.

Vermont Lower seam comprises of a 1.2-1.6 m seam of bright and dull coal with sections that demonstrate a potential coking to thermal potential.

The open-cut mineable coal at the MEP is present in three main faulted blocks with strike length from 1 km-3 km dipping approximately five degrees to the southwest. The coal measure are overlain by a thin-on average 3 m-layer of Tertiary unconsolidated clays loose sands and soils. The dominant rock types in the coal measures are fine to medium grained sandstones, siltstones, mudstones and coal.

The United States Securities and Exchange Commission (SEC) compliant estimates of Coal Resources and Reserves for the MEP are presented in **Table 4-3**. Due to the fact that Peabody Energy is listed on the NYSE, the company is required to report its Coal Reserves (on an annual basis) using SEC reporting protocols. To avoid conflict in the public domain the company has elected not to provide a Joint Ore Reserves Committee (JORC) Report.

Based on current understanding of the resource, the MEP will extend the current Millennium Coal life of mine from 2012-2027, at full production.

Table 4-3 Peabody Energy-SEC Resources and Reserves

Mine/ Project	Open-cut Resources (Mt)				Open-cut Reserves (Mt) (Reserves Are a Subset of Resources)					
	Measured	Indicated	Inferred	TOTAL	Recoverable			Marketable		
					Measured	Indicated	TOTAL	Measured	Indicated	TOTAL
Millennium	19.5	0.0	44.8	64.3	18.2	0.0	18.2	12.1	0.0	12.1
Mavis Downs	34.5	12.3	0.0	46.9	19.5	2.5	22.0	14.1	1.8	15.9
North Poitrel	16.6	2.6	0.0	19.2	11.5	1.7	13.2	8.2	1.1	9.2
TOTAL	70.6	14.9	44.8	130.4	49.2	4.2	53.4	34.4	2.9	37.2

4.3.2.1 Full Utilisation of Resources

The mine plan used for assessing and modelling the MEP is based on full use of all available coal resources, including the potentially uneconomic Millennium seams and the lower Vermont coal seams. This mine plan scenario ensures that the maximum impacts of any future operational mine plan have been assessed as part of this EIS. While not currently planned or expected, some less optimal reserves may be sterilised in the future for reasons that may include environmental, economic and operational considerations. If this occurs, discussions will be held with Department of Environment and Resource Management (DERM) and Department of Employment, Economic Development and Innovation (DEEDI), and details will be included in the annual Plan of Operations and EM Plan.

Coal Seam Gas

MDL 136 (Mavis Downs) overlaps EPP 364, held by Arrow Energy/CH4 Pty Ltd and AGL. No petroleum tenements overlap MLA 70401 (North Poitrel).

MDL 136 Mavis Downs

In respect of MDL 136, Millennium Mine is currently in negotiations with Arrow Energy to complete a Co-ordination Agreement. This agreement will facilitate the consent of the EPP holder to the granting of any MLA over MDL 136 to ensure the development of coal mining and petroleum mining can be coordinated.

No arrangements have been made with the EPP holders for gas content testing.

MLA 70401 North Poitrel

The development of MLA 70401 may affect the extraction of gas. However, at this stage no petroleum tenements exist in the area of MLA 70401 therefore coal mining is unlikely to affect petroleum production. No gas content testing has been conducted in the area of MLA 70401.

Adjoining Mines

Carborough Downs and Poitrel coal mines are located immediately north and south respectively of the MEP. Peabody maintains a working relationship with the management of both operations and negotiates operating conditions along any adjoining boundaries as required. Peabody, in negotiation with

adjoining mines, will strive to minimise sterilisation of resources as a result of mining constraints along adjoining boundaries. The proposed BMA Daunia Mine also adjoins part of the MEP and is located immediately east of the Poitrel Mine.

Figure 4-4 shows the location of potentially sterilised coal resources.

4.3.3 Mining Methods and Equipment

The MEP will continue with the existing standard open-cut truck and excavator terrace mining method currently utilised at Millennium Mine and also in use at a large number of operations in the Bowen Basin. Truck and excavator terrace mining is flexible and suits the size and geometry of the MEP coal deposit, particularly the complexity required to access multiple coal seams.

Prior to mining, topsoil will be removed and stockpiled for later use in mine rehabilitation. Topsoil will be stripped and segregated to be used on the outer slopes while the better quality cracking clay soils will be used on the upper surface of the dump.

Overburden will generally be drilled and blasted prior to removal by truck and excavator methods assisted by dozers. Sandstone layers may be salvaged for utilisation as rock mulch.

Where possible the waste rock emplacements will be constructed as mesa type structures with steep (up to 3(H):1(V)) sandstone stabilised outer slopes. The waste rock emplacements will abut existing low ridges allowing the upper surface drainage to be directed into the natural drainage lines of the ridges.

Overburden will be placed out-of-pit in External Waste Rock Emplacements (EWRE) until mining has advanced enough to allow in-pit Internal Waste Rock Emplacements (IWRE) to commence. EWRE is planned to occur in 2013, approximately two years after commencement of mining, after which IWRE will occur. Additional open-cut mining techniques, such as dragline, highwall and auger mining will be investigated in the future to ensure that all economic coal is extracted from the deposit.

Coal is normally ripped with dozers prior to being mined using loaders and/or hydraulic excavators. In some circumstances the coal may require blasting. The coal is hauled to the CHPP on ML 70312 for processing and loaded onto trains for railing to Dalrymple Bay Coal Terminal (DBCT). A ROM coal stockpile for the MEP may be established to optimise plant feed and to meet scheduling and shipping requirements.

Table 4-4 below gives a list of the expected equipment type and numbers that will be used at the MEP.

Millennium Coal Pty Limited
Millennium Expansion Project

Areas of Sterilised Coal

Scale 1:20 000
(A3 Unreduced)

0 200 400 600 800 1000m

Datum: AGD84
Projection: AMG84

Figure 4.4

Areas of Sterilised Coal	Volume
Coal sterilised due to areas of Cultural Significance	2.5 M t
Coal sterilised due to New Chum Creek highwall offset	7.9 M t
Coal sterilised due to Mining Lease boundary highwall offset	20.1 M t

626 000m E
628 000m E
630 000m E
7642 000m N
7640 000m N

MDL266
MLA70735
VALE AUSTRALIA (CO) PTY LTD
ML70401
MILLENNIUM COAL PTY LTD
MDL136
MILLENNIUM COAL PTY LTD
ML70312
MILLENNIUM COAL PTY LTD
ML70344
MILLENNIUM COAL PTY LTD
ML70116
BHP COAL PTY LTD
Poitrel ML4749
BHP MITSUI COAL PTY LTD

Existing Powerline
NEW CHUM CREEK
MAVIS PIT
MILLENNIUM PIT
West Creek Environmental Control Dam
External Dump South
Existing Rehab Area
Poitrel Access Rd
MIA/ Workshop
Existing Topsoil
Existing Topsoil
ROM Stockpiles
Product Stockpile
Levee
CHPP
Rejects
Rail Spur
Process Water Dam

Legend

- Mining Lease
- Mineral Development Licence
- 240 Topography (RL m) AHD
- 66kV overhead powerline
- Drainage

NOTE: Mine plan shows maximum resource extraction case; includes mining of Lower Vermont Seams to the Millennium Lease Boundaries.

Peabody

Minserve

Design	L Sprengel/E Noya
Drawn	R Aspland (Racad Cartography Pty Ltd)

23.11.10

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Table 4-4 Expected Equipment Type

Machinery Type	Use	Permanent/Contract	Number
Drill rig: DMM 3	Drilling holes before blasting Exploration drilling	Contract as required Contract as required	Two As required
Haul trucks 225 Tonne Haul trucks 180 Tonne	Hauling waste rock Hauling coal	Permanent Permanent	27 (Maximum) Seven (Maximum)
Excavators: 550-600 Tonne Class 250-350 Tonne Class 45-80 Tonne Class	 Digging waste rock Digging coal Clean up and ancillary works	 Permanent Permanent Permanent	 Five (Maximum) Two (Maximum) One (Maximum)
Dozers: Caterpillar D11 Class Caterpillar D10 Class Caterpillar D11 Class	 Mine work Mine work Rehabilitation work	 Permanent Permanent Permanent/Contractors required	 Five (Maximum) Four (Maximum) Four (Maximum
Graders: Caterpillar 16M Class	 General Maintenance	 Permanent	 Three (Maximum)

4.3.4 Mine Sequencing

The mine planning work was undertaken to maximise the resource recovery whilst maintaining the optimal blending opportunities for the MEP. The development of the pits was scheduled to ensure that overburden could be transferred from MLA 70401 (North Poitrel) to the existing Millennium pit and therefore minimise the final Millennium pit void and to assist with the decommissioning. For further details refer to **Chapter 4-Rehabilitation and Decommissioning**.

4.3.5 Workforce

Mining operations for the existing Millennium Mine are undertaken by a mining contractor, with Peabody personnel providing overall management for the operations. The MEP is proposing to continue this arrangement, however Peabody may, at any time in response to economic and/or operational requirements, seek alternative mining strategies.

4.3.5.1 Construction Phase

As the MEP is an expansion of an existing operation, there is only minor construction work required and therefore no substantial construction workforce would be required.

4.3.5.2 Operational Phase

It is predicted the MEP will required 160 employees and contractors, in addition to the 220 workers currently employed for Millennium Mine.

4.3.5.3 Decommissioning Phase

Given the extended mine life of 16 years, specific sections of decommissioning will be scoped and tendered at the appropriate time. The decommissioning of the MEP will form part of the Plan of Operations.

4.3.6 Processing and Products

The MEP will utilise the existing RMJV CHPP on ML 70312. ML 70312 has an existing Environmental Authority (MIN 100846708) to process coal and manage coal washery wastes from the Millennium Mine. It is not the intent of the MEP to increase production beyond the limits allowed for in the current EA. As the CHPP is owned by the RMJV, any major modification to the CHPP will be the subject of a separate approval process.

Coal will be processed in the existing CHPP by the same methods currently used for Millennium Mine. The CHPP uses a traditional process involving crushing, washing and gravity separation with minimal use of chemicals such as diesel, MIBC and flocculant. Mined coal will be transported from the active pit to the CHPP ROM stockpile by haul trucks, before being conveyed into the CHPP for processing. **Figure 4-5** provides an indicative process flow-sheet for the MEP.

Coal processing results in the export grade (product) coal, coarse reject material and fine reject (tailings) material. The CHPP produces on average 68% product coal, 25% coarse reject and 7% tailings, although this varies with the particular coal seam being accessed and operational activities.

The CHPP was originally designed to utilise a filter press system to remove excess water from tailings slurry, leaving a dry, compacted end product. The filter press process has potential to deliver substantial environmental benefits by increasing water recovery and allowing dry disposal of tailings in spoil, however due to operational difficulties it has never achieved optimal output with the original design filters. Investigations into other filtration technology are continuing.

The fine tailings are pumped to sumps that are used at CHPP to separate the solid material and process water. These sumps were purpose built (with DERM approval) to maximise the dewatering of the tailings slurry and include an injection of flocculant to further advance the liquids and solids separation process. The dewatered solid material is then buried along with coal rejects, in waste rock emplacements, while the process water is recycled within the CHPP. It should be noted that production from the MEP will not exceed the cells design capacity.

Any major modification or increase to the approved CHPP annual production will be the subject of a separate approval application which will be submitted by the Red Mountain Joint Venture.

4.3.7 Ongoing Evaluation and Exploration Activities

Exploration and evaluation activities will continue as required across the MEP and may involve various techniques including conventional drilling, sampling, seismic surveys as well as exploration and testing for coal seam gas. All exploration activities will be undertaken in accordance with industry standards, particularly DERM's *Code of Environmental Compliance for Exploration and Mineral Development Permits*.

Table 4-5 summarises the potential evaluation and exploration activities and their impacts that are likely to occur on the MEP. Evaluation and exploration activities for the MEP will almost exclusively be undertaken on land that will be mined in the future, therefore any final impacts are negligible.

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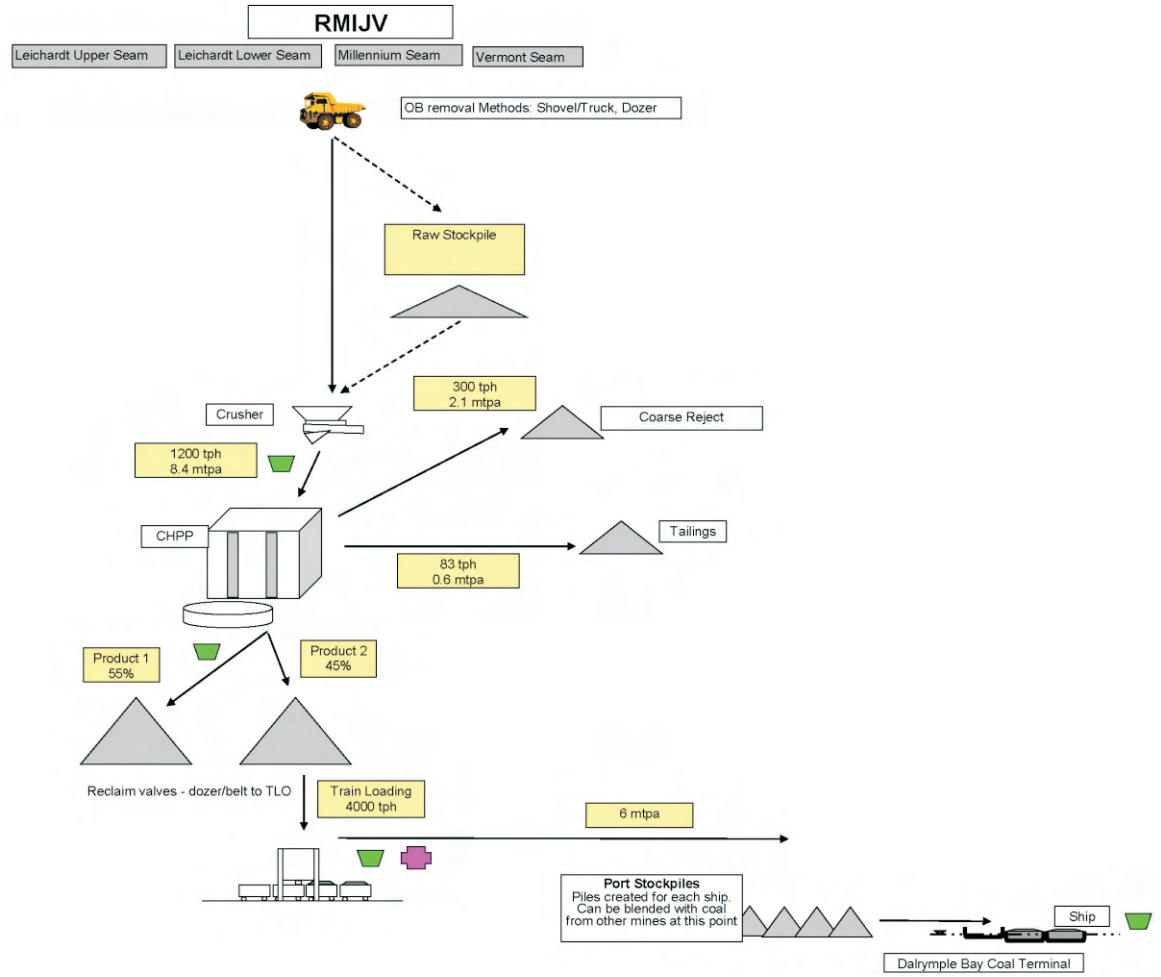

Peabody Energy Australia Pty Ltd

MET SERVE

Indicative Process Flowsheet - Figure 4-5

Table 4-5 Summary of Potential Evaluation and Exploration Activities

Type	Summary
LOX	Limit of Oxidation (LOX) drilling will follow the subcrop of the two major seams known to occur, the Leichhardt and Vermont seams. Drill lines will be spaced at approximately 100 m centres and cleared up to 4 m wide. Lines will be approximately 250 m long with a turning loop at the end. Each drill line will require clearing of all vegetation down to ground level, while endeavouring to retain rootstock. Between four and six holes are expected to be drilled along each line and sampled in order to determine the true limit of oxidation of the coal seam. The location of each hole along the drill line is determined in the field as the geology unfolds.
Open Hole Drilling	Open hole exploration involves the drilling of a small to medium diameter hole (100 - 125 mm) to a depth determined by the lowest targeted seam. Such holes are expected to be from 50 m-200 m deep. Individual drill pads in the order of 800 m^2 are cleared to accommodate drilling equipment and to lay out chip samples. Occasionally, hole stability becomes an issue and water is introduced to the drill hole as a stabiliser. A small sump is then constructed within the pad area to contain the muddy water produced by the drilling. Each sump will be approximately 1.8 m wide x 3.5 m long x 2.0 m deep. All sumps will be fenced to protect cattle.
Cored Drilling	In-fill drilling for evaluation of the coal resource is likely to be required. Core drilling essentially uses the same methods and has the same impacts as for open hole drilling, however a core sample is cut and brought to the surface for logging and off-site assessment. The only difference is in the drill rod attachment.
Seismic Survey (2D)	This activity creates seismic waves within the local geology and then assesses the wave behaviour. The recorded data provides information into the geophysical properties of the underlying strata, including potential coal seams. Approximately 1 km of cable is run along a seismic line and geophones (to measure seismic waves) placed every 10 m. A wacker packer is walked along the seismic line and the geophones receive reflected seismic waves which are in turn transferred to data logging equipment for storage and analysis. Wherever possible, existing tracks and fence lines are used for seismic lines. However, if this is not possible active clearing may be required. Clearing of a seismic line involves slashing of grass or grading of a track (at surface level) for wacker packer and vehicular access.

For all evaluation and exploration activities, established access tracks will be utilised wherever possible. Where not possible, clearing of access to the selected drill sites will be required. Clearing of an access path generally involves a grader clearing the grass and grading a track at surface level. After the completion of any exploration program all borehole sites and the tracks are rehabilitated as per the Millennium exploration procedures.

4.4 PRODUCT HANDLING

Product coal is taken from the 6 x 100 kt product coal stockpiles via conveyor and loaded via the train load-out system at a maximum rate of 5,000 tonnes per hour. Coal is transported approximately 170 km to the DBCT and loaded onto ships for export.

4.5 INFRASTRUCTURE REQUIREMENTS

As the MEP is the expansion of an existing mine, existing infrastructure (refer to **Figure 4-6**) will be utilised wherever possible. Apart from the items listed in **Section 4.2**, no new infrastructure will be required for the MEP although operational constraints may necessitate upgrades as the mine progresses.

4.5.1 Transport

4.5.1.1 Road

Peak Downs Highway is the predominant road infrastructure in the vicinity of the MEP. The highway is a state controlled road and is part of Queensland's Strategic Road Network, connecting Mackay, Nebo, Moranbah and Clermont. It is a sealed, two-lane, two-way carriageway with occasional passing lanes, averaging approximately 8.5 m in width. Peak Downs Highway runs generally east to west, and connects the Bruce Highway to the east and the Gregory Highway via the Gregory Development Road to the west.

There will be minimal impact to the Peak Downs Highway as a result of the MEP. Specific details are provided in **Chapter 8-Transport.**

The MEP site will continue to be accessed via the Millennium and Poitrel mines access road, a privately installed and maintained access road branching to the south of the Peak Downs Highway. The access road is a sealed, 7.5-8.5 m wide, two-lane, two-way carriageway. The maximum speed limit is 80 km.

4.5.1.2 Rail

The current Red Mountain Rail Loop (RMRL) servicing the Millennium Mine will be utilised for the MEP. The RMRL is connected to the existing Norwich Park branch railway line transporting coal directly to the DBCT. This rail line currently experiences approximately 1,600 train movements per year in total rail traffic. Millennium Mine currently generates 240 train movements per year on this line and it is anticipated the MEP will increase this number to 368 per year. This represents less than 1% increase in total rail traffic and given the minimal increase in rail traffic, no upgrades to the rail infrastructure will be required.

Queensland Rail (QR) is constructing and will operate a 69 km rail link between the North Goonyella and Newlands rail systems. This link, commonly referred to as the Northern Missing Link, will allow coal trains from Central Queensland to be directed to the port of Abbot Point, near Bowen. Completion of the link has potential to allow the MEP to ship coal to Abbot Point.

Millennium Coal Pty Limited
Millennium Expansion Project

Existing ML70312 Infrastructure Areas

Scale 1:20 000
(A3 Unreduced)

0 200 400 600 800 1000m

Datum: AGD84
Projection: AMG84

Figure 4.6

626 000m E
628 000m E
630 000m E
642 000m N
640 000m N

Existing Powerline

MDL354
VALE AUSTRALIA (CO) PTY LTD

ML7033
VALE AUSTRALIA (C

MLA70735
VALE AUSTRALIA (CO) PTY LTD

ML70401
MILLENNIUM COAL PTY LTD

MDL136
MILLENNIUM COAL PTY LTD

NEW CHUM CREEK

MILLENNIUM PIT

MAVIS PIT

ML70313
MILLENNIUM COAL PTY LTD

ML70344
MILLENNIUM COAL PTY LTD

West Creek
Environmental
Control Dam

External Dump South

Existing
Topsoil

Existing Rehab Area

Poitrel Access Rd

Poitrel
ML4749
BHP MITSUI COAL PTY LTD

ML70312
MILLENNIUM COAL PTY LTD

MIA/
Workshop

See Inset

Existing
Topsoil

Levee

Product
Stockpile

ROM
Stockpiles

CHPP

Rejects

Rail Spur

Process
Water
Dam

ML70116
BHP COAL PTY LTD

INSET

NOTE:
Existing ML70312 Mine Infrastructure Area
not under consideration with this ML Application

Legend

- Mining Lease
- Mineral Development Licence
- 240 Topography (RL m) AHD
- 66kV overhead powerline
- Drainage

NOTE: Mine plan shows maximum resource extraction case; includes mining of Lower Vermont Seams to the Millennium Lease Boundaries.

Peabody

23.11.10

Minserve

Design L Sprengel/E Noya

Drawn R Aspland (Racad Cartography Pty Ltd)

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4.5.1.3 Ship

The Port of Hay Point, 40 km south of Mackay, is one of the largest coal export facilities in the world. The port has two separate coal export terminals, Dalrymple Bay Coal Terminal (DBCT) and the Hay Point Coal Terminal (HPCT). Both terminals serve the coal mines of Central Queensland and are linked through an integrated rail-port network using the Goonyella Rail System.

Millennium Mine currently exports coal through DBCT. This port will continue to be utilised as required by the MEP operations unless the port is unable to meet the MEP requirements, at which time alternatives will be sought.

DBCT has recently expanded to raise the current port capacity from 72 Mtpa-85 Mtpa. Management for DCBT released a public notice that the final stage of this expansion will be completed in June 2009.

Once the Northern Missing Link rail line is completed, the MEP will have potential access to the Port of Abbot Point. Abbot Point is Australia's most northerly coal port and is situated around 25 km north of Bowen. While Abbot Point is not currently being considered for the MEP, it is an option to be assessed if DBCT cannot provide storage and berthing for the increased MEP production. With the completion of the rail link, the Abbot Point Coal Terminal will have the capacity to expand to 50 Mtpa allowing an additional 35 Mtpa of coal to be exported through the terminal.

With both the DBCT expansion and potential future access to Abbot Point, it is expected the 3.5 Mtpa increase of coal from the MEP will have no negative impact on port capacity.

4.5.2 Energy

The MEP will be supplied with electricity by the existing 66 kV overhead transmission line that currently supplies the mine and associated infrastructure. This transmission line originates from the Moranbah substation. Current mine plans are for the continuation of existing mining methods which will require no additional electricity supply infrastructure. However, it is noted that if the use of electrically powered mining equipment such as electric shovels and/or a dragline is introduced, an energy requirement assessment will need to be undertaken and could necessitate an upgrade to the current high voltage power supply.

Energy requirements that are linked to operations will increase in proportion to increased production. The major source of increased energy consumption will be the CHPP. Current CHPP energy consumption is 23.7 GWh. At full production rate of 5.5 Mtpa, this energy consumption is expected to increase to 38.9 GWh.

4.5.3 Water Supply, Demand and Storage

External water management for the MEP will focus on separating clean runoff from mine impacted water, implementing water efficient work practices and maximising recycling opportunities, particularly the recirculation of process water and pit water for utilisation within the CHPP and for dust suppression.

Water for the MEP will be sourced from the Burdekin Dam via the Burdekin Pipeline as part of the existing water supply agreement with SunWater and from water collected on-site from the West Dam catchment. The MEP site water balance is detailed in **Chapter 10 - Water Resources**.

The potential interconnection of water infrastructure for the Peabody operations in the region is a strategic management opportunity that will enable adequate supply and reuse options to maximise water security. This option will be assessed and management plans approved through the relevant agencies if water supply is reduced through drought or other causes.

The major MEP water storage infrastructure components include:

- containment areas (voids, cells or dams) for holding or separating CHPP processing waste;
- mine water dams (ROM stockpile and pit water dams);
- sedimentation dams; and
- water supply dams.

Due to the location of the MEP pits, changes to the water management infrastructure will be required and will involve the establishment of new water holding structures.

The MEP Mine Water Management System (MWMS) surface water infrastructure layout evolves over the 16 year life of the MEP. For the purposes of design, water balance modelling and impact assessment, the following incremental stages of the mine plan development have been assumed:

- Stage 2012 - applies for 2011-2012 (2 yrs)
- Stage 2015 - applies for 2013-2016 (4 yrs)
- Stage 2020 - applies for 2017-2021 (5 yrs)
- Stage 2027 - applies for 2022-2027 (6 yrs)

Plans and details of the conceptual water management layout at each of these incremental stages are provided in **Chapter 10 - Water Resources**.

All dams, levees and diversions will be designed to standards required at the time of construction and sized in accordance with calculations from water balance models to meet discharge requirements. Flood protection will be to standard in order to meet the required ARI event.

The MEP will implement operational controls for water management on the basis of the environmental risks identified.

4.5.4 Stormwater Drainage

The MEP lies in the upper catchments of New Chum and West Creeks, to the north of the Isaac River. The mining leases generally drain towards the south into West and New Chum Creeks.

West Creek enters the Isaac River approximately 2.7 km south of the ML 70313 lease boundary. New Chum Creek exits ML 70312 and flows through Poitrel's Mine Leases prior to its confluence with the Isaac River approximately 7.9 km south of the lease boundary. The Isaac River is a regional water supply source extending to its confluence with the Mackenzie River. Both drainage lines are ephemeral and seasonally variable with most flows occurring between November to March and reflecting the regional predominance of summer rainfall.

The mine and industrial areas including the CHPP, workshops, ROM pads and warehouses are serviced by a drainage system designed to control mine affected waters. This system is maintained to maximise the separation of runoff

and mine impacted water, maximise the recycling of water and minimise the need to discharge water from the mine area.

The major MEP water drainage infrastructure components include:

- waste rock emplacement runoff;
- pit water management
- clean water drainage diversions;
- CHPP and industrial area drainage system; and
- water supply and transfer networks.

A minor clean water drainage channel of approximately 2 km will need to be constructed to divert runoff around the northern area of MLA 70401 into New Chum Creek. In addition, haul road creek crossings are required, with impacts on flows and flooding.

It will also be necessary to divert existing drainage so that the coal resource may be accessed and mine workings are protected from flooding. Where required, such diversions, levees or bunding will be licenced under the *Water Act 2000* with consideration given to relevant guidelines. Diversions and bunding will be constructed according to engineering design drawings and technical specifications and will include monitoring and revegetation plans as well as periodic engineering surveillance.

Further details of the MEP drainage system is contained in **Chapter 10 - Water Resources.**

4.5.5 Sewerage

Sewage generated at the Millennium Mine will be collected in storage tanks and periodically pumped out by a regulated waste contractor. A sewage treatment facility will be assessed for suitability and if required will be subject to separate approval or EA conditioning from DERM prior to installation.

4.5.6 Telecommunications

The MEP will utilise the existing Millennium Mine telephone lines for both telephone and internet connections. Senior staff are provided with mobile phones with best available network coverage.

4.5.7 Accommodation and Other Infrastructure

The MEP will continue to provide a BIBO service from Mackay for employees as is currently used at Millennium. Employees will be bussed in from Mackay on the day preceding their first roster day and bussed back to Mackay after the completion of their last rostered shift. During rosters, accommodation will be provided at the MAC Coppabella Accommodation Camp or if numbers dictate, at the MAC Moranbah Accommodation Village.

The MAC Coppabella Accommodation Village was established in March 2006 and currently maintains 1,623 single en-suites rooms. The village caters predominantly for mining employees and mining contractors. It is currently expanding its facilities.

The MAC Moranbah Accommodation Village was established in August 1996 and currently maintains 890 single en-suite rooms catering for mining employees and contractors. Mining employees staying at the village use local facilities in Moranbah and its surrounds if they are not available at the village. The Moranbah Accommodation Village expects to handle the potential increase in

the need for accommodation resulting from all mining growth projects in the area and will expand their site depending on demand.

In addition to the BIBO and camp accommodation option, MEP employees and contractors have the option to seek personal accommodation either in Mackay with BIBO option or in townships surrounding the mine and provide their own transport to the site.

4.6 WASTE MANAGEMENT

The MEP will utilise the existing waste management system in place at the Millennium Mine that complies with all relevant legislation and existing EA conditions. The MEP will not introduce any new wastes into the waste management system, but will contribute to increase the volume of wastes that have already been identified.

Further details of the Waste Management system at the MEP are contained in **Chapter 9 - Waste.**

4.6.1 Air Emissions

The MEP is located in a rural setting and, prior to mining, was subject to nuisance dust generated from unsealed roads, rural activities or natural events such as dust storms or bushfires.

The MEP's nearest homesteads are Annandale and Moorvale to the east and Wotonga to the west. Due to the location of the MEP and lack of any significant air pollution sources, air pollution from operations is expected to be confined to rising dust. Most rising dust will originate from the activities of overburden removal, coal preparation, haulage and rail loading, blasting and operation of large mobile equipment.

The potential for spontaneous combustion of stockpiled coal is considered minimal due to the low levels of sulphur and low inherent moisture. In the event of coal fires developing, additional localised impacts on air quality due to the emission of smoke and gases are anticipated.

Further details of the air quality impacts and mitigation measures are contained in **Chapter 11 - Air**.

4.6.2 Excavated Waste

Waste material above economic coal seams (overburden) is generally drilled and blasted prior to removal by conventional truck and excavator methods assisted by dozers. The waste material is transported to either in-pit or out-of-pit waste rock emplacements.

The MEP EWRE will be constructed as mesa type structures with steep (3 (H):1(V)) sandstone stabilised outer slopes. The dumps will abut existing low ridges where possible allowing the upper surface drainage to be directed into the natural drainage lines of the ridges.

The need for sandstone to stabilise the small number of steep outer slopes on waste emplacements, will require insitu identification of sandstone material within the general overburden, preferential handling and separate stockpiling for utilisation as rock mulch.

The main overburden type is weathered and un-weathered clayey Permian sediments that may include minor areas of lateralised fine Tertiary sands. Analyses undertaken to date indicate that:

- the majority of the overburden has negligible sulphur content and a net acid neutralising capacity due to a high calcium carbonate content.
- materials that make up the coal seam roof and partings (between seams) exhibit a comparatively higher net acid producing potential. However, such material including thin pyrite veins represents an extremely small fraction of the total overburden. (This view is supported by anecdotal evidence at Millennium with no visible indications of pyritic oxidation in rehabilitated overburden to date and no expression of such occurrences in water sampling results).

The overburden generally exhibits the following characteristics:

- low to moderate salinity and sodicity;
- strongly alkaline with resultant acid neutralising capacity (including the topsoil);
- moderate dispersion and sealing tendency;
- metal and elemental levels at expected background levels; and
- low fertility.

Further details on the MEP geochemistry can be found in **Chapter 7-Land.**

4.6.3 Tailings

The geochemical investigations of the tailings material have been undertaken as part of the Millennium Mine operational requirements and will be representative of MEP conditions. The overall characteristics of the tailings are summarised as follows:

- the material includes solutes containing sodium chlorides and sulphates at elevated levels that may restrict plant growth;
- sulphate concentrations are proportionately high indicating some sulphur based mineralogy (possibly pyrites);
- samples indicated negligible net acid production potential (i.e. pH > 4);
- pH range approximately 7-8.5;
- EC range from 900-1,450 µS/cm; and
- no elevated trace metal concentrations were indicated.

Handling of tailings at the MEP is discussed in **Section 4.3.5** above.

4.6.4 Solid and Liquid Waste Disposal

The facilities and equipment associated with mining and coal processing generate a large amount of commercial and industrial wastes commensurate with the scale of operations. Waste streams generated in the course of mine operations may include:

- general waste suitable for disposal to landfill;
- reusable or recyclable waste such as paper, wood, scrap metal, batteries and oils; and
- regulated waste such as redundant chemicals, engine coolant, gear lubricant, solvents, contaminated soil and tyres.

Waste disposal on-site will be limited to tyre emplacement in IWRE where no other economic disposal or recycling options exist. All other wastes will be disposed of at licenced, off-site facilities by qualified and accredited contractors. Site awareness training seeks to maximise recycling and encourage proper disposal of the various waste streams, including regulated waste.

The potential for significant impacts from waste in the post-mining landscape is considered low, as minimal waste disposal occurs on-site and all required programs are in place and conducted by professional licenced contractors. Any areas likely to be contaminated (e.g. hydrocarbon or explosive chemical storage areas) as a result of activities during the life of the mine will be recorded on survey plans and submitted to the DERM in accordance with established regulatory requirements.

Sewage waste will be managed by mobile package plants with effluent collected by a licensed transporter and taken to the Moranbah Sewage Treatment Plant (STP) for treatment. Options for onsite treatment will be evaluated as circumstances dictate.

Further details of waste management are contained in **Chapter 9-Waste.**

4.7 REHABILITATION AND DECOMMISSIONING

The principal rehabilitation objective is to reconstruct disturbed lands to a stable and self-sustaining state. Final landforms will be constructed to achieve two general post mining land uses, areas suitable for grazing and areas not suitable for grazing, described in **Sections 4.7.2 and 4.7.3** respectively.

Final landform construction will be undertaken using selective placement by truck and shovel operations. Drainage networks are constructed as needed and previously stripped topsoil is placed in areas designated for grassland-based rehabilitation.

4.7.1 Topsoil Management

The availability and suitability of topsoil reserves is detailed in **Chapter 7-Land**. Current reserves indicate sufficient topsoil should be available to rehabilitate all MEP disturbance areas as per the proposed rehabilitation plan.

Topsoil will be stripped ahead of operations and placed in topsoil stockpiles as per the current Millennium Mine *Topsoil Management Plan* and according to the Peabody Topsoil Management Standard (*ENV STD 001*) where practicable. Topsoil stockpiles will be used progressively to minimise storage time. Records of topsoil stockpiles will be maintained on a regular basis by mine planning and surveying personnel.

4.7.2 Areas Suitable for Grazing

The major post mine land use goal for areas other than voids, ramps and dump batters is to enable cattle grazing compatible with the surrounding district. The mine disturbance types proposed for grazing following rehabilitation are identified in **Chapter 5-Rehabilitation and Decommissioning.**

The development of grazing as the preferred use has evolved from the stakeholder and land owner expectations, the current adjoining land use,

strong indications of successful and sustained grazing use from existing data of overburden quality and pasture development on rehabilitated overburden.

The upper surface of waste rock dumps will be shaped to shed runoff towards internal drainage systems. A proportion of the runoff will be retained in shallow ponds, similar to gilgais, to encourage the return of appropriate native vegetation on selected sections of the dump. The remainder of the dump will be shaped to encourage the return of grasses suitable for cattle grazing.

The upper surface will be respread in a mosaic of cracking clay topsoil and gravelly soils to a depth of approximately 200 mm, or as close as possible to this depth. Suitable native species will be established on the cracking clay soils and to assist in their establishment, the drainage pattern will ensure that runoff is directed into these areas. It may be necessary to re-work revegetated areas in the event of poor initial establishment. These will be identified during routine site inspections and as part of rehabilitation monitoring.

4.7.3 Areas Not Suitable for Grazing

Although it is the intent to maximise the area of rehabilitated land suitable for grazing, there are areas of disturbance where a non-grazing land outcome is the preferred post mine objective in order to maintain a stable landform and/or maintain existing ecological diversity. Such areas may include steep outer batters, final voids, tailings areas and riparian zones.

As is the approved procedure at Millennium Mine, the outer slopes of identified waste rock emplacements for the MEP will be reduced to a 3(H):1(V) gradient and covered with a minimum of 1 m of competent sandstone rock mulch that will be sourced via selective mining on-site. The sandstone, depending on the properties after blasting, will be blended with smaller gravels to create an erosion resistant surface with approximately 40% competent large rock locked in place with smaller fraction. The runoff will thus be retained on the surface and will reduce scouring below the rock mulch layer. Where necessary, gravelly topsoil will be blended with the sandstone scree material and seeded with a mixture of pasture grass species to augment the erosion control of the rock mulch.

The success of the proposed rehabilitation methods is being monitored as part of the Millennium Mine EM Plan and will continue to be assessed and improved as information becomes available. Regular inspections and monitoring of rehabilitated areas will identify sections requiring maintenance works. Maintenance of less successful rehabilitation works will be performed to promote acceptable cover or to repair these areas.

4.7.4 Erosion and Sediment Control

Sediment dams and check dams have been placed within all major drainage channels across the site, as discussed in **Chapter 10-Water Resources**.

With regards to erosion control on constructed landforms, a proportion of the runoff will be retained in shallow ponds, similar to gilgais, on the upper surface of the dump to assist in the survival of rehabilitation shrub/tree species. The waste rock emplacement will be progressively shaped to direct runoff onto the mesa and down existing rock lined waterways. The steepness of the outer side slopes will discourage cattle grazing and thus reduce the risk of erosion. The selected sandstone scree material will greatly reduce the erosion on the outer slope and upper surface. Runoff will not be directed down the side slopes,

further improving their long term stability. The steep outer slopes will occupy a smaller proportion of the emplacement areas and the flat upper surfaces will be rehabilitated to a pre-mine grazing capability unlike the side slopes where grazing will be discouraged.

Erosion and sediment controls will be implemented where required, in accordance with the Peabody Erosion and Sediment Control Standard (ENV STD 006).

4.7.5 Decommissioning

A mine closure plan will be developed well in advance of closure and decommissioning. This plan will document how disturbed areas will be rehabilitated to meet closure and relinquishment requirements. It will be developed in consultation with stakeholders and DERM.

4.7.5.1 Waste Rock Emplacements

Both internal and external waste rock emplacements will be rehabilitated and decommissioned, together with the infrastructure area, once the final rehabilitation success criteria has been achieved.

4.7.5.2 Final Voids and Ramps

Two final voids will remain at the end of mine life at the south-eastern end of the Mavis Pit and the north-western end of the Millennium Pit.

4.7.5.3 Infrastructure

Final landform designs for the ancillary infrastructure areas (other than the mine pit), such as the plant and buildings, access/haul roads and the rail-loop will occur upon the decommissioning of the CHPP and associated equipment. Works will involve re-profiling the base to match the original pre-mining landform, with contour ripping, topsoiling and revegetating to encourage a vegetative cover. The objectives of the post-mine land use are to ensure that the:

- post-mine rehabilitated areas are self-sustaining and require no ongoing maintenance while protecting the physical and biological integrity of the surrounding environment after mining activities have ceased; and
- existing and potential beneficial uses of the area are preserved where possible after mining activities have ceased.

Unless required by the landowner, water storages will be removed in a similar manner.

4.7.5.4 Final Land Use

Based on the rehabilitation and decommissioning assumptions above, the final land use for the MEP is outlined in **Table 4-6** below.

Further details are contained in **Chapter 5-Rehabilitation and Decommissioning**.

Table 4-6 Final Land Use and Rehabilitation Approval Schedule

	Disturbance type					
	Residual Voids	**Waste Rock Dump(s)**	**Sediment/ Supply Dams**	**Infrastructure**	**ROM Area**	**Road(s) and Tracks**
Pre-mine land use	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing
Post-mine land use	Water storage	Mosaic of grazing and Native Ecosystem	Water storage or return to grazing	Grazing	Grazing	Grazing or to remain as farm access upon agreement with landholder
Post-mine land capability classification	V	V	V	IIV	II - IV	III or V