

A P P E N D I X

MANAGEMENT AND MARKETING PLAN FOR COAL WASH 2003

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Carbon Steel Materials

Illawarra Coal

Management and Marketing Plan for Coal Wash

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AT A GLANCE

- The topping up of existing, non BHP Billiton emplacement sites has low potential
- Large-scale sales into the civil market possible. Competition from demolition materials and the cost of transport are major hurdles.
- Use of Coal Wash in Newcastle Power Stations is currently uneconomical; Western Districts has long term potential.
- Markets for fine Coal Wash (brick making and soil manufacturing) have potential to utilise a large part of West Cliff's fine Coal Wash stream.

- A dedicated West Cliff power station consuming Coal Wash has the highest single potential to reduce emplacement and will require an extensive investigation to determine feasibility and manage risks.
- Topping up some existing Emplacement Areas is possible.

VISION

Our vision is to maximise the life cycle of Coal Wash in an environmental, economic and sustainable fashion.

OBJECTIVES

1. Extract the maximum value from all our products
2. Minimise the impact of Coal Wash on the environment
3. Find alternatives to valley-filling of coal wash that support the vision statement
4. Provide sustainable strategies for Coal Wash allowing the continued life of our operations

SITUATION AS AT 2001

- Few or small scale identified alternatives to emplacement
- Resistance to future valley-filling activities at West Cliff
- Resistance towards valley-filling of coal wash by government and community representatives leading to reputation impacts on the Company
- Wongawilli Emplacement Area closing within 3 to 4 years
- Other emplacement alternatives in Illawarra disappearing
- Total Illawarra Coal - Coal Wash production levels increasing with the commencement of Dendrobium mine
- Stage 111 of West Cliff Emplacement Area requiring detailed study of alternatives to emplacement as part of the Dendrobium approval

HOW DID WE GET HERE?

- Long history of coal mining in Illawarra.
- Topographical features directed Coal Wash emplacement toward coastal plain.
- After more than 100 years of coal mining, suitable emplacement areas on the coastal plain are disappearing.
- Wongawilli Emplacement Area was established taking advantage of the back hauling of Coal Wash on the Elouera Mine to Port Kembla Steel Works rail link.
- Commission of Inquiry into Wongawilli emplacement lead to significant resistance by government and the community towards the continued use of Wongawilli for emplacement.
- Elouera Mine will close in 2004/5, at the same time Wongawilli Emplacement Area will cease operations.
- Dendrobium Mine will open in 2004/5 with Coal Wash produced by the Port Kembla Coal Preparation Plant being road hauled to the West Cliff Mine Emplacement Area.

- The Dendrobium Mine Development Approval and our stated objectives necessitate a detailed review of alternatives to the emplacement of Coal Wash.

PLANNING HORIZON, SCOPE AND STRATEGIES

A key component of Illawarra Coal's Coal Wash management and marketing strategy is the appointment of a Coal Wash Business Manager.

Of the initial strategies identified, it is expected that some of these will be deemed not viable due to environmental, logistical or financial factors. New strategies may emerge however, that have not been identified at this time.

As these changes occur this Plan will need review and modification to take account of new opportunities and minimise risk where appropriate.

The planning horizon considered here is 5 years with reviews considered appropriate at 12 monthly intervals.

The Plan is intended to cover technical and commercial aspects of options for the management of Coal Wash.

MANAGEMENT AND MARKETING STRATEGIES

1. TOP UP EXISTING COAL WASH EMPLACEMENT AREAS

While BHP Billiton does not consider the topping up of non BHP B emplacement sites viable, these are considered within the Plan to fulfil the obligation of considering all options. Community expectations and reluctance for the recommencement of operations on these sites make the concept generally low potential. Any such activity would need to comply with previous and any new conditions of use. Sites identified are: -

a. Huntley Mine Site

Coal Wash would be transported to this site by road; the majority of the journey being on Freeway type conditions with noise attenuation barriers. Part of the journey however is via residences with no noise attenuation. Resistance to the truck movements would be high.

The site itself would require Wollongong City Council development approval to receive Coal Wash from Port Kembla.

The cost of transport to Huntley exceeds the cost of transport to West Cliff.

Given that these factors and the relationship of the two transport costs are not expected to change, this is not considered a viable alternative now or in the future.

b. Madden's Plains Emplacement Area

This site is subject to court action over its use. It may be an option in the future dependent upon the outcome of the court action and the existing user.

This option should be reviewed annually but is not considered to have significant potential and would require additional truck movements within the Illawarra area

c. Wongawilli Emplacement Area

Expansion of this site is possible either by raising the profile height or development of the further stages originally considered for the Area – expansion to the east.

The encroachment of residential areas would increase the impact of the Emplacement Area. Opposition to further use beyond the closure of the Elouera Mine is high. When Elouera Mine Closes in 2003/4-rail transport of Coal Wash will no longer be available. Road transport to the site is not a viable option. It is unlikely that approval for any extension to the site would be given.

This is not considered a viable option now or in the future.

Current projections show that the approved profile of the site will not be achieved prior to the closure of Elouera Mine. Depending upon a number of factors there may be a shortfall of 500,000 to 1,000,000 tonnes below the approved profile. If the community and relevant authorities considered this feasible and preferable, Coal Wash from the Dendrobium Mine could be used to finish the profile to the approved level. This would require statutory approval to the Dendrobium Mine Development Consent.

1. OTHER EMPLACEMENT AREAS

a. Yallah Residential Area

As of January 2002 approximately 300,000 tonnes of fill was required to complete this development.

The site is accessible on noise attenuated Freeway type roads and has Wollongong City Council development approval with appropriate environmental control conditions.

This may be a viable option and will be subject to ongoing review and development.

b. Unspecified Potential Emplacement Areas surrounding West Cliff

As part of the Dendrobium Mine approval process, the land near to the West Cliff mine site was examined to determine if there were any potential Coal Wash Emplacement Areas that would have lower environmental impacts than Stage 111 of the West Cliff Emplacement Area.

The impact of the following factors was considered: -

- Water Catchment Areas
- Aboriginal Lands
- Residential areas

- Flat topography
- National Parks
- Waterways

The risks and/or impacts associated with the above factors deemed the surrounding areas to be not viable for emplacement. The Dendrobium Commission of Inquiry accepted this.

a. Excavate West Cliff Coal Wash Emplacement Area for Sandstone

A proposal to excavate the West Cliff Coal Wash Emplacement Area to produce saleable sandstone products has been reviewed. The excavation would allow additional placement of Coal Wash within the same land area. The operation would have serious environmental impacts particularly the release of leachate from the excavated sandstone.

Another significant issue prohibiting this option is logistics. The West Cliff Mine Site will have in excess of 11,000,000 tonnes pre annum of truck movements on the site when Coal Wash deliveries from the Port Kembla washery commence. There are significant safety issues associated with introducing this process onto the site in terms of truck and rubber tyred vehicle movements.

This option is not considered viable now or in the future.

b. Stage 11 of West Cliff Emplacement Area

The capacity and finished profile of Stage 11 of West Cliff has been the potential to extend the life of the emplacement site by approximately 5,000,000 tonnes. This option will be pursued through the relevant statutory bodies

1. UNDERGROUND EMPLACEMENT

Illawarra Coal's Dendrobium Mine Development Team commissioned a report by the Consultant Group – Mamie Pty Ltd to examine this option. The report concluded that in addition to significant operational, technical and design difficulties, costs for this option were too high. This finding was accepted by the Commission of Inquiry into the mine's development.

2. DIVERT COAL WASH TO COAL PRODUCTS

This is a strategy that has benefits for both BHP Billiton and the community. BHP B would benefit from increased revenue and reduced emplacement costs. Any small change has multiplied benefits and it is the interest of all parties to minimise the amount of Coal Wash produced. Review of this option is ongoing and an operational essential.

a. Coking Coal

It is possible for Washeries to adjust their operations to deliver a higher ash and higher yield coking coal product. It should be noted however that this does not necessarily reduce the amount of Coal Wash produced but rather the mix of the yields of Coking and Energy coal, with the total yield of both products remaining the same.

By way of illustration if an ash level for coking and energy coal (say 9.5% and 23%) gave a total yield of 90%, this total yield would not change if the ash level for the coking coal were changed to 10.5%. In practice due to the Coal Washability, the energy coal ash and yield would decrease while the coking coal yield would increase and the total yield would remain at 90%.

The rule of thumb for ash in coal is that every 1% increase in coal ash will increase Blast Furnace costs by approximately US\$6.00 per tonne of hot metal in the Blast Furnace. There is an insignificant benefit in terms of cost saving to the customer and the amount of Coal Wash diverted to coal. For example as little as 8274 tonnes of Coal Wash at 70% ash increases 5,000,000 tonnes of coking coal from 9.5 to 9.6% ash for a coal price saving of US\$0.07 per tonne to the customer – not enough to offset the ash impact of US\$0.60/tonne in the Blast Furnace.

Customers would not accept any increase in ash for this small financial offset and their operations would suffer placing them at a financial disadvantage to their competitors.

Increasing Illawarra Coal's coking coal product ash is not considered a viable option now or in the future.

b. Energy Coal

Similar to Coking Coal, it is possible for Washeries to adjust their operations to deliver a higher ash and higher yield Energy Coal product. It should be noted however that this does not necessarily reduce the amount of Coal Wash produced but rather the mix of the yields of Coking and Energy coal, with the total yield of both products remaining the same.

With the commencement of production at Dendrobium Mine (above the current levels of Elouera Mine), the production of Wongawilli Seam energy coal increases to around 1,000,000 tonnes per annum from the current 400,000 tonnes per annum.

Illawarra Coal's Wongawilli seam energy coal ranks amongst the highest in terms of ash levels and the lowest in terms of volatile matter of coals marketed overseas from Australia. In the current periodical of Australian coal marketing – the Australian Coal Report – there are only three coals exported from Australia with similar ash levels.

Developing a market for the Dendrobium production of energy coal at its currently planned ash will require a substantial and difficult marketing effort. This task would be exponentially more difficult if the ash of the product were to be increased.

In addition there is an insignificant benefit in terms of cost savings to the customer and the amount of Coal Wash diverted to coal. For example – as little as 11000 tonnes of Coal Wash at 70% ash increases 500,000 tonnes of coking coal from 23 to 24% ash for a saving of US\$0.60/t. This increase in ash puts the product outside of market acceptability with an insignificant impact on Coal Wash production.

Increasing Illawarra Coal's energy coal product ash is not currently considered a viable option. Changing market conditions in the future may see some acceptance in the market. This option will be reviewed annually.

1. POWER STATIONS

a. Newcastle

NSW power stations pay about AUS\$1.00 per mega joule for energy derived from coal. The equivalent cost of Coal Wash transported from Port Kembla to Newcastle is AUS\$1.45 per mega joule based on

- Nil cost for purchase of the Coal Wash
- Approximately 8 giga joules per tonne energy value in Coal Wash
- \$13.20 per tonne plus GST rail freight cost to Newcastle based on a 1430 tonne per trip load and an annual task of at least 300,000 tonnes - quoted by National Rail Corporation in October 2001 (which required an equivalent amount of freight to be back hauled).

Even if the costs of transport and emplacement at West Cliff were used to offset the freight (\$13.20 - \$3.75 = \$9.45 per tonne or \$1.18 per giga joule), the cost of Coal Wash would still exceed the cost of coal. In addition, this does not consider the additional cost of fly ash disposal or environmental impacts from emissions.

Whilst this situation is not expected to change, it will be revisited periodically. Without a substantial reduction in the freight rate this option will remain uneconomic.

a. Western Districts

Of the two operating power stations – Mt Piper and Wallerawang – only Mt Piper currently has a rail receival facility. To make the Coal Wash competitive to coal energy costs, the transport costs will need to be very low. Utilising a back haul freight arrangement may achieve this.

There is a significant amount of rail traffic flowing from the area to Port Kembla. It may be feasible with a back haul arrangement to achieve an acceptable freight rate and therefore sale price. The downside is the capacity of the rail network within the Port Kembla Steelworks, which will cause delays in loading.

Discussions with Western Districts power stations are ongoing and positive. The market will develop in 2005-6, generally in line with the development of Dendrobium Mine.

1. USE IN B.O.O. (BUILD, OWN, OPERATE) ON SITE POWER STATION

The establishment of an on site (at West Cliff) Power Station using Coal Wash as its fuel source is a complex issue.

The main issues are NOX emissions into the Sydney air basin and the disposal of fly ash.

Preliminary investigations completed in March 2003 indicate air emissions may be acceptable. The next step is to review options for Fly Ash disposal:

- Disposal of Power Station ash above ground – options, environmental impacts and commercial viability
- Disposal of Power Station ash underground ground – options, environmental impacts and commercial viability
- An overall study (to BHP Billiton's Capital Project Concept Stage Tollgate detail level) to determine the Go/No Go aspects of the above and other environmental impacts and commercial viability.

Some of these reports have been commenced or are complete.

This concept requires in depth review by, and involvement of the community, statutory bodies and BHP Billiton to understand its benefits and impacts. There is little attraction in reducing Coal Wash impacts if the outcome is a net increase in impacts elsewhere.

BHP Billiton is committed to ensuring that any Power Station has the support of all concerned. The project will require approval following the Company's guidelines laid down for major capital projects. This requires the project to meet tollgates of increasing levels of detail and achievement of specified expectations including peer reviews and third party involvement.

1. BRICK MANUFACTURERS

This is a nearby small market that can utilise Fine Coal Wash for brick manufacturing. West Cliff Coal Preparation plant and The Appin SADA Coal Washery produce fine Coal Wash. Port Kembla blends all of its Coal Wash products into one stream and therefore does not have a Fine Coal Wash product. Fine Coal Wash presents additional difficulties in disposal due to its resistance to compaction.

Three brick making facilities are the target market due to their proximity to the production source. The Coal Wash provides a valuable fuel additive replacing natural gas required in the brick kiln.

The cost of transport is AUS\$7.00 - 9.00 per tonne. Brick manufactures pay approximately AUS\$4.00 per giga joule for natural gas. Coal fines at \$0.87 to \$1.12 per giga joule (8 giga joules per tonne) therefore offer substantial savings.

Brick manufactures have used Coal Wash in the past but have generally not continued its use due to product variability. Fine Coal Wash ex West Cliff is uniform in quality. This market has good potential to take all of the fines production from West Cliff. From a marketing perspective however, a spread of market segments is preferable for security of delivery.

The strategy is to develop the customer's confidence in the product's performance, quality and cost savings ability and then increase the quantity over time.

Whilst this market is small it will rid West Cliff of a time and resource consuming activity.

2. SOIL MANUFACTURING

Fine Coal Wash is inert, has a high Ph balance and is low in plant nutrients. Its black colouring makes it an ideal blending agent or filler for high nutritional value products such as organic solid wastes.

Soil manufacturers that have low reserves of minable soil or who are looking to manufacture soil from components may be interested in the use of Coal Wash.

This market is large but the low cost of competition in the soil industry reduces the number and likelihood of customers able to utilise Fine Coal Wash.

The pursuit of this market will be ongoing as new developments occur.

3. CIVIL WORKS

The bulk fill civil market in New South Wales is dominated by large scale quarrying companies such as Boral, PGH and Australian Steel Mill Services (ASMS). These companies utilise their marketing infrastructure for prime products (E.G. screened and sized road base, sand and soil) to market the low value, residual products (E.G. quarry fines, demolition materials).

Competition is fierce. By way of example, material from a Sydney building site can be transported to south west Sydney (\$8/t), the material crushed and screened (\$1.50/t) and blended with other material giving a delivered price of \$9.50 per tonne. The demolisher will pay for the material to be taken away thus improving the competitiveness of the product further. The transport cost alone from West Cliff to the South West of Sydney will approach this level.

Coal Wash in its raw form is a low performance material. Competitors have low value products that they must move off site and are able to balance their range of product prices to ensure a balanced product sales pattern sometimes taking a loss on the sale of these low value products.

In the south west of Sydney, West Cliff Coal Wash has the advantage of lower freight (depending on location), large volume availability and consistency as well as environmental acceptability. On the downside, Coal Wash does not have the high performance characteristics of other products and is therefore limited in its markets.

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Lobbying of Local Councils, Government agencies and interest groups to support the concept would increase the potential of this market. Lobbying of these bodies to the extent of the provision of financial incentives to end-users would again increase market potential.

Another initiative worth continuing pursuit is alliances with existing market holders

a. Illawarra

The Illawarra area has the disadvantage of a small market, being a mature and topographically constrained residential area. The Port Kembla Coal Wash product itself has a history of variability due to the number of coal products washed by the plant and the variability of different size fraction feeds into the Coal Wash stream. When the plant is converted to a single Dendrobium Mine product this issue will disappear.

Market potential is customer driven. IE the market is dependent on user demand, which will vary dependent on residential and civil development. As these opportunities arise they will be pursued.

b. Sydney

The market in this area is large with the southwestern area of Sydney being one of the highest residential growth areas in Australia. Competition is also high with Blast Furnace slag, demolition materials, quarry fines and mined sandstone offering into the market in some cases supported by large corporate structures and networks E.G. Boral and Pioneer as well as ersatz subsidies due to the alternative high cost of disposing of some of these materials in emplacement areas.

Lobbying of Local, State and Federal government agencies to support the concept and ideally some transport cost offset will be required to extract full market potential

INTEREST AND PUBLIC BODY SUPPORT

The list of groups able to be lobbied for support includes: -

- Planning NSW (previously DUAP) – local and state level
- Environmental Protection Authority – Illawarra and South West Sydney branch
- City Councils – Wollongong and Campbelltown, Wollondilly
- BHP Waste Management Task Force

Having established local awareness of Coal Wash usage within these organisations, the next step is to lobby support at the State level and for this support to be communicated to the local branches.

Support should include the modification or inclusion of approval documentation to indicate a preference or allowance to use Coal Wash and a stated preference for the use of Coal Wash in certain applications and ideally some assistance to end users to overcome logistical issues.

KEY PERFORMANCE INDICATORS AND HISTORY

Given that the outcome and success of the options cannot be determined the Key Performance Indicators are specified as time events.

Item	Action	KPI
Marketing Plan	Initial Plan submitted to BHP Waste Management Task Force	December 2001
Marketing and Management Plan	Review	August 2002
Revised Coal Marketing Plan	Submit to Task Force	March 2002
Divert to Energy Coal	Review	September 2003
Emplacement Options	Review viabilities	September 2003
Divert Coal Wash to Coal <ul style="list-style-type: none"> Energy coal Coking coal 	Determine feasibility	October 2001
Sell to Western Districts Power Stations	Review	November 2003
On Site Power Station	Complete conceptual toll gate review	July 2003
Use by brick makers	Review	May 2003
Use by Soil Manufacturers	Review	June 2003
Civil Works	<ul style="list-style-type: none"> Determine preferred marketing strategy and partners Commence Sydney sales program 	<ul style="list-style-type: none"> June 2002 March 2002 Review September 2003

POTENTIAL MARKET CAPABILITIES

Coal Wash production is expected to be approximately 2,600,000 tonnes per annum by 2005-6

The figures below represent the potential size of market BHP Billiton can reasonably expect to attain based on current information.

Top up West Cliff Stage 11	5,000,000 tonnes – one off
Power Station	Initial concept 1,800,000 tonnes per annum with capacity to expand to consume all Coal Wash
Top up other emplacement sites	Nil
Yallah residential development	300,000 tonnes – one off
Other sites around West Cliff	Nil

Excavate West Cliff for sandstone	Nil
Underground emplacement	Nil
Divert Coal Wash to coking or energy coal	1% of total product = 85,000 tonnes per annum
Western District Power Stations	Approximately 50,000 tonnes per annum
Brick Manufacturers	20,000 tonnes per annum of fines ex West Cliff
Soil Manufacturers	0 - 20,000 tonnes per annum of fines ex West Cliff
Illawarra Area development sites	0 – 150,000 tonnes per annum - variable
Sydney Area development sites	0 – 150,000 tonnes per annum - variable