BHP Billiton – Caroona Exploration Area

Environmental Assessment Approach

October 2006

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Presentation Outline

- Introduction
- Approach to Environmental Assessment
- Environmental Assessment for key project phases
- Typical EIA studies
- Project timing

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About Umwelt

- Environmental consultants located in Lake Macquarie (Newcastle)
- Over 13 years experience in provision of environmental impact assessment and management services – extensive experience in the coal mining industry
- Engaged by BHP Billiton to provide environmental consulting services for the Caroona Project

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Approach to Environmental Assessment

- A comprehensive environmental assessment will be completed for each phase of the Caroona Project.
- Assessment must comply with government requirements. BHP Billiton also has its own internal comprehensive assessment requirements
- Iterative environmental assessment approach – consider environment and community in project planning
- The scope of assessment will continue to evolve throughout the project as consultation progresses and further information is gathered.

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Key Project Phases

- Initial exploration drilling – to mid 2007
- Concept study to determine if a potentially viable project exists – to mid 2007
- If project proceeds beyond concept study, additional exploration work will refine the potential area of interest and mine planning options (pre-feasibility study) – to mid 2009
- If studies indicate that a viable project exists, an application for approval to proceed with a mining operation may be lodged with the Dept. of Planning (concurrent BHP Billiton detailed feasibility study)

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Environmental Assessment Requirements

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Environmental Assessment Requirements

Exploration Drilling

- Exploration Environmental Management Plan
  - Plan developed and approved by DPI
  - Ongoing landholder consultation
  - Drilling currently being undertaken in accordance with EEMP including:
    - Review of each proposed borehole locations for potential environmental issues
    - Due diligence inspection of each borehole locations for potential archaeological and ecological management issues
    - Audit and inspection process to ensure controls are in place
    - Rehabilitation guidelines and post drilling inspection to ensure area effectively rehabilitated

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Environmental Assessment Requirements

Concept Study

- Key assessment steps to be completed in this phase include:
  - collation and mapping of baseline data,
  - preliminary site inspections,
  - identification of potential issues,
  - preliminary constraints analysis,
  - commence baseline environmental monitoring

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Environmental Assessment Requirements

Concept Study

- Baseline environmental data will be collected to assist in identification of potential constraints or issues including:
  - geology and soils;
  - terrain, land capability and agricultural suitability;
  - land use and local planning;
  - surface water and groundwater;
  - ecology;
  - archaeology and heritage;
  - infrastructure (public and private);
  - air quality and the existing acoustic environment;
  - population and baseline social information (e.g. housing, service availability); and
  - other relevant information regarding the physical or built environment and local community.

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Environmental Assessment Requirements

Concept Study

- Baseline monitoring points will be established to provide detailed information about the existing environment.
- Baseline monitoring will include:
  - Surface water
  - Groundwater
  - Meteorology
  - Air quality (dust)

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Environmental Assessment Requirements

Concept Study

- Other environmental assessment work completed during this phase will be to determine the scope for more detailed E&SIA work if a decision is made to proceed with the project

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Subsequent Phases

- Should the project proceed past concept phase, detailed environmental assessment will be undertaken for the smaller target areas
- This will include:
  - Detailed baseline studies of area of interest
  - Identification of key issues through baseline studies, community consultation and government agency consultation.
  - Detailed modelling of potential environmental impacts
  - A comprehensive community consultation program
  - Detailed environmental and social impact assessment
  - Identification of required environmental management and mitigation measures

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Typical EIA Studies

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Typical EIA Studies

- Surface water & water balance
  - alluvial areas and watercourses
  - drainage lines (natural and constructed)
  - water quality
  - irrigation systems
  - project water balance (water usage)

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Typical EIA Studies

- Groundwater (AGE)
  - groundwater levels
  - groundwater quality
  - groundwater users
  - any groundwater dependent ecosystems

- Agriculture
  - Studies to determine interaction of any potential mining operation with surrounding agricultural land use
  - Detailed consultation with key agricultural stakeholders

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Typical EIA Studies

- Noise
  - Modelling of impacts on any potential residential receivers
  - Modelling of potential road and rail traffic noise impacts
- Air Quality
  - Modelling of dust from the project – depositional dust and fine dust
  - Identification of any impacts on residential locations
  - Discussion of any interactions with agricultural land uses

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Typical EIA Studies

- Ecology
  - Baseline survey work over area of interest to identify existing ecological values and any significant species or communities
  - Impact assessment and identification of management and mitigation measures
- Aboriginal Cultural Heritage
  - Baseline survey work required over area of interest
  - Extensive consultation required with local Aboriginal community to identify cultural values
  - Impact assessment and identification of management and mitigation measures

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Typical EIA Studies

- European Heritage
  - Survey to identify any heritage sites within the area of interest
  - Impact assessment and identification of management and mitigation measures

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Typical EIA Studies

- Visual impact
  - Potential impact dependent on location of surface operations
  - Visual impact assessment completed using 3-dimensional terrain analysis. Assessment of any impacts from residential and public viewing locations.
  - Identify required management and mitigation measures.
- Traffic and transport assessment
  - Assess adequacy of road and rail network
  - Identify any upgrade works required as part of the project

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Typical EIA Studies

- Socio-economic assessment
  - Closely integrated with other studies
  - Will include detailed community consultation program
  - Identification of economic impacts of the project
  - Identification of potential social issues (service availability etc.)

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Project Timing

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Project Timing Summary

- Initial exploration and concept study to refine potential resource target areas – end mid 2007
- Pre-feasibility study to assist in development of conceptual mine plans – end mid 2009
- Following pre-feasibility, decision may be made to seek approval for a project – detailed environmental assessment completed

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