

**FINAL TERMS OF REFERENCE
ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT**

FOR THE PROPOSED

**DODDS COAL MINING CO. LTD.
COAL MINE AND HANDLING FACILITY**

Approximately 7 km south of Ryley, Alberta

ISSUED BY: ALBERTA ENVIRONMENT

DATE: August 23, 2005

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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of these Terms of Reference is to provide the public, government agencies and Dodds Coal Mining Co. Ltd. (Dodds) with the information requirements needed for preparing an Environmental Impact Assessment (EIA) report. The purpose of the EIA report is to identify and assess the environmental impacts associated with its proposed coal mine and coal handling facility so that government decision-makers may determine whether the Project is acceptable and in the public's best interest.

Dodds proposes to develop a surface coal mine and coal handling facility on Section 9-49-17-W4M. Annual coal production will be approximately 90,000 tonnes. The Project is located approximately 7 km south of Ryley, Alberta in Beaver County. Dodds currently has an approved coal mine located at Section 14-49-18-W4M approximately 6 km west of the proposed mine site.

1.2 SCOPE OF THE ENVIRONMENTAL IMPACT ASSESSMENT

The EIA report shall be prepared in accordance with these Terms of Reference and the environmental information requirements prescribed under the *Environmental Protection and Enhancement Act* (EPEA) and Regulations. The EIA report will address:

- a) all impacts;
- b) prevention or mitigation of impacts;
- c) mitigation options;
- d) monitoring of environmental protection measures;
- e) residual effects relevant to the assessment of the proposed Project including, as appropriate, those related to the other industrial operations. Impact predictions should be presented in terms of magnitude, frequency, duration, seasonal timing, reversibility and geographic extent; and
- f) identification of residual impacts and their significance including cumulative and regional development considerations.

The EIA report will form part of Dodds' integrated application to the Alberta Energy and Utilities Board (EUB) under the *Coal Conservation Act* and Alberta Environment under the EPEA and the *Water Act*.

2.0 PROJECT OVERVIEW

2.1 PROPONENT AND PROJECT HISTORY

Provide the name of the proponent, the name of the legal entity that will develop, manage and operate the Project, a corporate profile and an overview of the Project.

2.2 STUDY AREA(S)

Provide maps showing boundaries and a legal description of the proposed mine area, the development area and all locations of proposed development activities. Include the lands that will be directly disturbed by the Project or by associated infrastructure as well as cumulative, regional, spatial and temporal aspects for individual environmental components outside the Project Area and lease boundaries where an environmental effect can reasonably be expected.

Include:

- a) maps of appropriate scale to identify the proposed development area, the status of land tenure, existing and proposed land dispositions and the location of infrastructure associated with the Project;

- b) the location of natural features that may be affected by development within the Project Area or changes to infrastructure as a result of the project development;
- c) the rationale used to select boundaries for EIA Study Areas for environmental components; and
- d) discussion of how the EIA Study Areas were adapted or modified through the public participation process.

2.3 PROJECT COMPONENTS AND DEVELOPMENT SCHEDULE

Provide a development plan and overview of the project components that are proposed including:

- a) the activities associated with the construction, operation, reclamation and decommissioning of the coal mine and coal handling facility;
- b) the phases of the proposed development including construction, operation, reclamation and abandonment; and
- c) the proposed development schedule for each phase of the Project.

2.4 PROJECT RATIONALE AND ALTERNATIVES

Discuss the need for the Project and consider the implications of proceeding with the Project, specifically addressing the following:

- a) the type of coal and the market that the product is intended to supply;
- b) alternative methods of mining the coal;
- c) existing and alternative project infrastructure;
- d) an overview of any alternatives considered economically feasible; and
- e) the implications of development for potential future developments in the Project Area.

2.5 REGULATORY OVERVIEW

Identify all regulatory approvals applicable to the Project, including environmental and operational approvals required by municipal, provincial and federal agencies. Summarize government policies, resource management policies, integrated resource plans and planning or study initiatives pertinent to coal mine and coal handling facility development and discuss their implications for the Project.

2.6 SUMMARY OF EIA REPORT

Summarize the EIA report including environmental and socio-economic implications of key construction and operation activities associated with the Project, proposed mitigation strategies, residual impacts, monitoring programs, cumulative effects and any follow-up programs required. Include a glossary of terms and a list of abbreviations to assist the reader in understanding the material presented. Include tables that cross-reference the EIA report to the EIA Terms of Reference and to any current applications submitted pursuant to the EPEA.

3.0 PROJECT DESCRIPTION

3.1 SITE DEVELOPMENT

Describe the site selection, project components and processes for the proposed facilities including the following:

- a) economic, technical and environmental factors that contributed to the decision-making process or development within the Project Area;
- b) site selection process for new infrastructure such as location of the buildings, power line and access road. Indicate the technical, geotechnical, economic and environmental criteria considered;
- c) general mine development activities and schedules that characterize the construction, operation, reclamation and abandonment phases;

- d) proposed mining methods, mine design criteria, development activities and schedules for the Project, including activities such as soil salvage, haul road construction, coal handling and reclamation;
- e) maps and diagrams at appropriate scale to illustrate the development plan, water management systems, associated infrastructure and reclamation plan; and
- f) specific activities that will be undertaken to prevent or reduce the potential for adverse environmental or social impacts through the mine planning process.

3.2 INFRASTRUCTURE, UTILITIES AND TRANSPORTATION

Describe infrastructure components, proposed and existing, for the development within the Project Area. Descriptions of infrastructure will include the following:

- a) public and worker access;
- b) utilities;
- c) coal handling and transportation on- and off-site;
- d) coal handling and stockpiling including the location and amount of all on-site storage including storage of raw coal, coal product and waste coal;
- e) components identified through a public participation program;
- f) location plans for infrastructure such as processing equipment, storage facilities, office space and waste management facilities;
- g) the anticipated changes to traffic (e.g., type and volume) on public roads, from the project site, during the construction and operation of the Project. Discuss and evaluate any expected impact and suggest any required mitigative measures; and
- h) consultation with local transportation authorities and other stakeholders, including any transportation studies that are underway or planned.

3.3 AIR EMISSIONS MANAGEMENT

Provide the following:

- a) identify all potential sources of emissions (total particulates, PM₁₀, PM_{2.5}, CO (carbon monoxide), NO_x (oxides of nitrogen) and SO₂ (sulphur dioxide)) from the Project, including but not limited to, mining activities, coal handling facility, vehicles, road ways and any other related activities;
- b) describe any mitigation, monitoring and control systems that Dodds proposes to reduce potential impacts from emissions; and
- c) describe the air management program to address all relevant fugitive dust and other emissions.

3.4 WATER AND WASTEWATER MANAGEMENT

Provide the following:

- a) identify the potential water quality impacts associated with the Project;
- b) describe the monitoring and control systems to reduce potential impacts on the water quality;
- c) identify the operational and potable water requirements for the Project including start up and emergency operation conditions; and
- d) a summary of Dodds' water management program to prevent or reduce impacts to surface water flow and a spill response plan should an accidental release occur.

3.5 WASTE MANAGEMENT

Provide the following:

- a) a waste management plan, including information on waste quantities, storage, handling and disposal methods for each waste type;
- b) identify the potential sources of industrial wastes associated with the Project;
- c) classify the wastes generated and characterize each under the EPEA's Waste Management Regulation;

- d) identify the location, nature and amount of on-site hydrocarbon storage. Discuss containment and other environmental protection measures. Demonstrate how selected practices comply with the provincial and federal regulations; and
- e) describe Dodds' plan to minimize and recycle industrial wastes.

3.6 ENVIRONMENTAL MANAGEMENT SYSTEMS AND CONTINGENCY PLANS

Summarize the key elements of Dodds' environmental, health and safety programs and describe corporate policies and procedures, operator competency training programs, spill and emission reporting procedures and emergency response plans.

3.7 RECLAMATION AND CLOSURE

Provide a conceptual site abandonment and reclamation/closure plan for the Project Area, including:

- a) reclamation methods relative to drainage control, land stability, soil salvage, soil replacement, revegetation and interim land management;
- b) criteria for salvaging soils for reclamation, based on the availability and suitability of soils;
- c) an estimation of volumes of soil available for salvage with a reconciliation of soil replacement requirements for reclamation;
- d) a soil handling and replacement plan for the Project Area;
- e) reclamation and land use objectives and describe how the reclamation plan will meet those objectives;
- f) a discussion of plans for abandonment;
- g) an outline of the reclamation schedule and a description of how reclamation success will be measured and evaluated;
- h) a revegetation plan which includes seed mixes, timing, monitoring, interim land management (erosion control) and weed control;
- i) a site diagram showing post reclamation site conditions including topography, surface drainage, final vegetation and other significant features; and
- j) anticipated differences between pre- and post-development landscape, vegetation types, wildlife habitats, aesthetics, and recreational use.

4.0 ENVIRONMENTAL ASSESSMENT

4.1 ASSESSMENT REQUIREMENTS

Provide information on the existing environmental resources and resource uses that could be affected by development. Identify the environmental components potentially affected by the Project. Describe and rationalize the selection of key indicators selected. These environmental indicators will be used to estimate the scale of impact and to evaluate the appropriateness of the environmental management programs.

For each environmental component and indicator:

- a) describe the existing baseline condition;
- b) identify the activities associated with the Project Area that have the potential to affect the environmental component and indicator being considered;
- c) describe the nature of the environmental effects associated with the Project including information on magnitude, probability of occurrence, frequency, extent, duration and seasonal timing for each environmental effect;
- d) present environmental protection plans to prevent, minimize or mitigate negative environmental effects from the Project;
- e) present plans to identify, monitor and manage potential environmental changes in order to demonstrate that the Project will operate in an environmentally-sound manner over the life of the Project; and
- f) provide maps and figures, if appropriate, to illustrate the information presented.

4.2 CUMULATIVE ENVIRONMENTAL EFFECTS

Assess the cumulative environmental effects by undertaking the following:

- a) describe the methodology used to identify and assess the cumulative effects and provide the detail as to how conclusions were drawn;
- b) define the Study Area's spatial and temporal boundaries for each environmental component and indicator examined;
- c) assess the reasonably-foreseeable environmental effects of the proposed Project in combination with other existing and proposed Projects, activities and land uses in the region; and
- d) assess the appropriateness of information from other developments used and identify any deficiencies or limitations in the information.

4.3 LAND USE

Provide the following:

- a) existing land uses in the Study Area including industrial, commercial and recreational uses;
- b) a list of mineral and subsurface leases and leaseholders in proximity to the proposed Project;
- c) a description of unique sites or special features in the Study Area;
- d) a description of the land use and resource policies and planning initiatives in the Study Area;
- e) a discussion of the consistency between the zoning and the proposed development;
- f) components of the Project that have the potential to affect other land uses and discuss the nature and significance of the effects on those land uses;
- g) mitigation strategies to address these anticipated impacts and an outline of Dodds' management capacity to implement these strategies;
- h) public participation program and plans to mitigate impacts with the existing land users;
- i) describe the effects of traffic on transportation routes;
- j) cumulative effects of the Project relative to other existing or proposed projects on regional and public land uses, including outdoor recreation, during and after development; and
- k) plans to mitigate the effects of the Project and alternatives considered.

4.4 CLIMATE, AIR QUALITY AND NOISE

Describe baseline climatic and ambient air quality conditions in the Study Area(s). In addition, provide the following information:

- a) components of the Project that will affect air quality both locally and regionally;
- b) air quality components of concern, including emissions from point sources, construction activities, mine operations and hauling activities;
- c) nature and significance of changes in ambient air quality expected as a result of the Project and the impacts associated with these changes. Discuss how air emissions will likely disperse. Describe methodology used to determine changes in ambient air quality, justify the methodology used and identify any shortcomings or constraints on the findings;
- d) a plan to minimize dust and other emission levels from the Project;
- e) nature and significance of changes in noise levels as a result of the Project;
- f) implications of increased noise levels and proposed measures to minimize noise resulting from the development. This will be done considering magnitude, frequency, duration and time of day and the performance potential of these measures;
- g) an assessment of cumulative effects of the Project on air quality and noise in the Regional Study Area; and
- h) mitigation and monitoring measures to address air quality and noise concerns.

4.5 GEOLOGY, TERRAIN AND SOILS

Describe and map, on an appropriate scale, the geology, terrain and soils and drainage patterns of the Project Area. Provide the following:

- a) biophysical map of the Study Area for the mapping of terrain and soils;

- b) evaluation of the sensitivity of soil materials and landforms in the Project Area to erosion;
- c) components of the proposed development that have the potential to affect geology, terrain and soils;
- d) nature and significance of the anticipated changes to the pre-development topography, elevation, drainage patterns and soils that will result from surface disturbance at the site and any potential for subsidence;
- e) soil management plan to ensure proper soil salvage, storage and replacement when required for reclamation;
- f) assessment of cumulative effects of the Project on geology, terrain and soils in the Regional Study Area; and
- g) mitigation measures to be implemented to reduce the impacts of any effects identified.

4.6 VEGETATION

Provide a vegetation assessment that will:

- a) describe and map, to an appropriate scale, the vegetation communities in the Project Study Area;
- b) describe and evaluate the vegetation affected by the project development, using the current standard evaluation method in the Alberta Vegetation Inventory Standards Manual (AVI) Version 2.1;
- c) identify the components of the project development that have the potential to affect vegetation;
- d) discuss the mitigation measures to be implemented to minimize impacts on vegetation;
- e) identify rare, threatened or endangered plant species or communities as found on the COSEWIC and provincial vegetation policy documents and their associated habitat requirements;
- f) describe measures to avoid or minimize disturbance to rare plant species and communities; and
- g) assess the cumulative effects of the Project on vegetation in the Regional Study Area.

4.7 WILDLIFE

Provide a wildlife assessment that will:

- a) identify wildlife habitat types, quality and wildlife use in the Project Area;
- b) identify potentially significant wildlife species and associated habitat requirements, as listed by COSEWIC and provincial wildlife management policy documents;
- c) identify the components of the Project that have the potential to affect wildlife, wildlife habitat use and habitat quality;
- d) identify indicator species in the Project Study Area if they assist in the understanding of the impacts of the Project;
- e) identify the predicted effects of the Project on wildlife, wildlife habitat and habitat quality during and following reclamation;
- f) provide a mitigation plan to minimize wildlife habitat loss and disturbance to wildlife;
- g) describe access controls or other management strategies to protect wildlife; and
- h) assess cumulative effects of the Project on wildlife in the Regional Study Area.

4.8 SURFACE HYDROLOGY

Provide a surface hydrology assessment that will:

- a) describe the surface drainage patterns and surface water hydrology of the Study Area(s);
- b) identify the infrastructure that will be used to meet drainage, fire protection and sewage treatment requirements;
- c) identify wastewater effluent, groundwater drawdown and runoff from the Project Areas (source, volume, frequency, duration, timing and discharge locations) during and after the life of the Project;
- d) describe the alterations in surface drainage patterns at the Project, the impacts of these changes on downstream areas and how these impacts will be mitigated and monitored;

- e) discuss probable maximum flood and maximum precipitation events relative to design of water management systems, where applicable and flood contingency plans;
- f) assess the cumulative effects of the Project on surface hydrology in the Regional Study Area; and
- g) describe the pre-disturbance hydrologic conditions within the Study Area(s) for the purpose of establishing benchmark.

4.9 SURFACE WATER QUALITY

Provide an assessment of surface water quality that will:

- a) describe baseline water quality conditions in the Project Area with reference to the appropriate water quality parameters, their seasonality and relationship to flow and other controlling factors;
- b) describe the activities that have the potential to affect surface water quality and aquatic communities during and after the life of the Project;
- c) assess the magnitude of the potential impacts of activities on surface water quality. Determine the local and regional extent of potential impacts as well as their frequency, duration, magnitude and seasonality. Assess the magnitude of each potential impact on water quality relative to existing water quality and accepted water quality guidelines;
- d) describe the proposed mitigation measures (water and waste water management treatment systems) to protect water quality during and after the Project;
- e) provide a monitoring program to assess water quality and the effectiveness of water quality management systems; and
- f) assess the cumulative effects of the Project on surface water quality in the Regional Study Area.

4.10 GROUNDWATER

Provide a assessment of groundwater resources that will:

- a) provide an overview of the existing hydrogeological setting in the Project Area including: a description of aquifers, hydraulic characteristics, groundwater quality, groundwater users and the interaction of surface water and regional/local groundwater flow;
- b) identify the components and activities of the Project that have the potential to affect groundwater resources;
- c) identify potential impacts to groundwater quality and quantity from various Project activities;
- d) identify the nature and significance of the predicted effects of the Project on groundwater during and after the life of the Project;
- e) discuss groundwater discharges to watercourses in terms of volumes, rates, timing and duration and the potential for interruption of groundwater flows to surface water systems;
- f) describe the post-mining groundwater regime with an assessment of the nature and significance of changes from the pre-mining condition;
- g) describe the proposed mitigation and monitoring measures to minimize impacts on groundwater; and
- h) assess the cumulative effects of the Project on groundwater in the Regional Study Area.

4.11 AQUATIC RESOURCES

Describe existing fisheries resources, their use and potential use of habitats in the Study Area(s). Document the anticipated changes to the fisheries in the Study Area(s) due to the Project activities.

5.0 HISTORICAL RESOURCES

Provide evidence of consultation with Alberta Community Development to determine the nature of assessment required to evaluate impacts of the Project on palaeontological, archaeological or historical resources.

6.0 SOCIO-ECONOMIC ASSESSMENT

Discuss the nature and significance of the operations in the Project Area on the local and regional socio-economic conditions and the impacts associated with these effects, including consideration of the following:

- a) workforce;
- b) local employment and training;
- c) opportunities and procurement;
- d) local services and infrastructure;
- e) timing and size of workforce during construction and operation; and
- f) population changes.

Discuss the socio-economic implications of not proceeding with the Project. Identify any measures proposed to enhance positive or mitigate negative effects on the socio-economics of the Project.

7.0 PUBLIC HEALTH AND SAFETY

Describe those aspects of the Project that may have implications for public health. Determine whether there may be implications for public health arising from the Project. Specifically:

- a) identify and discuss the data and methods Dodds used to assess impacts of the Project on human health and safety;
- b) assess the potential health implications of the compounds that will be released to the environment from the proposed operation in relation to exposure limits established to prevent acute and chronic adverse effects on human health;
- c) identify the human health impact of the potential contamination of country foods and natural food sources taking into consideration all project activities;
- d) for those substances related to the Project that accumulate in and/or on vegetation, provide the information on samples of selected species of vegetation known to be consumed by humans;
- e) document any health concerns identified by Aboriginal stakeholders due to the impacts of the Project specifically on their traditional lifestyle. Determine the potential impact of the Project on the overall health of Aboriginal stakeholders and identify possible mitigation strategies;
- f) discuss the cumulative health effects that are likely to result from the Project in combination with other existing, approved and planned projects;
- g) identify and discuss the potential health and safety impacts due to potential changes to regional traffic volumes and potential accidental leaks and spills;
- h) document the health and safety concerns raised by stakeholders during consultation on the Project;
- i) provide a summary of Dodds' emergency response plan and discuss mitigation plans to ensure workforce and public safety during pre-construction, construction, operation and reclamation of the Project. Include prevention and safety measures for wildfire occurrences, accidental release or spill of chemicals to the environment and failures of structures retaining water or fluid wastes;
- j) describe how local residents will be contacted during an emergency and the type of information that will be communicated to them; and
- k) describe the existing agreements with area municipalities or industry groups such as safety co-operatives, emergency response associations and municipal emergency response agencies.

8.0 PUBLIC PARTICIPATION PROCESS

Document the public consultation program implemented for the Project including methods, the type of information provided and the level and nature of Dodds' response, and provide the following:

- a) document the public participation program for the Project;
- b) describe the public participation methods, timing and the type of information provided to the public;

- c) summarize the issues identified during the public participation process including the views of the various stakeholders with respect to these issues;
- d) provide a list of the stakeholders identified during the public participation process;
- e) provide Dodds' responses to the issues or concerns raised during the public participation program; and
- f) discuss how public input that has been incorporated into the proposed project design, environmental management systems, mitigation plans and monitoring programs.