

EXECUTIVE SUMMARY

Alberta hosts extensive reserves of low volatile metallurgical coal, which until now has supported an export trade worth about \$320M a year and provided about 5000 jobs. The industry plays a large part in driving the economy of Western Alberta. Extraction of this valuable resource is now under threat from several sources.

Firstly, mining companies operating on the Eastern Slopes are under increasing pressure from the environmental lobby. Land use categories on the Eastern Slopes result in restrictions on exploration and mining activity that will, in the opinion of some, prevent the development and operation of new surface mines.

Secondly, although there is a considerable low volatile metallurgical coal resource in place, it occurs mainly in geological settings (thick, steep seams) that preclude safe, economic use of any conventional underground mining methods. Figures published by the Alberta Energy Utilities Board (AEUB) indicate only 22 Mt of coking coal in seams amenable to conventional mining and 130 Mt of coal available in steep, thick seams.

Thirdly, the cyclic nature of coking coal prices, the development of coking capacity using lower grade coking coals in the third world and intense competition from coking coal sources closer to tidewater on the Pacific Rim all contribute to an intensely competitive market.

Fortunately, Alberta's high quality metallurgical coal, found only in the Mountain coalfields, can and does command a premium price as a niche product in a very competitive metallurgical coal market. Despite the current low price for the product, there are indications of improving coking coal markets and increasingly competitive haulage and port costs.

The only mining method that has proved itself as a safe, economic and productive means of extracting thick, steep seams is hydraulic monitor mining. A review of three feasibility studies conducted on the Smoky River Coal property showed that in all three cases, operating production costs were lower than costs for conventional mining, by as much as 60%. It is suggested that technical uncertainty and risk to capital were the primary reasons for abandoning these plans.

The hydraulic mining method enjoyed its greatest success in the 15 m thick No. 10 Seam in the South Balmer Mine (operated in succession by Kaiser Resources, B.C. Coal and Westar) where

coal was produced for more than 12 years with better costs and productivities than the adjoining surface mine.

One considerable advantage of the use of hydraulic mining methods is that if it is employed, it significantly increases the amount of high quality coking coal that can be recovered from Western Alberta. Using AEUB figures, the reserves available to hydraulic mining methods amount to 250 Mt, an increase of 87%.

In the nearly 20 years since the closure of the South Balmer Mine, there have been significant advances in the technologies associated with hydraulic mining, most notably in mine development and water treatment. These advances offer reduced costs and the potential for a more widespread application of the method in suitable geological conditions.

There are no major technological obstacles to the hydraulic mining of coal in a suitable geological environment. Some engineering development work is required, but most, if not all, of this can be incorporated at the design stage of any major hydraulic mining installation.

It is clear that the majority of the recoverable export coking coal resource in Western Alberta is unmineable by present methods. Surface mines will be fought tooth and nail by environmentalists, and the technologies required for safe and economic operation of underground mines in steep thick seams are outdated.

The first stage in the preservation of the export coking coal industry in Western Alberta is to develop a method of mining the remaining resources. In the following report, such a method is outlined and the steps required to conduct a proof of concept trial are described. A staged development program is proposed, with a full review of each task to ensure that the project is on track and leading to the desired goal.

Potential participants are identified, and some of the problems relating to sourcing the necessary funds outlined. Ultimately it is suggested that funding by a small royalty levied on any future production of hydraulically mined coal would be the most effective way to proceed.

Completion of the proposed work program will remove the technical uncertainties, reduce the risk to capital, and provide a strong foundation for the continued export of metallurgical coal from Western Alberta.