



Buena Vista Iron Ore Project Update:

Green Pig Iron Engineering Study Contract signed

Magnum Mining and Exploration Limited ("Magnum" or "Company") (ASX: MGU) is pleased to advise that the Company has engaged **TOA Engineering Services Corp (TOA)**, to undertake a detailed Engineering Study (**Study**) for its Nevada Iron Buena Vista Project. This follows the successful test work program which confirmed the production of high-grade iron ore concentrate and conversion to Green pig iron using 100% biochar.

The TOA Study will consist of a technology review and a series of trade-off studies that will define the most appropriate technology that should be deployed at site to process the magnetite ores from the Buena Vista Project and the subsequent manufacturing of Pig Iron at its facility to be constructed in the State of Nevada. The Company estimates that the Study will take between 16 to 18 weeks and is due commence February 2022.

Magnum will also contract with other firms (including suppliers) as required regarding the feasibility portion of the Study. TOA will manage the overall planning initiative and facilitate the provision and sharing of information as required to third parties, which may also be engaged or required to contribute such that a proposed facility plan (technical and economic evaluation) can be confirmed.

The intent is that TOA validate the capital cost (CAPEX) and operating costs (OPEX) for a variety of viable options for the Buena Vista Project. The TOA will propose the viable options and review the economical alternatives for the various reduction processes at differing levels of production. In addition, the TOA will execute portions of the study and planning documentation using information solicited from various suppliers and other information already available to:

- a) develop typical overall basic plant configurations and their support systems;
- b) expedite a quality study and to support the business plan for the Buena Vista Project, with reasonable overall cost accuracy; and
- c) make extensive use of its in-house expertise, including costing and technical information from other similar projects. TOA will also solicit confirmed pricing for various aspects of the program (supply and install) so that the overall accuracy of the program CAPEX might be improved.

The primary objective includes the delivery to Magnum of a Technical Study and Economic Model (EM) which will enable the Company to select and develop the most appropriate solution or arrangement for a merchant pig iron plant. This will enable Magnum to move immediately to the detailed engineering phase of the program.

Magnum will complete separately market studies that will be required, including pricing trends and provide this as input to the Study.

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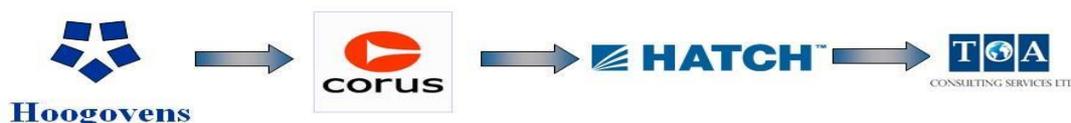
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Mr Dano Chan, Managing Director of Magnum said:

“TOA will provide to the Company the required information (OPEX, CAPEX, start-up and development costs) to allow a complete economic analysis of the Buena Vista Project, which will facilitate continued discussions with both state and federal authorities and importantly potential customers and funders. In addition, the connection between TOA and China Capital Steel Design Institute will result in the fast tracking of the final equipment design and bankable feasibility study.”

About TOA

- Hoogovens TOA was formed in 1988 and was part of Kolinjklieke Hoogovens
- June of 1999 Hoogovens TOA merged with British Steel to form Corus
- September 2001 Hatch Consulting acquired Corus Consulting Inc. (Canada)
- TOA was independently re-activated in 2005 with its original operational experts (purchased from Hatch) to resume work in the Middle and Far East



TOA's current organisation has evolved through many changes in the steel and heavy Industry support services companies. TOA currently maintains a base of about 200 ironmaking, steelmaking and rolling specialists, half of which are professional engineers. They also maintain mining engineers, process specialists and geologists. The TOA core strength is principally in the delivery of key management services including strategic planning, process knowledge, operational and maintenance services mostly for productivity and product quality improvement programs.

(see TOA website for further information www.toaconsulting.com)

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