

EXECUTIVE SUMMARY

This report describes the proposed mining of the tungsten/molybdenum deposits within the Krom Antonies River valley some 24km northwest of Piketberg.

This report is compiled on behalf of Bongani Minerals (Pty) Ltd. in terms of regulation 49(2) of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA). A Mining Right has been applied for by Bongani Minerals (Pty) Ltd. in terms of section 22 of MPRDA to mine tungsten ore and molybdenum ore on Portions 1, 6 and 13 of the Farm Namaquasfontein No. 76 and Portion 1 of Farm No. 297, Piketberg.

The Department of Minerals and Energy (DME) accepted the application for a Mining Right on the 25th of March 2009.

DME requested in their acceptance of the Application for a Mining Right that a Scoping and Environmental Impact Assessment Process be undertaken for the proposed development. In terms of regulation 49(2) of the MPRDA, the scoping report must be submitted to the office of the regional manager where the application was lodged within 30 days from the date of the acceptance. The EIA report must be submitted within 180 days. A request from Bongani Minerals for an extension of time to lodge the Scoping Report was granted by the DME on April 2009. The Scoping Report was submitted to DME on 4 May 2009. The DME sent a letter to Bongani Minerals on 24 June 2009 providing them with the key issues that required further input. Amongst others, Bongani Minerals were requested to submit a Final Scoping Report (FSR) (that includes all the comments/objections from IAPs and their responses to such comments) to IAPs before or on 20 July 2009 to provide comment on. IAPs will be given 30 days, i.e. until 21 August 2009, to provide any written comments on the FSR to WEC.

Bongani Minerals (Pty) Ltd. appointed Withers Environmental Consultants (WEC), an independent environmental consulting company, to conduct the Environmental Impact Assessment (EIA) and compile a Scoping Report and Environmental Management Plan (EMP) for the proposed mining of the tungsten-molybdenum deposit in terms of MPRDA. Should regulatory approval be obtained, Bongani Minerals (Pty) Ltd. proposes to start mining the resources in approximately 2011.

THE PROPOSED RIVIERA TUNGSTEN OPEN-CAST MINING PROJECT

Bongani Minerals are considering the only technically viable (open-cast) mine design to extract the low grade but commercially viable tungsten-molybdenum deposit present on Portions 1, 6 and 13 of the Farm Namaquasfontein No. 76 and Portion 1 of Farm No. 297, Piketberg.

Open-Cast mining, also known as, open-pit mining, open-cut mining, and strip mining, refers to a method of extracting rock or minerals from the earth by their removal from an open-pit or borrow pit.

The term is used to differentiate this form of mining from extractive methods that require tunnelling into the earth. Open-pit mines are used when deposits of commercially useful minerals or rock are found near the surface; that is, where the *overburden* (surface material covering the valuable deposit) is relatively thin or the material of interest is structurally unsuitable for tunnelling (as would be the case for sand, clay, gravel or highly weathered rock). For minerals that occur deep below the surface, where the overburden is thick or the mineral occurs as veins in hard rock, underground mining methods are employed to extract the valued material.

Venmyn Rand (Pty) Ltd. were contracted to conduct a conceptual open-pit mine design and scheduling study for the Proposed Riviera Open-Cast Mining Project and an Order of Magnitude Process Evaluation, Conceptual Sizing, Cost and Layout for 3mtpa and for 0.7mtpa. Using Whittle Software Venmyn Rand (Pty) Ltd. determined optimal conceptual pit shells from which pit designs could be prepared. Venmyn Rand (Pty) Ltd. then used the optimal pit designs to determine the conceptual mining schedules and the projected operational periods of the mine, using three different production profiles. They arrived at a Life of Mine (LoM) of just over 18 years.

The Riviera deposit is a Greenfield Project (a project which lacks any constraints imposed by prior work i.e. there is no need to remodel or demolish an existing structure). The intent is to adopt an open-pit mining method using conventional truck and shovel to extract the deposit.

The Riviera orebody consists almost entirely of scheelite (CaWO₄) and according to Venmyn Rand (Pty) Ltd. the deposit is known to extend to a depth of -115mRL (over 225 m below surface), with the first ore at approximately 60m below surface which is considered too shallow for underground mining.

ALTERNATIVES

There is no viable mining project alternative since Bongani Minerals are considering the only technically viable (open-cast) mine design to extract the low grade but commercially viable tungsten-molybdenum deposit.

The following design alternatives are however amongst those which will be considered by Bongani Minerals (Pty) Ltd. and their appointed consulting engineers:

- Alternative boxcut (secure and safe portals/accesses to the open-cast mine) positions and direction of mining for opencast mining operations;
- alternative location of boxcut soil and spoil stockpiles for opencast mining operations;
- whether to construct a river diversion for the opencast mining operations;
- alternative conveyor alignments;
- alternative conveyor technology to solve environmental problems (e.g. noise; river crossings);
- alternative slime dam locations;
- alternative tip locations;
- alternative alignments of access roads and haul roads to tips;
- alternative locations for mine infrastructure, including the locations of offices, workshops and; change houses, refuelling bays, stores, magazines and hardparks; processing plant/s; and
- alternative water sources for mining.

The **no-go** alternative will also be considered, in which the status quo for the area will remain, viz. that of agriculture and livestock farming. The economic and social impacts of mining on the current and future agricultural activities will also be considered.

PUBLIC CONSULTATION PROCESS

Public Participation Process

The Scoping Report was made available for public review from Thursday 23rd of April 2009. Copies of the Scoping Report were made available for review purposes at the library in

Piketberg and at the Karookop Primary School. A hard copy of the report was also provided to Dr. B. van der Merwe, a Director of Little Swift Investments 56 (Pty) Ltd., which owns the Farm Moutons Hoek (Farm 297/1). Many registered IAPs were also provided with electronic copies of the DSR.

Advertisements were placed in the local *Die Weslander* Newspaper on 22 April 2009 and in Die Burger Newspaper on 23 April 2009, giving notice of the proposed Mining Right application and the availability of the Draft Scoping Report.

The public meeting was held to discuss the proposed Riviera Tungsten Mining Right application on 30 April 2009 at the Karookop Primary School was also advertised in the above newspapers. The meeting was relocated to a large shed on the Karookop Farm to accommodate all the IAPs who attended the meeting. Notes recorded at the meeting were provided to all the registered IAPs.

Written comments on the Draft Scoping Report were to be forwarded to Withers Environmental Consultants by 25 May 2009. Some IAPs requested additional time for providing their written comments. An extension of time for providing written comments was extended to 1 June 2009.

Written comments received by WEC have been included in this Final Scoping Report. The comments received from IAPs (verbal and written) and the respective responses provided by WEC have been tabulated in **Table 6**.

The DME sent a letter to Bongani Minerals on 24 June 2009 providing them with the key issues that required further input. Amongst others, Bongani Minerals were requested to submit a FSR (that includes all the comments/objections and their responses) to IAPs before or on 20 July 2009 to comment on. IAPs will be given 30 days, i.e. until 21 August 2009, to provide any written comments on the FSR to WEC.

SUMMARY OF ISSUES RAISED BY IAPs DURING SCOPING PHASE OF THE MINING RIGHT APPLICATION

The IAPs raised the following issues relating to the Proposed Riviera Open-Cast Mining Project:

- Biophysical Issues
 - Impact of proposed Mining on Ecology and Biodiversity
 - Impact of Proposed Mining on Water Resources of Verlorenvlei and Surrounds
 - Impact of polluted groundwater
 - Impact of proposed mine on surface water salinities
 - Impact of the proposed mine on river diversion
 - Current water use and impacts on water quality
 - Impact of the Proposed Mining on Agricultural Land
 - Impact of noise and air pollution from Mining
 - Issue regarding alien and invasive species
 - Impact of the Proposed Mining on Verlorenvlei, a Registered Ramsar Site
 - Impact of Climate Change and Water Use on Available Water Reserves
 - The impact of blasting and mine design on the instability of the Piketberg Mountain to the east of the mine.
 - Impact of the proposed mining on the Greater Cederberg Biodiversity Corridor
 - Impact of slime dams on environment
- Alternative Development Options

- Alternative Development Options to be Considered, which encompass the status quo, i.e. agriculture, and mining. Various alternatives regarding layout of the mine infrastructures are also considered.
- Engineering issues
 - Impact on Infrastructure
 - Traffic Impact of Mining on Road Infrastructure and N7 Road
 - Issue of waste management
 - Concerns about the proposed design of the open cast mining project
 - Processing of Tungsten
- Socio-economic Issues
 - Impact of Proposed Mining on Existing Jobs
 - Impact of Dust on Fruit Industry
 - Impact of Falling Tungsten Prices on Mining in Krom Antonies Valley
 - Impact of mine on the value of affected property
 - Impact of Proposed mining on the Karookop School
 - Vulnerable people and social development support
 - Impact of the proposed mine on the way of life and the sense of the place
 - Impact of the proposed mining on housing in the district
 - Impact of Proposed Mining on Tourism
 - Impact of Mining and Infrastructure on Cultural Landscape
 - Economic Impact on Mining on agricultural economy in the valley
 - Impacts of mining on economic input and jobs at a local level and on social welfare
 - Concerns about the Social and Labour Plan
 - Visual Impact
 - Light Pollution
- Environmental Authorisation Process
 - Impacts of the Previous Prospecting Right Application on the Present Mining Right Application
 - The Legal Process Regarding Public Participation
 - Mineral Rights Approval
 - National Water Act Implications
 - Lack of Contact with Authorities, especially DEA&DP and DEAT
 - Controlling Authority for Mining Operation
 - Controlling Authority for Land Use
 - Non- compliance with the Mineral and Petroleum Resources Development Act (MPRDA) Regulations

Legal Issues

- Issues regarding the EMP
- NEMA and the EIA process
- National Environmental Management Biodiversity Act (NEMBA)
- National Environmental Management: Air Quality Act (NEM:AQA)
- National Environmental Management: Waste Management Act (NEM:WMA)
- Environment Conservation Act (ECA)
- Land Use Planning Ordinance (LUPO)
- Ramsar International Convention on Wetlands
- National Water Act, 1998 (Act 36 of 1998)
- Heritage and Rehabilitation Issues
- Impacts of the proposed mine on heritage resources
- Palaeo Ecology
- Rehabilitation and surety

PLAN OF STUDY FOR EIA AND EMP

Scope of Studies

The full plan of study for the EIA and EMP is set out in the Scoping Report.

The level of information required from specialist consultants to develop adequate, practical management and mitigation measures for predicted environmental impacts was determined by WEC and the appointed specialist consultants in their environmental evaluation of the site. The environmental evaluation was augmented by preliminary reports written by the appointed specialist consulting scientists following a combined visit to the general area conducted in October 2008 (access was not allowed onto the affected properties and therefore most of the results contained in this Scoping Report have been obtained from desk top research of secondary sources of information and various modelling). Issues raised by IAPs have been taken into consideration in determining the terms of reference for carrying out specialist studies.

Information on the following environmental aspects has thus far been obtained (by the EAP and, where listed, by the appointed specialist consultants) from existing information sources and from the first round of a cursory baseline information study conducted, viz.

- climate;
- topography;
- fauna;
- vegetation – Dr Charlie Boucher;
- freshwater ecosystems – Dr. Liz Day, the Freshwater Consulting Group;
- water quality – Mr. Nico Rossouw, Ninham Shand;
- impact on groundwater resources – Mr Des Visser, SRK;
- hydrology – Mr Howard, Ninham Shand.

The preliminary reports conducted thus far will however require detailed study and re-working during the EIA phase in order to predict impacts for the purposes of a qualitative impact analysis (the expected severity of impacts and the level of confidence required in their prediction), which will guide the planning of the Proposed Riviera Open-Cast Mining Project, should it be approved.

The following outstanding studies and processes will also need to be conducted during the EIA phase through collation of existing information, field surveys, drilling, geotechnical sampling and mapping with various impact assessment scenario's being undertaken.

- hydrogeology – Mr. Des Visser, SRK Consulting
- visual impact assessment;
- agricultural soil potential;
- archaeological and heritage impact assessments;
- socio-economic impact assessment (including an agricultural potential impact assessment);
- air quality;
- land use;
- noise;
- town planning (site development plan and LUPO application);
- architectural guidelines;
- landscaping architectural guidelines and rehabilitation guidelines;
- detailed civil engineering report;

- land surveying; and
- detailed climatic specialist study (wind, humidity, sun shine days, rainfall).

CONCLUSION

The key environmental impacts and issues raised by IAPs, officials and specialist consultants that need to be addressed have been noted. To address such issues, various specialist consultants need to be appointed to undertake the necessary detailed specialist studies to assess the significance of the potential impacts that may develop as a result of both the operational phase of the mine and its closure. Such specialists must also provide mitigation measures to reduce the significance of the impacts. The terms of reference of the specialist studies have been suggested in the Plan of Study for EIA.

All written comment received from IAPs and Government Officials have been assessed and responses provided (**Table 6**).

It is concluded that it will be in the best interests of the land owners, who are resisting access of the specialists to their land, to allow the above specialists studies to be undertaken without interference. It is only with the results of these specialist studies that informed decisions can be made as to the significance of the potential impacts assessed. The assessment of the significance of the impacts will guide the approval process by DME and other Government Departments whether to approve the Mining Right or not.

Once the final comments have been received from registered IAPs, the FSR, together with any additional comments received, will be submitted to DME for their acceptance to move into the EIA Phase of the project.