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WATER USE LICENCE APPLICATION SUMMARY

NAME OF APPLICANT: Harmony Gold Mining Company Limited

Compiled by: John von Mayer

Signature:
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11. Section 27 (1)

The requirements contained in Section 27(1) of the National Water Act, 1998 (Act 36 of 1998) have been considered and are discussed further below.

a) Existing lawful water uses

Harmony Gold Mining Company Ltd (Harmony) has existing WULs authorising various water uses in terms of the National Water Act, 1998 (NWA) for their various Welkom operations. The existing WULs do not cover the properties / water uses that are applicable in the proposed Valley Tailing Storage Facility project. The TSF construction triggers various 21 (c) and (i) and (g) water uses and a full water use licence application is required.

b) Need to redress the results of past racial and gender discrimination

The Applicant aims to redress historical socio-economic inequalities, ensure broad-based economic empowerment (BBEE) and the meaningful participation of Historically Disadvantaged Persons in the mining and minerals industry within South Africa. As the proposed TSF forms part of an existing mining operation, the potential for new job creation is limited. Some jobs will be created during construction. The majority of the employment opportunities are related to the future ongoing operation of the Harmony One Plant which requires additional deposition space in order to continue operations. This project will therefore directly impact the employment rate in the surrounding communities, by ensuring ongoing provision of existing employment.

c) Efficient and beneficial use of water in the public interest

The water management system at Harmony's Free State operations is based on the principles of pollution prevention, management of affected water at source, optimal re-use / recycling of affected water as well as zero discharge of affected water to the natural surface water environment.

d) Socio-economic impact –

The TSF construction and operations result in a number of socio-economic benefits within the affected local municipalities and its' communities. The details regarding the socio economic impacts are described below.

i) Of water use or uses if authorised:

ii) The project will have a positive impact on the employment in the region through the extension of the One Plant Operations. As the proposed TSF forms part of an existing mining operation, the potential for new job creation is limited. Some jobs will be created during construction. The majority of the employment opportunities are related to the future ongoing operation of the Harmony One Plant which requires additional deposition space in order to continue operations. This project will therefore directly impact the employment rate in the surrounding communities.

iii) Of the failure to authorise water use or uses:

Failure to authorise the proposed water uses will result to the following socio economic impacts:

- Failure to authorise the proposed water use will result in a major issue for Harmony as they require additional deposition space urgently.
- The current planned Life of Mine (LOM) of the Free State operations exceed the available deposition capacity of these TSFs and the applicant is therefore proposing to construct the proposed Valley TSF to cater for this additional capacity
- Without the necessary authorisation, the One Plant will be forced to close down resulting in job losses (employees and contractors). This may further result in the closing of several surrounding operations, as there will no longer be a processing plant. This will have a profound effect on poverty and unemployment of this region.

e) Any catchment management strategy applicable to the relevant water resource

The site is positioned within quaternary catchment C43B which has an area of 723 km^2 and C25B which has an area of 1 895km^2 both of which are located within the Middle Vaal WMA. The Broad Management Objectives within the Middle Vaal WMA include:

- To manage the water quality by setting WQOs and developing a CMS as per the Water Quality Management Strategy.
- The monitoring of the system to provide management information for water quality management, abstraction control and input to the overarching operations and planning processes.
- Provide input into the supply of local authorities from local groundwater and surface water resources. This will be in the form of strategic level guidance as to where water can be obtained, and the level of study needed to be submitted with the license application.
- Promotion of WC&DM through the water service providers and local authorities to achieve efficient use of water. Only once efficient use has been achieved can further transfers be considered.
- Harmony has submitted an IWULA to ensure that any water resources (surface and groundwater as well as wetlands) affected by the proposed project activities are licensed and managed in accordance with the relevant water and environmental legislation.

According to the Middle Vaal WMA Internal Strategic Perspective (2004), The land use in the Middle Vaal WMA is characterised by agriculture with the main irrigation crops being wheat, maize, groundnuts, sorghum and sunflowers. There are also extensive gold mining activities located in the Middle Vaal water management area. These activities are generating substantial return flow volumes in the form of treated effluent from the urban areas and mine dewatering that are discharged into the river system which are having significant impacts on the water quality in the main stem of the Vaal River in the Middle Vaal WMA.

f) Likely effect of the water use to be authorized on the water resource and on other water users.

The Middle Vaal WMA is largely dependent on water releases from the Upper Vaal WMA for meeting the bulk of the water requirements by the urban, mining and industrial sectors within its area of jurisdiction, with local resources mainly used for irrigation and smaller towns. The Middle Vaal water management area is relatively sparsely populated and represents just over 3% of the national population. The future demography and population distribution of the water management area will largely be influenced by economic opportunities and potential. Urban populations are expected to decline over much of the water management area mainly as a result of the decline in mining activity as well as due to a lack of other economic stimulants in the region. The main economic sector in the Middle Vaal WMA is mining, with a contribution of 45,6% to GGP. The main mining activity in this area is gold mining.

The proposed new water uses are driven by need to meet the remaining Life of Mine (LoM). The Applicant ensures that water is re-cycled and re-used in the process, therefore, reducing the need for excessive reliance on natural water resources that supply the mines and plants with water and preventing the wastage of water during the process. Harmony has submitted an IWULA to ensure that any water resources (surface and groundwater as well as wetlands) affected by the proposed

project activities are licensed and managed in accordance with the relevant water and environmental legislation.

g) Class and the resource quality objectives of the water resource

The water quality situation of the Vaal River main stem and the tributaries are discussed below. The water quality of the main stem of the Vaal River is not only affected by the water quality of the flow from the tributaries within the WMA but also by the water quality of the water received from the upstream Upper Vaal WMA. The water quality received from Upper Vaal WMA is considered to be relatively poor. Despite the blending practiced in the Upper Vaal WMA, with releases from Vaal Dam used to maintain the TDS concentration in the Vaal Barrage at 600 mg/l, salinity has been reported as a problem in the Vaal river main stem. Nutrients are also a water quality variable of concern. There is also the carryover of hyacinth to the Middle Vaal WMA from the Upper Vaal WMA. The water quality of the Vaal main stem is impacted on by mining activities in the Schoonspruit, Koekemoerspruit and the Sand-Vet systems in the Middle Vaal WMA.

h) Investments already made and to be made by the water user in respect of the water use in question

At this current stage, no capital investments besides those associated with the water use licensing processes, specialist studies, designs etc have been made.

i) Strategic importance of the water use to be authorised

As described above the current planned LOM of the Free State operations exceed the available deposition capacity of the existing TSFs and the applicant is therefore proposing to construct the proposed Valley TSF to cater for this additional capacity. A new deposition site will be required for Harmony One Plant to replace the FSS2 and St. Helena 4 Tailings Storage Facilities by July 2024. Several alternative sites were identified and assessed as possible suitable deposition sites for the tailings from Harmony One Plant but were found not feasible. Following a review of other possibilities for the One Plant's future tailings deposition, an option to utilise the space between the Free FSN1 and FSN2 TSFs and portion of the footprint of the FSN4 TSF has been identified as a possible deposition site. Without the necessary authorisation the One Plant contractors and employees will be without a job and therefore further increase in poverty of this region. The Harmony Free State operations provide important socio-economic advantages to the community and to South Africa.

j) The quality of water in the water resource which may be required for the Reserve and for meeting international obligations

Due to the interdependencies, the management and planning of the Vaal River System is undertaken at the national level and not by the Middle Vaal water managers (CMA when it is established, until then the DWAF Regional Office). The Middle Vaal water managers will be responsible for the assessment of the availability of the local groundwater and surface water resources used to supply local authorities and district councils without access to the Vaal River System water supply infrastructure. The water requirement projections that are currently used for planning originate from the development of the National Water Resource Strategy (NWRS). The total water requirements in the Middle Vaal WMA is 872 million m^3/annum. The total water requirements for the Middle Vaal are projected to reach 885 million m^3/annum by the year 2025, for the base growth scenario. The water requirement projections that are currently used for planning originate from the development of the National Water Resource Strategy (NWRS). The total water requirements in the Middle Vaal WMA is 872 million m^3/annum. The total water requirements for the Middle Vaal are projected to reach 885 million m^3/annum by the year 2025, for the base growth scenario.

The current approach adopted in managing water quality is to apply the steps presented below on a sub-catchment basis. The first step is to carry out a situation assessment during which Interim Water Quality Objectives (WQO) are established and water quality variables of concern and sources of pollution are identified. The WQO are based on the water quality requirements of the user sectors

as well as from the ecology. The subsequent phases in the process, following the situation assessment, are to develop water quality management plans or catchment management strategies. During this phase water management interventions such as source control, treatment and dilution are assessed. These phases also involve the revisiting of the WQO in an iterative manner to reach a balance between the water user requirements and achievable management strategies that do not impede continued economic growth.

Due to this inter-dependency it was identified that the current process of managing water at sub-catchment level, should be expanded to integrate management activities across sub-catchments, to meet shared water quality objectives in major tributaries as well as in the main stem of the Vaal River.
The role of the Middle Vaal WMA CMA will include:

- To manage the water quality by setting WQOs and developing a CMS as per the Water Quality Management Strategy. The setting of the WQOs will be within the framework of the Integrated Water Quality Management Plan for the Vaal River System.
- The monitoring of the system to provide management information for water quality management, abstraction control and input to the overarching operations and planning processes.
- Provide input into the supply of local authorities from local groundwater and surface water resources. This will be in the form of strategic level guidance as to where water can be obtained and the level of study needed to be submitted with the license application.
- All water use licences will be issued through the Middle Vaal WMA CMA.
- A very important communication role between the Water Users and the utility/DWAF Head Office
- Promotion of WC&DM through the water service providers and local authorities/DWAF Head Office to achieve efficient use of water. Only once efficient use has been achieved can further transfers be considered.
- Other delegated functions as determined during the process of establishing the CMA.

k) Probable duration of any undertaking for which a water use is to be authorised

The proposed new water uses are intended extend the current LoM by approximately 8 years at a deposition rate of 600 ktpm.

1. **Declaration by the applicant with signature confirming that the information submitted is correct**

[END OF WATER USE LICENCE APPLICATION SUMMARY]