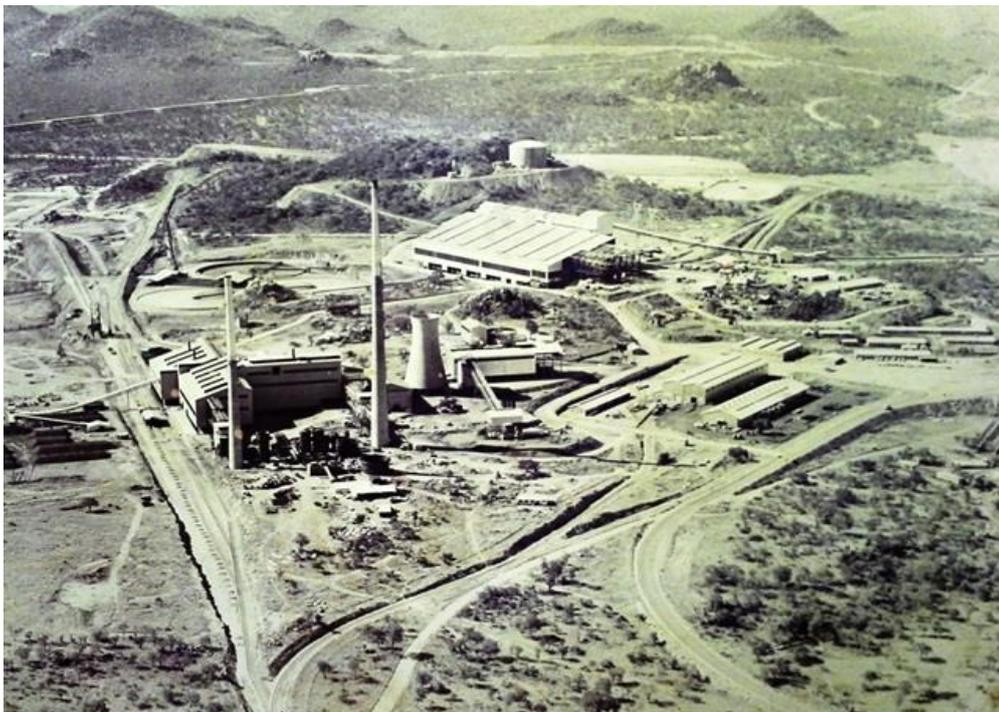


# MINE CLOSURE/LIFE OF MINE PLANNING

## FACT SHEET

### Introduction

Life of Mine or Closure Planning is an activity that continues throughout the life of a mine and culminates in a final decommissioning plan. Progressive reclamation over the life of the mine is used to reduce the cost of reclamation and liability at closure, effective Land and Biodiversity Management is closely linked to this. The Palabora Copper aim to prepare and maintain a Mine Closure or Life of Mine Plan during the operational life of the mine, identifying areas of potential liability arising from its activities. This mine closure plan describes rehabilitation and sustainability strategies as well as making financial provision for the estimated mine closure costs at the end of the life of the operation.



### Mine Closure Planning

#### Background

It is a recognised fact that at all mines operational activity eventually stop. Palabora started operations in the mid-1960's, since then the mine life has been extended on a couple of occasions through new and innovative mining techniques. The previous such extension was the development of an underground mine to access the copper ore body underneath the old open pit. Current life of mine extensions includes additional underground development and magnetite beneficiation.

#### Closure Planning

Palabora's first Closure or Life of Mine Plan was developed in the late 1980's and since then the plan has been constantly renewed and updated as new legislation, technologies and knowledge becomes available. The closure plan considers all aspects of final closure, i.e. planning and mitigation of the impact of closure on employees, the community and the environment. The last full update of the closure plan was undertaken in 2015 and this fact sheet describes the Mine Closure Plan for Palabora as visualised in 2015. However, this planning is being revised completely in 2020 with the focus in closure objectives towards sustainability.

#### Completed decommissioning

Upon closure of the old copper open pit in 2002, a safety berm was placed around the pit to prevent accidental entry into the pit. The Heavy Minerals and Zirconium Plants, which recovered trace minerals that was associated with the open pit was closed, decommissioned and rehabilitated to areas representing natural bushveld. Sections of the Magnetite Stockpile, a Waste Rock Dump and a Vermiculite Waste Rock Dump were closed, decommissioned and rehabilitated.



## **Mine Closure**

### **Infrastructure and residue dumps**

As the processes used at Palabora are relatively inert, with a net alkaline pollution rock drainage potential, the possibility of the formation of acid rock drainage (ARD) remains very low. In addition, the calcite nature of the ore and waste rock has the potential to neutralise any formation of acid rock drainage from residual sulphides. Potential liabilities lie in the areas of physical safety of human and wildlife and the management of saline surface and sub-surface water. The rehabilitation of the tailings dam and remaining magnetite stockpiles will mainly consist of capping the dumps to reduce ground and surface water pollution as well as wind and soil erosion. The capping, which consists of an approved vermiculite waste mixture, is seeded with indigenous grass species. Saline groundwater will continue to be pumped for a period of 10-20 years from around the tailings dams until the seepage is insignificant.

Plant and infrastructure will be dismantled and removed as processes become redundant and the affected areas will be rehabilitated. The final mine closure of the vermiculite open pit will entail the shaping of steep slopes and re-vegetation of all disturbed areas.

## **People and the community**

The existing closure plan makes financial allowance for the retrenchment and, where applicable, re-skilling of employees for alternate jobs. Certain mine site facilities such as workshops, offices and training centres could be retained and used for engineering, education and training.

## **Conclusion**

The closure and decommissioning of a mine could prove to be a costly exercise if not adequately budgeted and planned for in advance. Hence the proactive approach of Palabora to incorporate a concurrent rehabilitation programme as part of operating expenditure, which is budgeted for annually and written off against current operational costs. Provision is also made for post-closure monitoring, in particular surface and groundwater quality monitoring.

## Rehabilitated Tailings Area



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