

# ACID MINE DRAINAGE MANAGED FACT SHEET



**A WORLD LEADER  
IN SURFACE  
GOLD TAILINGS  
RETREATMENT**

*From the time gold was first discovered, slime has flowed through the local watercourse into low-lying areas. Very little of this effluent is actually deposited into the system by DRDGOLD as we have built paddocks or containment structures to this end.*

## ACID MINE DRAINAGE

### BACKGROUND

In the latter part of the 1990s, DRDGOLD secured a number of mining leases over an area belonging to mines that had become defunct, namely East Chamdor, Luipaardsvlei Estate and West Rand Consolidated. These mines, all which were an environmental nuisance for their owners, had been closed down.

Over the next few years a DRDGOLD subsidiary, West Wits Mining Limited, mined approximately 978 000 tonnes underground at these mines.

DRDGOLD later sold the surface operations, which were subsequently acquired by Mintails Limited, which has been running them ever since. The underground section of the mine was transferred to Australian Stock Exchange-listed West Wits Mines in 2007. The arrangement with the new owner was that it would not inherit historic liabilities for underground mine water arising from a series of directives issued by the then Department of Water Affairs and Forestry shortly before the transaction. However, any guarantees or undertakings required by the regulator, to qualify them to procure the issuance of mining rights over the area, would have to be provided by West Wits Mines.

*As a good corporate citizen that had previously benefited from the mining of minerals on this site, it could be argued that DRDGOLD ought to be seen to play a pro-active and constructive role in finding a solution for the legacy issues of mining this footprint, particularly with regard to AMD.*

### SOLUTION TO ACID MINE DRAINAGE

At the time the directives were issued, the Department of Water Affairs and Forestry believed that DRDGOLD was responsible for approximately 44% of the treatment costs of acid mine drainage (AMD) in this area. DRDGOLD challenged the directives and, in 2009, they were withdrawn unconditionally.

At the same time, various non-governmental organisations became increasingly aware of, and actively involved in, the issue of AMD. They began to exert pressure on government and the mines to provide a remedy for the threat to the environment.

Amid the myriad of opposing interests, DRDGOLD had to take a decision as to how, and to what extent, we would participate in finding a permanent and sustainable solution to AMD.

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## **DRDGOLD'S ACCOUNTABILITY**

On the one hand, as custodian of the collective interest of its shareholders, it is the duty of the DRDGOLD executive not to assume a financial burden in excess of that which the company is legally obliged to carry. On the other hand, as a good corporate citizen that had previously benefited from the mining of minerals on this site, it could be argued that DRDGOLD ought to be seen to play a pro-active and constructive role in finding a solution for the legacy issues of mining this footprint, particularly with regard to AMD.

The latter issue involves consideration of DRDGOLD's social licence to mine – what actions on the part of the company will be considered to show an adequate level of social responsibility in order for it to be allowed to continue to access and profit from the mineral wealth of South Africa for the benefit of its shareholders? The former issue is a question of simple legal responsibility, based on a clinical and factual investigation of cause and effect.

To what extent did our subsidiaries' activities contribute to the problem of AMD? We came to the conclusion that the DRDGOLD subsidiaries contributed approximately 1.5% to the problem. We arrived at this conclusion by calculating the amount of rock our subsidiaries removed

from underground as a percentage of the total amount of rock removed over the life of these operations. The amount of pollution that takes place is directly proportionate to the size of the underground cavity created through mining, and determined by calculating the total amount of rock removed from underground. This, we believe, is the best available method of determining just how much of the pollutants that lie exposed in the underground cavity were exposed by our subsidiaries' activities. We are firmly of the view that any regulatory or administrative conduct that would cast on to our company a burden in excess of that which of we were the cause will not withstand judicial scrutiny within the context of the basic rights afforded by our country's Constitution.

On this basis, any attempt to force a financial burden on DRDGOLD in excess of 1.5% of the costs of treating AMD would be challenged in the appropriate forum. It is on this basis that we defended the aforementioned directives, which were withdrawn.

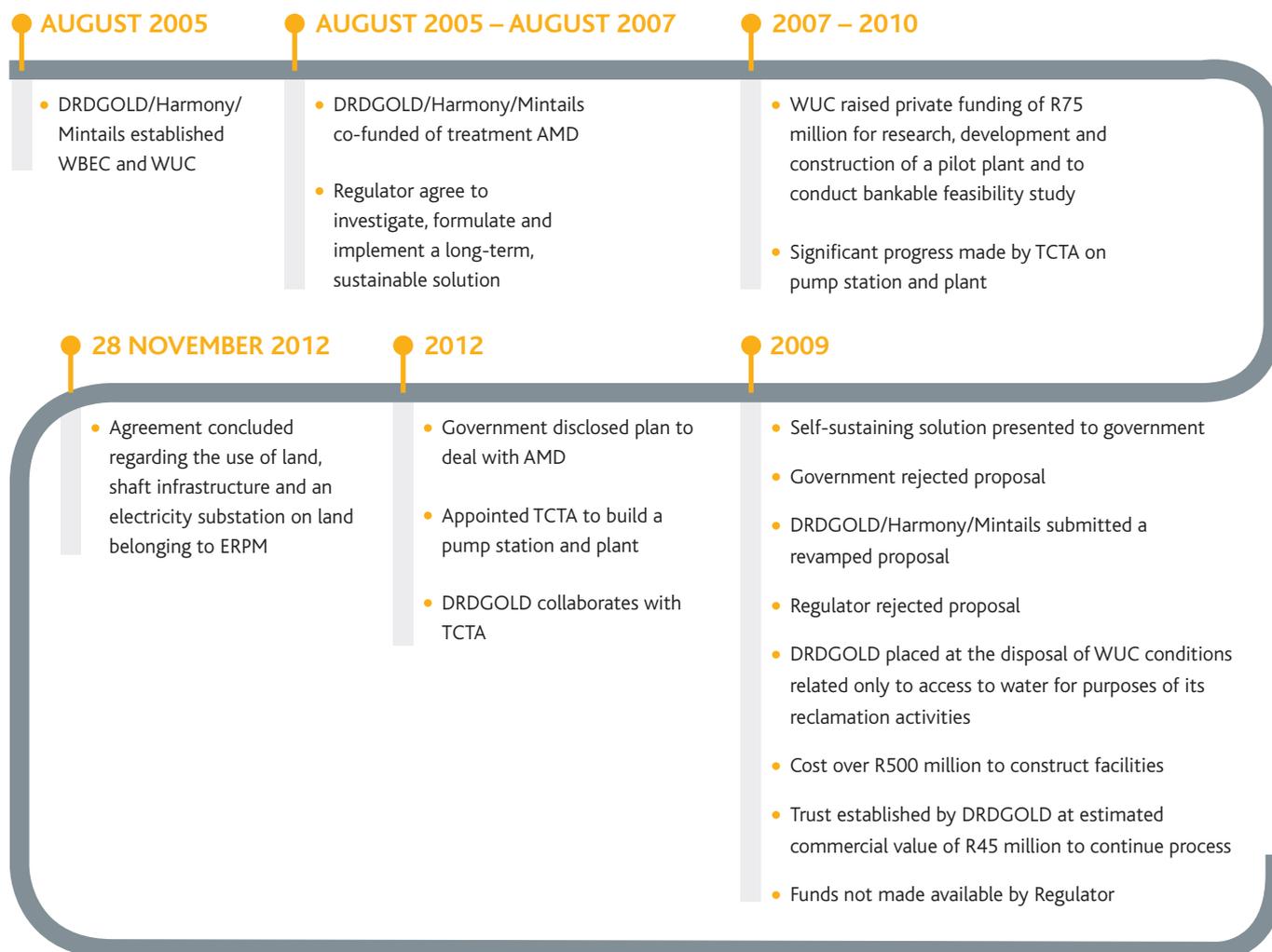
## **GOOD CORPORATE CITIZENSHIP**

Nevertheless, the duties associated with good corporate citizenship required that DRDGOLD had to be seen to strike a balance between that which it is legally obliged to do, and that which it ought to do, and with regard to its available resources.

# ACID MINE DRAINAGE MANAGED FACT SHEET



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Therefore, in response to these considerations, DRDGOLD took the following steps and participated in the following measures:

- In August 2005, in collaboration with Harmony and Mintails, we established the entities which ultimately became Western Basin Environmental Corporation (WBEC) and Western Utilities Corporation (WUC).
- For a period of two years after the establishment of the WUC, and in collaboration with Mintails and Harmony, we co-funded the costs of treating AMD prior to discharging it into the natural environment. The two-year period was agreed between the mines and the regulator in order to investigate and implement a long-term, sustainable solution.
- We established, in collaboration with Mintails and Harmony, a set of commercial parameters and approvals with the regulator, which paved the way for the WUC to obtain private funding in addition to

the contribution we, the mining companies, were making to treatment costs. Armed with these approvals, the WUC was able to raise more than R75 million on the capital markets, which it applied, during the course of the next four years, towards research and development and construction of a pilot plant. It also managed to conduct and complete a bankable feasibility study (the ultimate objective of this initiative) in accordance with commercial and regulatory parameters, which it consistently agreed with government during the four-year project period. The outcome of this initiative was a presentation to government, in 2009, of a complete self-sustaining solution capable of operating independently of any further financial assistance from the mines. In fact, the proposed solution would most likely have survived the ultimate closure of the remaining few mines in the area. The study also went beyond the territorial boundaries of the West Rand, and included a complete and sustainable long-term solution for the central and eastern basins.

# ACID MINE DRAINAGE MANAGED FACT SHEET



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- Following government's rejection of this proposal for reasons never formally communicated to us (but which appeared to revolve around issues of transformation, black economic empowerment (BEE) and reluctance to allow foreign investment to exercise a measure of control over a natural resource), DRDGOLD participated further with the founding partners of the WUC to put together a revamped proposal, substituting the foreign investment component that the regulator had found unacceptable with a contribution from government. This proposal was presented to the regulator but was also rejected.
- As part and parcel of the initial proposal and subsequent revamped proposal, DRDGOLD placed at the disposal of the WUC – on very soft commercial terms and subject to conditions related only to access to water for purposes of its reclamation activities – the following:
  - access to underground water by way of a fully serviced underground shaft and
  - use of a high density separation purification plant with an approximate capacity of 80ML per day.

The cost of constructing these facilities (excluding the cost of actually sinking a shaft deep enough to gain access to the water) was estimated in excess of R500 million.

In order to provide working capital for this venture, in addition to cash contributions made in collaboration with Mintails during the initial two years and subsequent financial assistance to the WUC in order to keep the process going, DRDGOLD also established a trust and dedicated to it the entire income of a waste rock dump on our West Wits mine with an estimated commercial value of R45 million.

Despite compelling evidence from an environmental perspective that there was no impediment to this plan, the administrative machinery of the regulator proved incapable of clearing these materials for sale. An unfortunate reality is that high-demand cycles associated with upgrading infrastructure for the 2010 Fifa World Cup South Africa, the Gautrain and the road network came and went while waiting for the regulatory approvals and for some clarity by the regulator.

In 2012, after years of uncertainty, government disclosed its plan to deal with the AMD issue. Because of the scale of the matter and the strategic significance of water as a natural resource, it was government's view that it

should drive the process. It appointed the Trans-Caledon Tunnel Authority (TCTA) as its main contractor to build a pump station to intercept AMD below the environmentally critical level, and a plant to treat water initially to a "grey" or industrial quality before releasing into the natural environment. TCTA asked for our collaboration in putting its plan into place and, on 28 November 2012, we concluded an agreement regarding the use of land, shaft infrastructure and an electricity substation on land belonging to East Rand Proprietary Mines Limited (ERPM).

The agreement was reached as part of a joint effort "to alleviate the pollution of underground aquifers in the central Wits Basin and surface water through contact with AMD and to lay the foundation for a long-term self-sustainable solution for AMD".

At the time of writing this document, the TCTA has made significant progress constructing the pump station and plant near ERPM's South-West Vertical Shaft. It enjoys shared use of the residue pipeline installed between the Knights plant and Ergo's tailings for the disposal of its waste by-product onto Ergo's tailings deposition facility.

DRDGOLD is entitled to buy up to 30ML of grey water per day from the TCTA at cost price. The upside in reducing our water usage risk through this arrangement is considerable.

Although this arrangement is not our first choice – we maintain that the private enterprise-driven initiative provides a more cost-effective solution – we appreciate that the regulator has had to deal with a very complex set of facts and interests in determining the solution: the commercial reality of setting up a plant and infrastructure capable of dealing with the problem; societal demands for a clean environment in which to live; the requirements of contemporary political morality, which demands that imbalances of the past be remedied; transformation and BEE – to name but a few. It is at the very least a pro-active, albeit somewhat belated, initiative in the hands of a contractor with a proven track record, and premised on proven technology and engineering design.

We are hopeful that the project – with the interim or short-term solution fully operational since 2014 – will address the AMD issue and that the Department of Water and Sanitation will provide a sustainable long-term solution for this critical resource on which people, flora and fauna all depend. We will continue to support it.

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