

MicroFuze: commercially sustainable environmental solutions

With its new water remediation technology MicroFuze International intends producing pipeline water to create an environmentally and financially sustainable business. By **Nick Evans**

Outside of science fiction, an ounce of clean water will probably never be worth as much as an ounce of gold, but its standing as a precious resource to mining companies, particularly those operating in Africa, is already well understood.

And acquiring clean water for processing in a dry climate is only one half the problem of getting to production, as many mining companies can attest. On the other side of the equation environmental regulations are increasingly mandating that mining companies find a sustainable solution to the impacts their activities can have on the environment.

AIM listed MicroFuze International is seeking to bring the two halves of the water equation together, in an innovative project in South Africa's West Rand gold mining area.

More than 120 years of gold mining in the area has led to a serious environmental problem. Pit mining has disrupted the underground dolomite rock and ground water has drained into the mining voids, creating acid mine drainage (AMD), a problem familiar to many mining outfits. In this case, the AMD is beginning to flow into nearby rivers and threatening the potable water supplies to nearby communities.

It's a problem the South African authorities are taking seriously, as the run off could eventually threaten the "Cradle of Humankind" World Heritage site. The country's Department of Water Affairs and Forestry (DWAF) has reacted swiftly, demanding that the three mining houses operating in the area, Harmony, MinTails

and DRD, rectify the problem immediately and implement a long term sustainable solution to the AMD.

And although Mintails' obligation is minimal, none of the companies will be allowed to decommission their gold mines until a solution to the acid drainage problem has been put in place.

On the other side of the equation are two nearby platinum mines, which are gearing up for a \$2.86 billion expansion over the next five years as well as facing a potentially crippling water shortage. The mines, Amplats and Impala, currently use approximately 50 million litres a day of Rand Water Board potable water, and their expansion could potentially exhaust the region's excess supplies.

"There are companies with acid mine drainage problems across the world."

Between the problems there's an opportunity for an innovative company with an eye on the future.

With new water remediation technology licensed from South Africa's CSIR and Mintek, MicroFuze hopes to bring the two sides together and turn the problem into a profitable and sustainable solution.

The concept is pretty simple: the company plans to pump the water from the contaminated sites in the Western Basin, route it through a treatment plant and then send the clean industrial water via

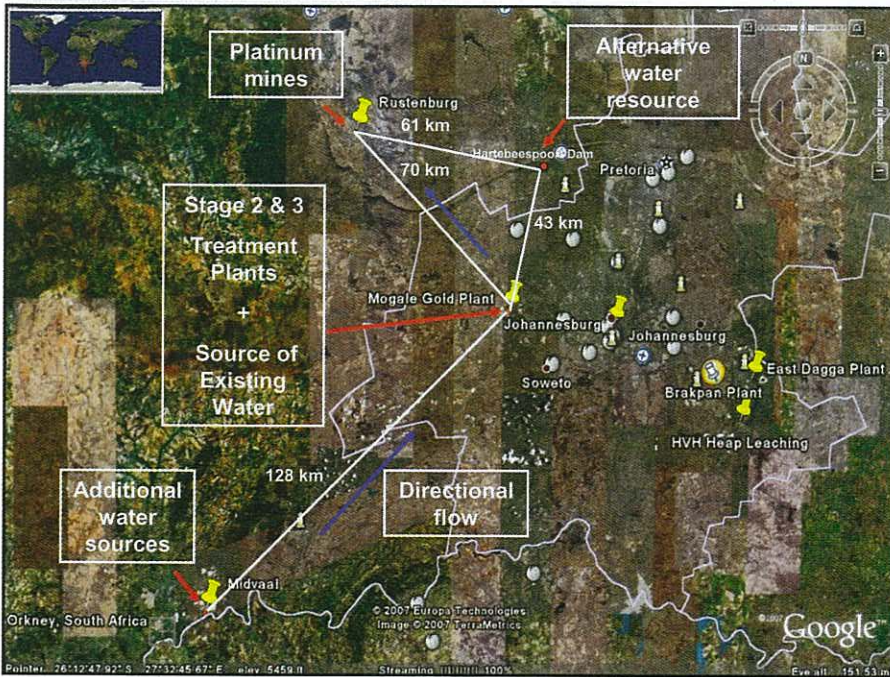


MicroFuze director Jaco Schoeman.

a pipeline to the platinum mines north of the treatment site.

By producing pipeline water for sale to the platinum mines, MicroFuze hopes to create an environmentally and financially sustainable business that does not rely on the balance sheets of the gold mines, scheduled to begin decommissioning in the near future.

DWAF has already granted a licence to the water company to remediate the acid mine drainage and MicroFuze expects it will be the only licence granted.



Map highlighting gold and platinum mines and the distance between the project location and delivery point.

And the project should also see a substantial social benefit to the region. Freeing up the potable water used by the platinum mines will benefit local communities as water shortages are anticipated over the next 10 years.

But MicroFuze director and head of the water project Jaco Schoeman told *RESOURCESTOCKS* the company was keen to emphasise the commercial nature of its proposal.

"This project is focused on the commercial potential," he said.

"We've got three mining houses on the one side that have a responsibility to treat the water. In order for those mining houses to get closure they've got to put a sustainable solution in place. The only way they can put a sustainable solution in place is if they can take this water, and get it into a suitable format for re-use.

"On the other side we've got the platinum mines, which want to expand, but they cannot expand because they don't have enough water. Currently they're using potable drinking water and using it for industrial purposes.

"And the concept is as simple as this: we're taking polluted water and cleaning that up to industrial quality and supplying that to industrial uses for industry."

Schoeman said that the project's headline would be sustainable development and sustainable profitability.

"It's a known water resource," he added.

"We know it will last more than 30 years, and we know there's an immediate and long-term market for the industrial water."

After the initial development and testing of a pilot facility over the next two years, MicroFuze anticipates having a fully

operational facility up and running within an additional year, and operating at a profit shortly after that.

The company has already secured cooperation with the three mining houses (through a wholly owned subsidiary founded for that purpose – Western Utilities Corporation); secured a license to use the technology from the CSIR and Mintek; and begun the process of gaining the requisite environmental approvals from the South African Government.

MicroFuze is also in discussion with several large groups regarding investing in the construction of the pipeline which will pump the industrial water to its intended recipients.

The bankable feasibility study is due to be completed within 18 months after the company has constructed and tested a pilot plant. MicroFuze recently raised £2.5 million from the London AIM to build and operate the pilot plant, and the company estimates the initial test results from the pilot plant will be available by the end of this year.

Schoeman said the technology, while yet to be commercially deployed, has been well tested by the CSIR and Mintek, with three other pilot plants of the same type operating successfully around the country.

If the pilot plant is successful, MicroFuze is projecting that a full scale plant will be constructed to treat 75ML of water a day.

The company's medium term expansion plans would see the plant treating 200ML each day and a further long-term expansion is feasible as more industrial projects are planned for the region, including petrochemical and power generation projects at the nearby Lephalele municipal area.

Schoeman says the company's plans don't end there.

"There are companies with acid mine drainage problems across the world," he said.

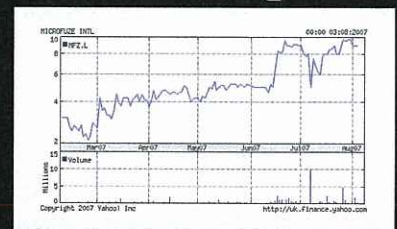
"In South America – Peru, Chile, all of the coal mines, gold mines, they all generate acid mine drainage. We can take the exact same model and duplicate it in other places. The model also has potential for other water remediation projects such as sewage treatment."

Schoeman said MicroFuze's business model sets it aside from many other environmental companies working in the mining sector.

"We want to be a commercial company that helps mining companies solve their environmental issues, on a sustainable basis at our cost," he said.

"That's an important distinction - you get a lot of environmental companies that are prepared to do work for mining houses, but they charge exorbitant fees to do it. We're not looking to do that. **RS**

microfuze at a glance



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Market Capitalisation

£20.19 million (at press time)

Major Shareholders

Pershing Keen Nominees 21.8%
Peregrine Corporate 6.7%
New Star Asset Management
(through various nominees) 6.7%
Farcam 5.90%