

# VITASOFT

**A Long Term Sustainable Treatment  
Option for Acid Mine Drainage**

VITAONE8

INNOVATION IN WATER TREATMENT

NuWater



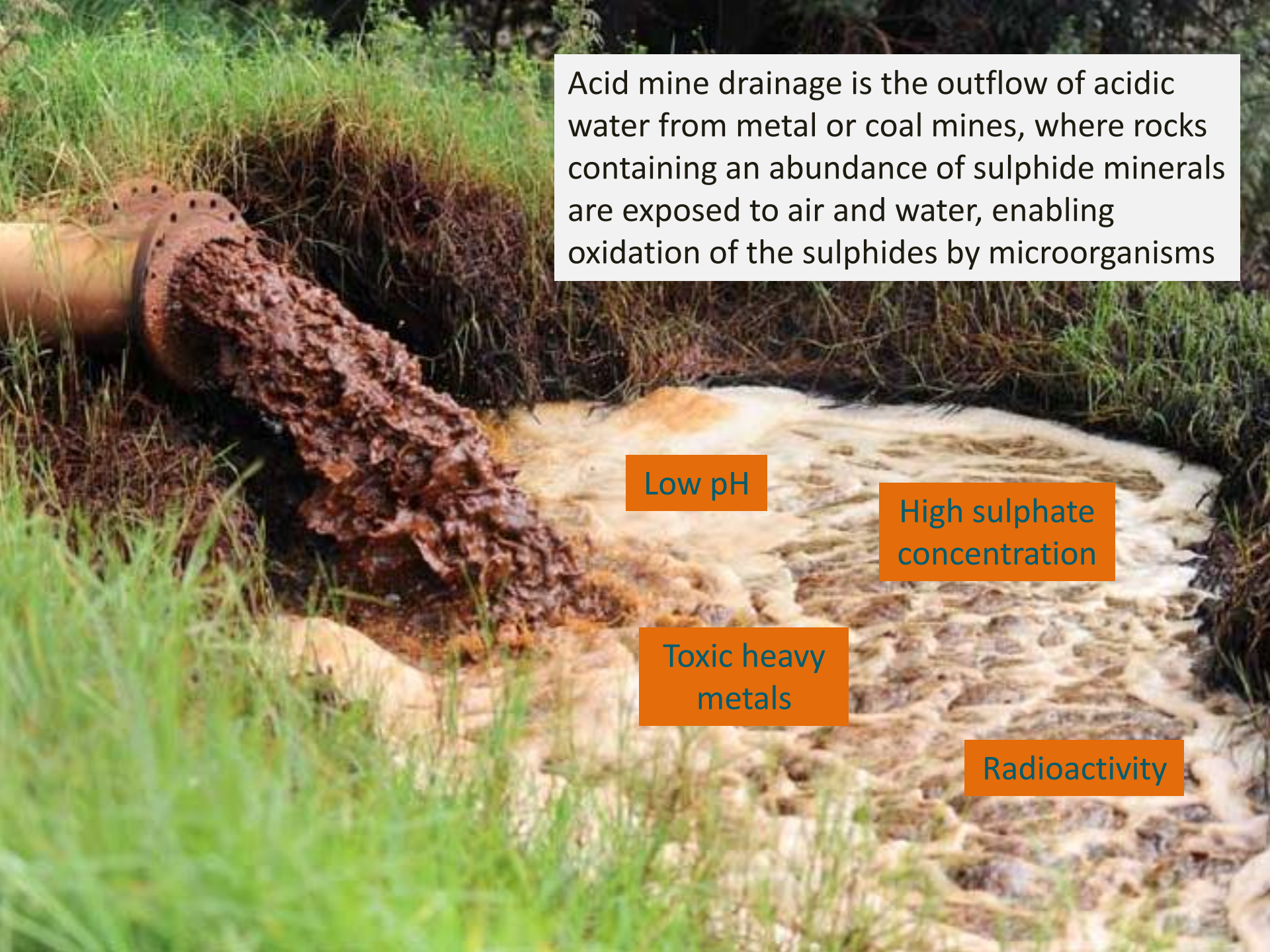
ACQUEAU



**Finalist**

2014/2015 NSTF Awards, in partnership with South32

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Acid mine drainage is the outflow of acidic water from metal or coal mines, where rocks containing an abundance of sulphide minerals are exposed to air and water, enabling oxidation of the sulphides by microorganisms

Low pH

High sulphate  
concentration

Toxic heavy  
metals

Radioactivity



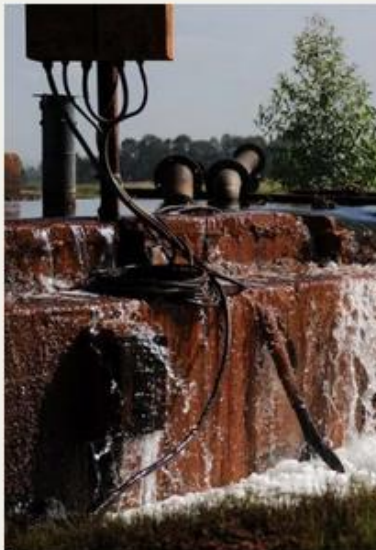
15 JAN 2011 08:07 | STAFF REPORTER

Business 29.3.2014 10:30 am

## Joburg under threat from acid mine drainage

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Ernest Wobmarans



The uncontrolled decant of acid mine drainage from Mogale Gold property, near Krugersdorp. The decant water table and effected the decant. Thirty-million litres alone. Picture: Michel Bega

This post is part of a special National Geographic

**Johannesburg, South Africa**—The South African economy is substantially founded on gold. Now the ecological legacy of this great wealth is coming back to haunt the country and in particular its industrial capital of **Johannesburg** in a big way.

The city, which just recently was in the international limelight as headquarters of the 2010

## news24

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LAST UPDATED: 2015-09-16, 13:03



The Homo Naledi find is exciting on many levels

It started as any other for me, SA and the World, but it was not long before we were introduced to a new lady, Homo Naledi, who changed everything, says **Marius Strydom**.

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## Mine drainage threatens sanctuary

2014-11-01 12:08

Johannesburg - A proposed acid mine drainage treatment facility could threaten an internationally-protected wetland near Nigel, east of Johannesburg, **The Saturday Star** reported.

The environmental impact assessment for the sludge disposal facility in the Eastern Basin warns that its proximity to the Marievale Bird Sanctuary and the Blesbokspuit wetlands could "have a negative impact on flora and fauna".

The report was compiled by Digby Wells Environmental, which is handling government's response to mine drainage.

The Blesbokspuit wetlands are protected as a Ramsar wetland of international importance but, if the plans go ahead, from next year partially-treated acid mine water could spill into it from the plant.

The environmental impact report warned that potential spillage could "affect the acidity of the



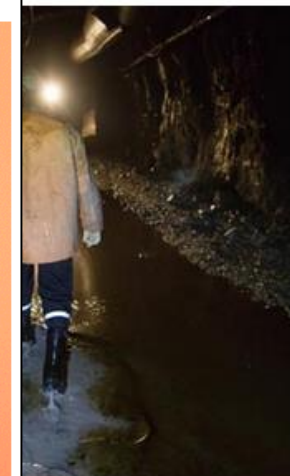
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ve as acidic mine water has reached West Rand.

## ground hazard

and mine drainage worsens.



the drainage (AMD) at some mining areas in point, despite short- and long-term fatal issue.

According to the Department of Water and Sanitation, when minerals with sulphides are exposed to oxygen and water this creates sulphuric acid and dissolved iron, which in turn mobilises other heavy metals like lead and uranium (radiological risks). AMD entails the outflow of this acidic, heavy-metal-containing water from surface and underground mines.

Throughout their operations, the historic gold mines in the Witwatersrand pumped

Almost 150MI of water will need to be pumped from the three basins daily and treated to prevent uncontrolled decant

Environmental threat  
or valuable water  
resource?

23MI/d

46MI/d

80MI/d

STUDY AREA

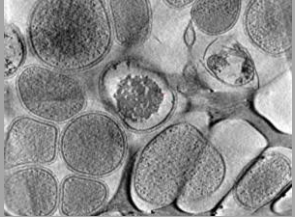
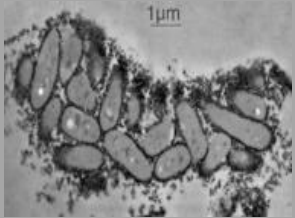
Western  
Central  
Eastern

WESTERN BASIN

CENTRAL BASIN

EASTERN BASIN

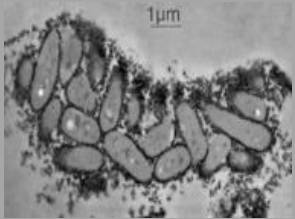




# VITASOFT



- Four biological processes, integrated with various chemical processes
- VitaSOFT eliminates the need for high density sludge (HDS) neutralization
  - Reduce the volume of solid waste
  - Reduce amount of lime required (reduced cost)
  - Potential to recover valuable by-products
- Flexibility to select for the final water quality depending on the requirements
  - supplementing the reserve through environmental discharge
  - providing industrial quality water to save on potable water use
  - directly supplying high quality potable water
- WRC funded both the fundamental research and scale up of the technology to a 1m<sup>3</sup>/d pilot plant



- The VitaSOFT Process is a WADER Technology Demonstrator
- NuWater and VitaOne8 are collaborating partners on the VitaSOFT demonstrator
- 200m<sup>3</sup>/d demonstration plant planned at Western Basin in 2016

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