

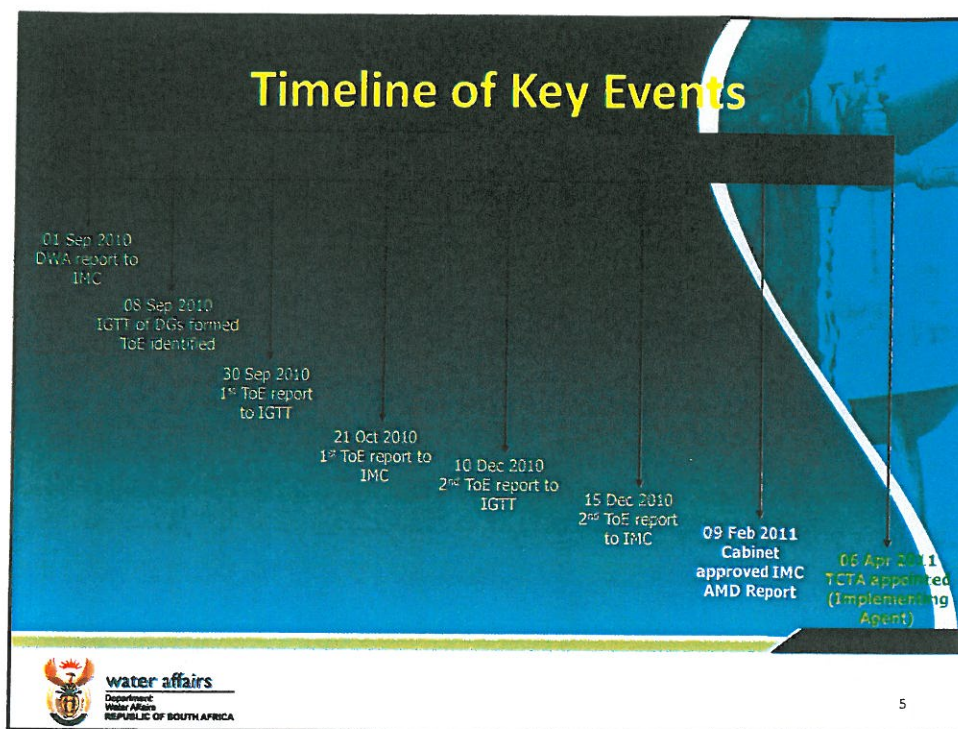
THE MANAGEMENT OF ACID MINE DRAINAGE (AMD) IN THE WITWATERSRAND MINING REGION

PROGRESS REPORT

June 2011

Content of Presentation

1. Background / Introduction
2. Orientation of Witwatersrand Mining Basins
3. Current status on Eastern, Central and Western Basins
4. Progress since Cabinet's approval of the "AMD Report"
5. Risk Management
6. Conclusion / The Way Forward



ToE Recommendations to the IMC

ToE presented findings / recommendations in a report titled *'Mine Water Management in the Witwatersrand Gold Fields with Special Emphasis on Acid Mine Drainage'* (IMC AMD Report). The Report recommended the following:

1. Prevent mine water from decanting by pumping underground mine water to protect Environmental Critical Level (ECL)
2. Implement ingress control to reduce flooding rate & eventual decant + pumping volume & costs
3. Treatment of AMD & water quality management
 - a) Neutralization & metal removal in the immediate and short-term
 - b) Removal of salt loads from river systems to be considered in the medium- to long-term (direct use or desalination to potable quality)
4. Improve monitoring & undertake research to inform better decision-making
5. Manage & monitor other AMD sources within Witwatersrand e.g. diffuse sources such as slimes dams
6. Investigate & implement an environmental levy on operating mines to help cover the costs of mining legacies

➤ **RECOMMENDATIONS ACCEPTED BY THE IMC FOR PRESENTATION TO CABINET**

➤ **IMC AMD REPORT PRESENTED TO & APPROVED BY CABINET ON 09 FEB 2011**

 **water affairs**
Department
Water Affairs
REPUBLIC OF SOUTH AFRICA

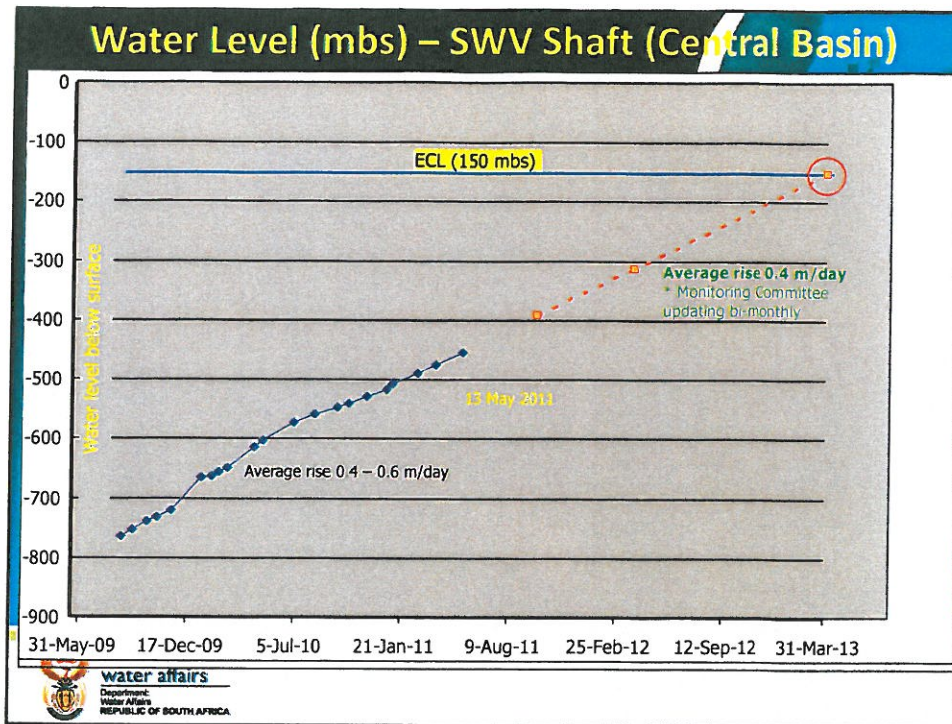
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3. Current Mine Water Status in the Witwatersrand Mining Basins

Eastern Basin


- Grootvlei Mine (Aurora Gold) ceased pumping in January 2011
- Pumping rate of 80 – 100 ML / day essential to prevent mine void flooding
- Grootvlei Mine currently liquidated. Conclusion expected August 2011
- DWA maintaining contact with liquidators on progress (e.g. identification of potential investors; purchase offers received)
- Underground mine water currently at 650 mbs
- DWA and CGS monitoring mine water rate of rise
- State intervention inevitable if an investor is not secured shortly

DWA has opened a criminal case against Aurora Gold due to non-compliance to a directive. Matter under investigation by SAPF and "Blue Scorpions" (CME)



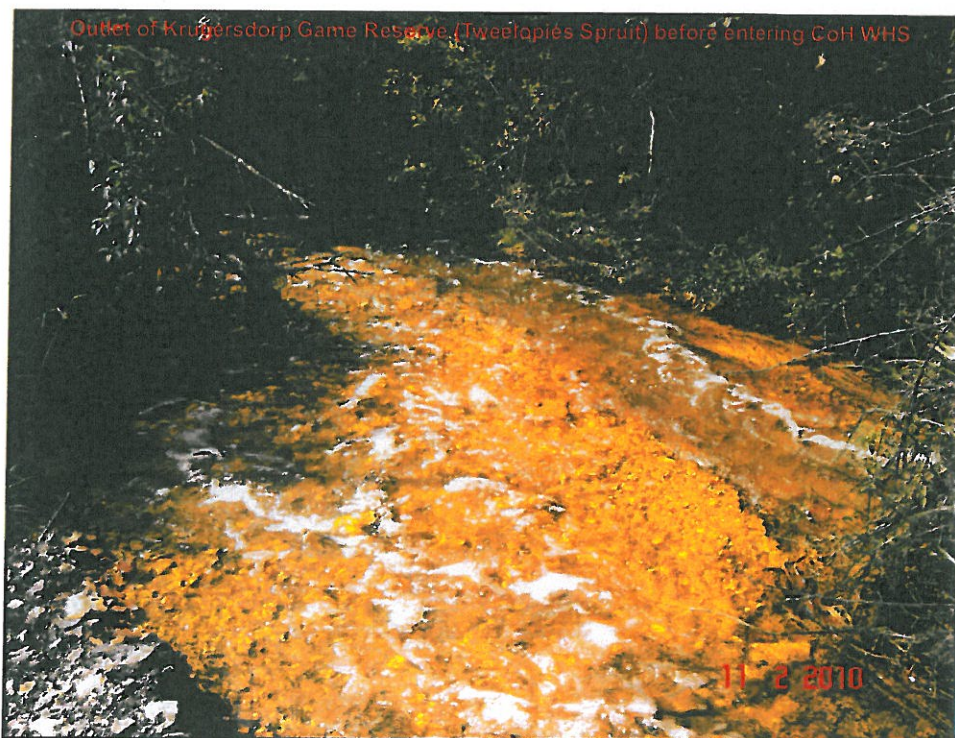
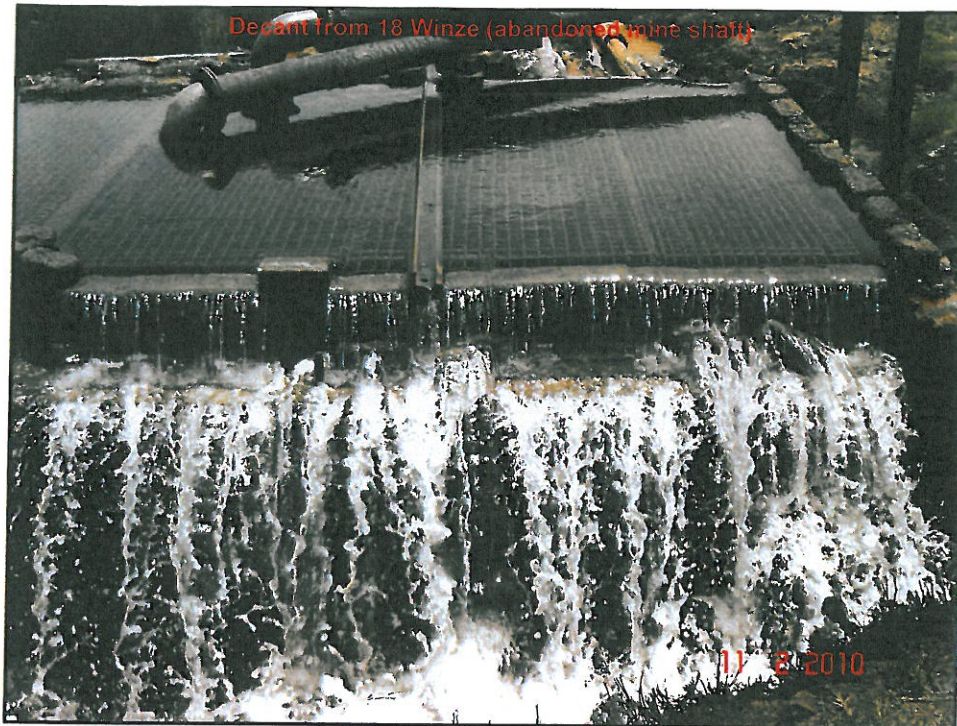
Western Basin

- Several ownerless mines
- Two mines with surface reclamation operations: Rand Uranium and Mogale Gold
- Rand Uranium partially treats 12 ML mine water / day – discharge into Tweelopies Spruit (Crocodile catchment)
- Currently, 20 ML/d **untreated AMD** decanting into Tweelopies
- Downstream water users include CoH WHS, KGR and private farms



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AMD Report Recommendations vs Current Status

Recommendation	Status
Pump to stabilise levels below ECL	Contained in Directive issued to TCTA
Ingress management	Research and some implementation by CGS (on behalf of DMR)
Neutralisation & metal removal in the short-term	Contained in Directive issued to TCTA
Improved monitoring	<ul style="list-style-type: none"> Monitoring Committee established involving CGS, DMR and DWA Monitoring 'hotspots' identified and monitoring infrastructure to be commissioned shortly
Other sources of AMD in the Witwatersrand	Predictive capacity essential to prevent repetition of current situation <ul style="list-style-type: none"> CGS conducting further studies (on behalf of DMR) CSIR conducting studies on (on behalf of CoH WWS)
Feasibility of an environmental levy	Aspect of longer-term studies (to be co-ordinated by the IGTT)

5. Risk Management (a)

Risk / Challenge	Response
Private sector exploiting potential solutions ("money-making")	Regulators to identify and manage according to legislation/policies
Timeframes	Based on DD Review, TCTA to prepare implementation plan with realistic target dates
Reputational risk	Media statements to keep public and key stakeholders informed
Eastern Basin	DWA liaising with liquidators on progress of Grootvlei Mine liquidation
Identification of suitable entity to operate and maintain infrastructure	TCTA must identify and advise DWA on future operations and maintenance requirements
Lack of reliable monitoring data	Monitoring Committee to ensure strategic monitoring programmes to support interventions in all Basins