

# SPOTLIGHT

## on water

by B.K. LOVEDAY\*

A colloquium on the treatment and re-use of water in the mining and metallurgical industry was held at Mintek on 9th and 10th May, 1985. The word *colloquium* became a misnomer when it became necessary to hold the meeting over two days to accommodate the large number of interesting papers that were submitted. The comprehensive programme, which included invited papers from the Water Research Commission and the Department of Water Affairs, attracted 230 delegates.

### Opening

Mr John Austin, President of The South African Institute of Mining and Metallurgy, gave the opening address. Among other things, he highlighted the need to coordinate water treatment on the mines, i.e. several disciplines are affected by the water that is used by all. Recycling will inevitably increase the level of dissolved solids, and the effect of this on the various processes that use water needs to be determined.

Dr Oliver Hart, Senior Advisor to the Water Research Commission, started the proceedings by outlining the quantity and quality of water used by the mining industry. The various methods used by the industry to upgrade water and dispose of dissolved solids were also discussed, thereby providing an excellent introduction to the Colloquium. Mr H.J. Best, Director of Water Pollution Control, outlined the relevant sections of the Water Act Amendment of 1984. The interpretation of these sections was most useful to the participants, since strict enforcement of the Act will necessitate a significant expenditure on pollution control. In general, the mining industry has

a few years to get its house in order although applications for exemption can be made.

### Technical Papers

Papers by Peter Radcliff *et al.* (President Brand Gold Mine), David Haines (Rustenburg Refiners), John Wates (Consultant) and Roger Kelly (Vaal Reefs), and David Dorling *et al.* (Rustenburg Platinum Mines) described experiences in the rationalization of water usage in large metallurgical complexes. The papers described the methodology for the derivation of water balances, and illustrated how the money spent on manhours and equipment was recovered with interest by the reduction of corrosion and water consumption, and the avoidance of production cuts, etc. The need for communication and flow-monitoring equipment was highlighted.

Andy Ward (Consultant) presented a paper on the measurement of seepage quality into underground aquifers. Although this was very interesting, it is suspected that most managers would prefer not to open up that Pandora's box. David Evans (Chemical Supplier) and Dick Shone (Chamber of Mines) presented papers on the treatment of mine service water. The former outlined the causes of corrosion and ways of combating it, while the latter described freeze desalination, which is an adjustment, by use of a suspension of ice, to the present method of cooling mines.

Papers describing the removal of organic matter, fluoride, sulphate, and calcium from solution were also presented. A debate developed between the proponents of reverse osmosis, ion exchange, and bacterial conver-



L. to R.: Mr J.C. Wagner (Rand Mines), Dr J. Pichon (France), Mr R. Ahlgren (U.S.A.), Mr F. Berné (France), and Mr J.D. Austin (then President, SAIMM)

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