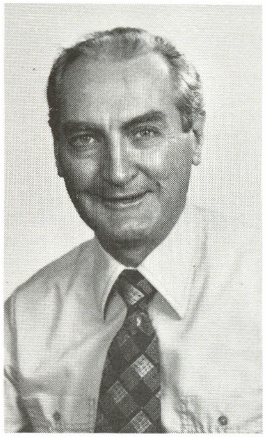
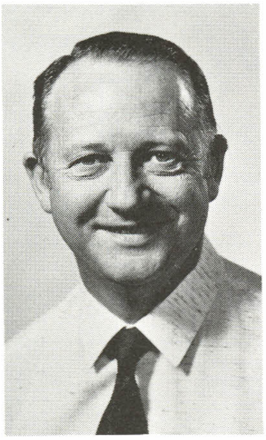
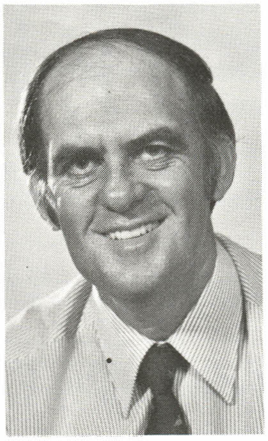
82/83 MANAGEMENT TEAM



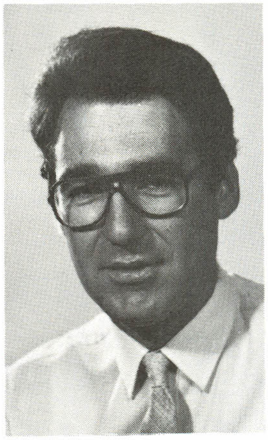
Ron Bath, Manager - Planning and Technology



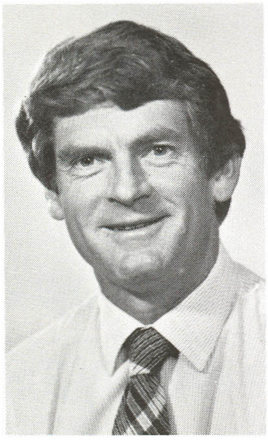
Brian Logan, Personnel Manager



Jack Garaty, Manager - Engineering (formerly Manager - Engineering Maintenance)

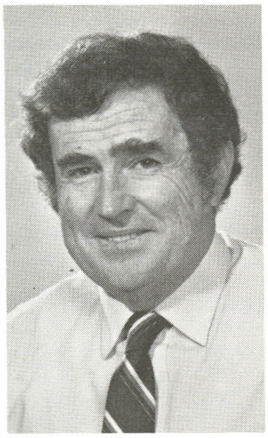


Alex Arthur, Manager - Sintering



Darryl Potter, Manager - Smelting

David Cunningham, formerly Manager - Technical Services (now-Manager Product Research and Development, AM&S)



Kevin Mullins, Commercial Manager

Geoff Firkin, Works Metallurgist (Responsible for Information Services Group)

Sid Hoare, formerly Chief Engineer (now Retired)

George Hamilton, formerly Commercial Manager (now Retired)

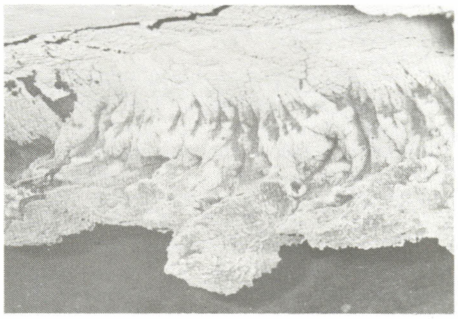
ACCRETION AND ITS DEPLETION

Anybody who has worked on a jackhammer in the I.S.F. furnace offtake knows that accretion is a problem. But where does the accretion come from, why does it form and what can be done about it?

It is known that accretion is a mixture of lead and zinc oxide. The lead originates from both the furnace shaft and lead splash condenser - blown over by the high gas velocity or thrown up by the nearest condenser rotors. Zinc vapour also passes through the offtake from the furnace shaft with carbon monoxide, carbon dioxide and nitrogen gases. Most of the zinc is removed from the gases by absorption into lead inside the condenser. Unhappily a significant proportion of zinc vapour doesn't make it there. It cools down too much, is oxidised to zinc oxide and sticks to the offtake walls and roof. Sometimes the 'reversion' to zinc oxide produces a 'curtain' or constriction across the whole offtake throat, forcing the furnace offline for a dreaded cleanout!

What can be done about accretion? Well, according to Dr. Bruce See of CRA Research's Pyrometallurgy Section the problem can be tackled in three directions.

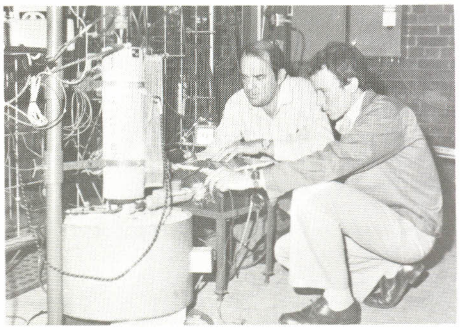
Firstly, modelling of the offtake on a small scale, to study the gas flow through it aids in the evaluation of existing and new designs. This was undertaken recently by Peter Allum, a University of Newcastle chemical engineering student. Peter found that there were eddies formed at different points in his model and expects the same is happening in the I.S.F. Such local eddies promote the accretion forming process and their position must be controlled in the offtake.



A view of the condenser inlet accretion curtain from No. 1 Rotor door.

Sulphide Corporation's metallurgist, Mark Dell'Amico is pursuing the other two approaches to solving the problem during his secondment to CRA Research. Mark is building experimental equipment that produces zinc vapour and oxidises it in I.S.F. gas atmospheres and temperatures. Results from the rig should provide answers to questions about the rate at which zinc oxide is formed and whether it is possible to select temperatures/gas compositions to reduce this rate.

Temperature would seem to be a clue to the problem, the offtake walls may simply be too cool for zinc vapour to remain as vapour without re-acting to form zinc oxide. To investigate this third approach to the problem, Mark is building an experimental 'heated panel' to fit the offtake wall. It will be electrically heated to high temperatures during furnace operation and inspected to see if it has reduced accretion build-up on cleanout days.



Mark Dell'Amico and Bruce See inspecting part of the Zinc vapour oxidation apparatus.

The projects are a good example of Research, Technical and Production personnel, with help from the University, getting their heads together to solve a hot, dirty industrial problem . . . . that of offtake accretion.