

PROBLEMS OF DISCHARGING COAL FROM MGR WAGONS IN WINTER

This report summarises the various procedures for unfreezing loads and wagon doors, whether tried, proved or rejected.

The modern automatic bottom-discharge hopper wagon, designated by British Rail as the HAA type, and the associated lineside unloading equipment, have proved to be reasonably reliable components of the Merry-go-Round system. The system worked well until the severe winter of 1978/9, when generating capacity was seriously threatened by widespread freezing of the wet coal in the hopper wagons.

Senior officers of the National Coal Board, Central Electricity Generating Board and British Rail agreed to an urgent joint investigation. A freezer unit was used for tests on wagonloads of coal. The report indicates that, in freezing conditions, the main technical problem with HAA wagons arises from failure to close hopper doors as a result of freezing coal adhering to them. Under severe freezing conditions the coal may fail to discharge when the doors have opened. Alternatively, the doors may be prevented from opening by the layer of frozen coal on the wagon bottom.

In North America, there is widespread use of glycol-based coal conditioners; however, it was found that the fines content of UK coals is generally higher than in America. This would require larger dosage rates for the chemical, making it quite uneconomical on the basis of wagonload winter treatment. Tests in the freezer unit showed that treatment of the wagon bottoms was quite effective. This has been introduced in the North East coalfield; however, the winter conditions have not yet been sufficiently severe to finally prove its effectiveness.

There are still serious discharge problems with the older designs of wagon. Recently further work took place, aimed principally at improving discharge by the use of smooth hopper linings.