

- (b) Deshaled product (-75mm) crushed to 6 mm to 3 mm and screened at 0.5 mm to take out the fines for subsequent treatment in oil agglomeration unit.
- (c) The oversize (+0.5 mm) fraction be taken to heavy media cyclone washery. The cyclone under flow (middling fraction) combined with (-0.5 mm) fines be further crushed in ball mills to pass through 0.076 mm. This product should be subjected to further treatment in the oil agglomeration unit.
- (d) The cleans from the cyclone combined with oil agglomerates form the total dean product. The process recovery is expected to be 55 to 58% at 17% of ash with raw coal having 28 - 32% ash.

Modification & Modernisation

In order to deal efficiently with the changed feed characteristics the existing washeries are required to be suitably modified and modernised for crushing, handling, blending, screening, etc. in raw coal, thereafter for pre-washing and washing, particularly for washing of fine coals and improving the capacity of fine coal circuits, dewatering, etc.

Emerging Technologies

The processes now under development relate to fine coal upgradation and pneumatic and centrifugal separation. They are on laboratory development stages and require further study with scaling up. Deep Cone Thickeners and Dedusters are recent additions in process equipment. High Speed Solid and Screen Bowl Centrifuges, Belt press Filters, etc. are under consideration for trials in the washeries.

Finer crushing of raw coal (to size 13/6/3 mm) will have to be resorted to, to liberate good quality coal from the overall matrix for optimisation of recovery of dean coal. Middlings may also have to be crushed to liberate coal and separate by washing. This will substantially increase the quantum of fines fraction. Thus, fine coal beneficiation will play a pivotal role in improving the quality of washed coking coal.

A modest beginning has been made in automation by process computerisation in two washeries.

Exploiting Unconditional Reserves and Coal Standing on Pillars

Over 5 billion tonnes of coal resources in India are classified as conditional resources which cannot be mined under present technological options.

Similarly, large coal reserves estimated at 2486 million tonne are standing on pillars. Of these, 1023 million tonne are amenable to quarrying, 578 million tonne are blocked by constraints like surface structure, water logged workings etc. and 885 million tonne are available for extraction for which an efficient technology is immediately needed.

Planning for Large Mining Operations

In India, there is at present a general trend towards large scale opencast operations, both in the coal as well as in the metalliferous sectors. By the year 2000 A.D., the open pit mining is expected to contribute as much as 60 per cent of the total projected coal output of 400 Mt. The present day