

FINE COAL RECOVERY

TATA STEEL

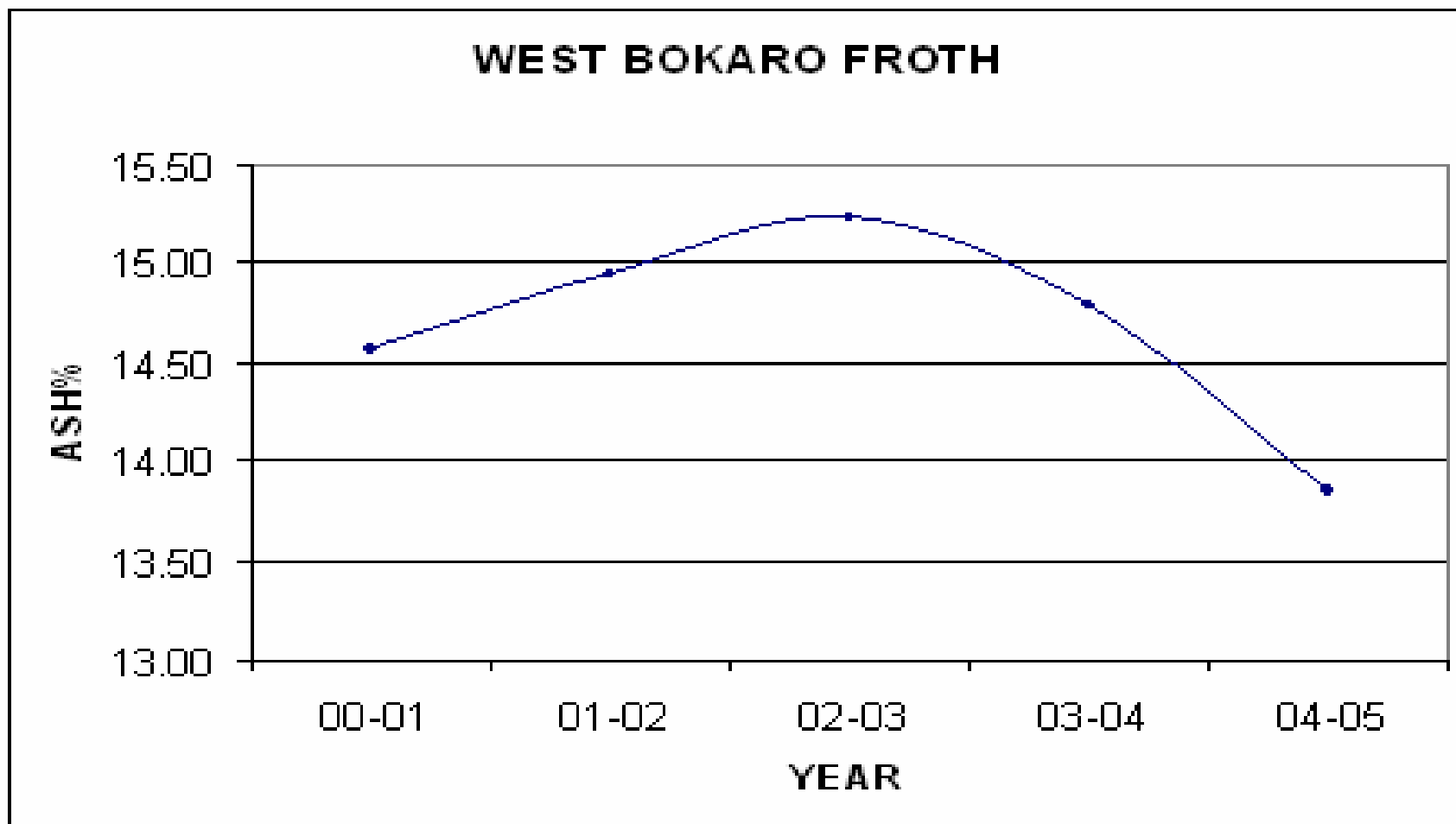
History of Fine Coal Recovery in Tata Steel

- 1980 : Froth Flotation Cells introduced : Flat bottom mechanical cells.
- 1993 : Introduction of round bottom flotation cells.
- Reagent : Pine oil replaced by synthetic frothers in 90s.
- Automation : AMDEL coal slurry analyser with auto control.
- Dewatering : Screen bowl centrifuges being used since 80s.

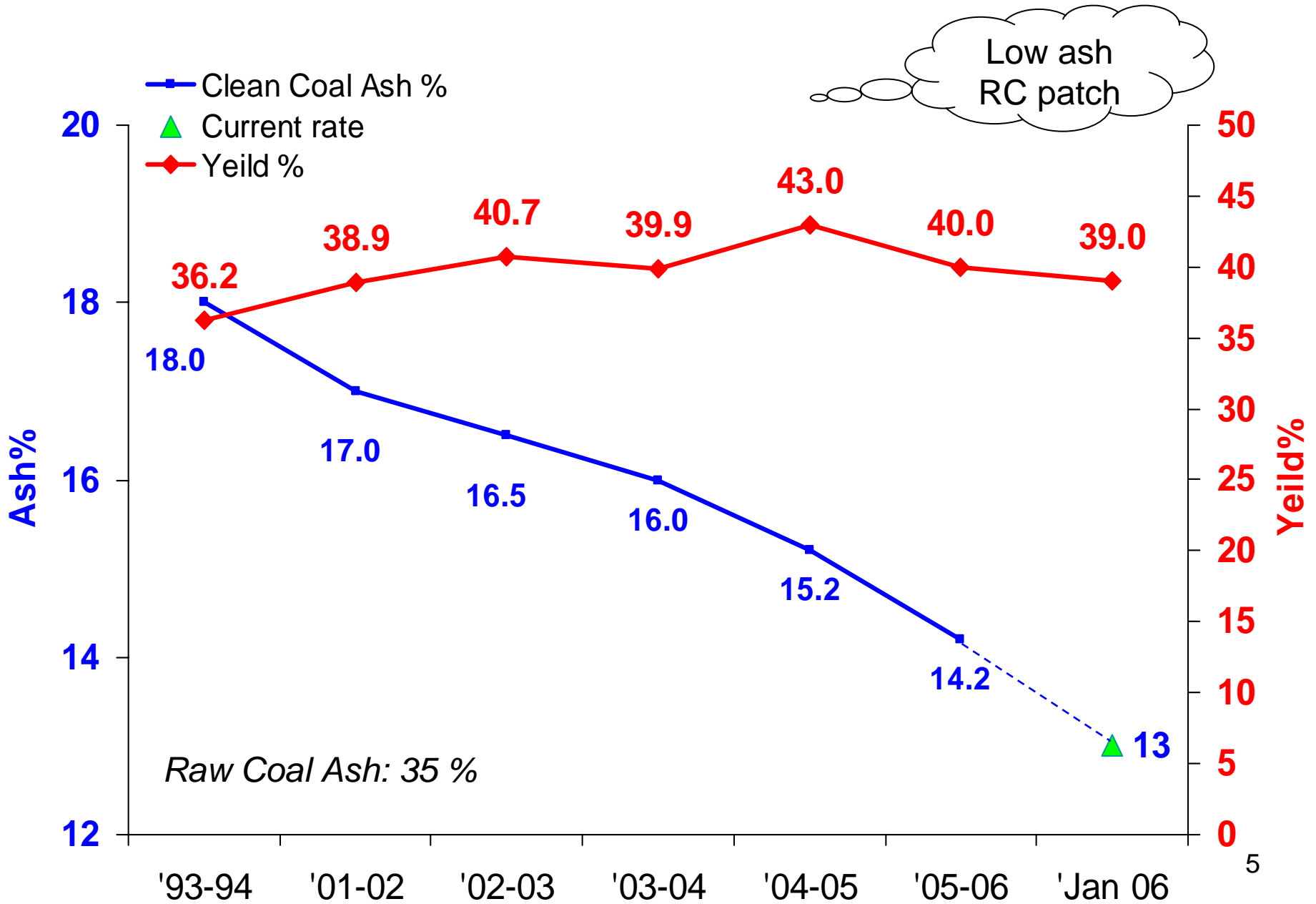
A new approach to Fine Coal Recovery

- Fine coal recovery became critical for ash reduction.
- Critical issues :Low ash froth, stable recovery and dewatering
- Major areas of improvement :
 - Feed quality : Oversize (+0.5mm) reduction from 18% to < 6%.
 - Hydrocyclone : for recovery of low ash coal from feed to FF cell.
 - Split dosing : better particle frother interaction.
 - Dosing of coagulant flocculant : To reduce loss of fine coal in screen bowl centrifuges.
 - Froth washing trial.

Beneficiation : Froth Flotation



Reduction in Clean Coal Ash-West Bokaro



Coal Beneficiation : Future

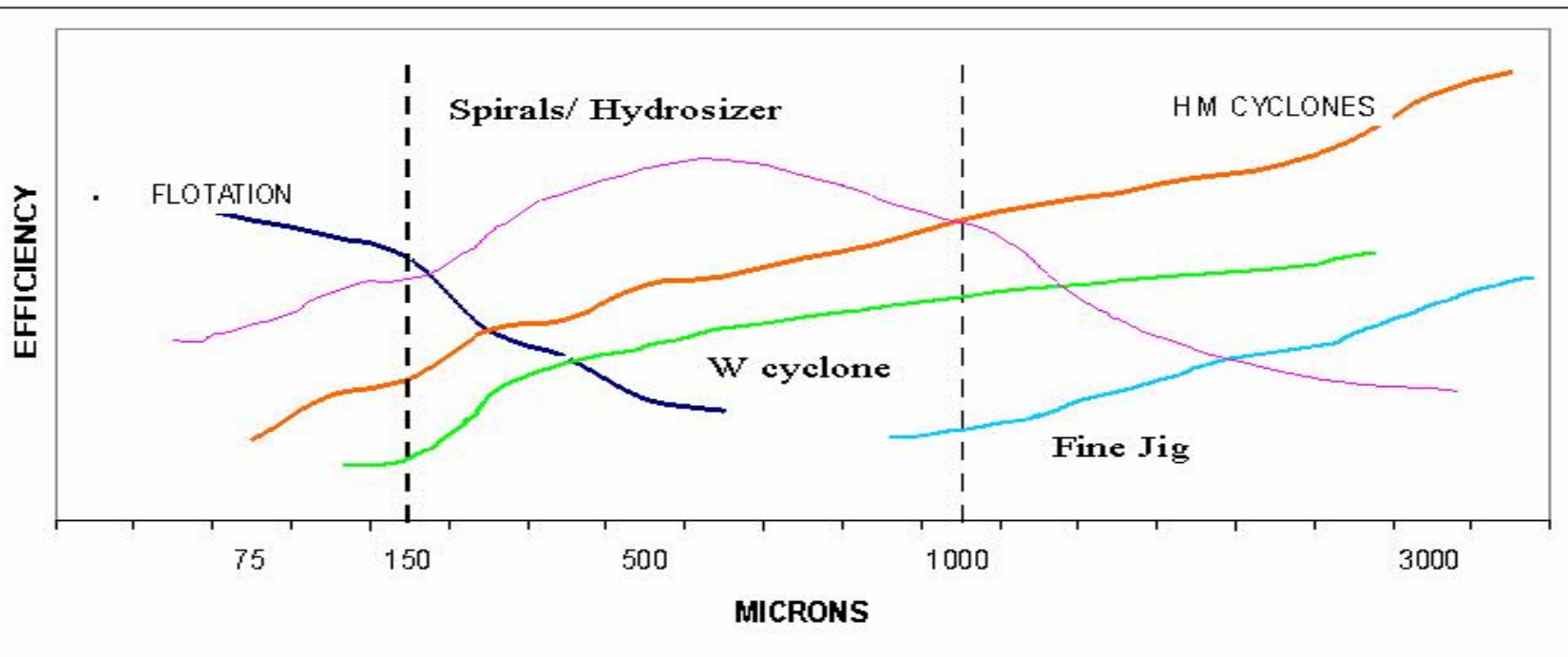
Coarse Coal :

- Rationalise processing stream - use of larger dia in Dense media cyclone.
- Use of counter current magnetic separators for efficient magnetite recovery.

Fine Coal:

- Need to evaluate a different process for size 0.2 -1.5mm fractions for efficient separation .
- Efficient Dewatering of fines.

Relative efficiency of separation of fine coal using different methods



THANK YOU