

CHAPTER – VIII

COAL HANDLING PLANT

8.1 Introduction

The P.R. of Purnadih Open cast Project is being prepared for a rated capacity of 3.0 MT of ROM coal / annum. The Coal Handling Plant for this project has been envisaged in Variant –I only to handle total production of coal from this mine.

The coal produced from the mine will be dispatched by tipping trucks to Piparwar washery / nearby washery for washing and onwards dispatch to customers by Indian Railways wagons.

For this size of coal handling plant other supporting infrastructures and suitable repair facilities have also been provided.

The coal handling plant will operate on 3 shifts/day and 7 days per week basis round the year like the mine.

It was decided to utilize the existing assets of Karkatta Project, at this Project. However, three nos. of feeder breaker was utilized by karkatta project which may be required to crush ROM coal of other mines of N.K.Area.

8.2 Location

The plan showing the location of CHP is given in drg. No. R3 / E&M / 002334.

The following factors have been considered in finalizing the location of CHP.

- (a) Mine boundary
- (b) Mine entry
- (c) Topography
- (d) Availability of free space
- (e) Overall economy of the system

8.3 Basic Data

8.3.1	Production capacity of the mine	3.0 MTY
8.3.2	No. of working days / Year	330
8.3.3	No. of working shifts/day	3

8.3.4	No. of effective working hours/shift	5
8.3.5	Feed size of coal in (mm)	(-) 1200
8.3.6	Product size of coal in (mm)	(-) 100
8.3.7	Consumer	Power Station & others
8.3.8	Mode of despatch	By truck to piparwar / near by washery
8.3.9	Loading hours/day	365 days / Round the clock

8.4 System Capacity

System capacity of the CHP has been selected as 3.0 MTY to match with the mine production. The ROM Coal will be hauled to the surface by dumpers of 35 Te capacity. At the surface ROM coal (-) 1200 mm will be crushed to (-) 200 / 250 mm by twin shaft sizer (primary sizer) and it will be further crushed to (-) 100 mm by secondary sizer. The sizers crushing capacity has been selected as 1200 TPH along with conveyor capacity of 1200 TPH. The crushed coal of secondary sizer (-) 100 mm is carried by conveyor of 1200 TPH capacity to 8 X 200 Te capacity overhead truck loading hoppers. Each hopper is fitted with actuator operated motorised gate to facilitate loading of coal into trucks. Coal from the CHP shall be transported to the nearby washery / Piparwar washery from where coal will be despatched to the customer.

8.5 Description of CHP

The CHP will have the following functional units as shown in the key plan of CHP. Please refer drawing no. R3/E&M/002334

- (i) Receiving platform and crushing
- (ii) Conveying System
- (iii) Metal detector/tramp iron removal
- (iv) Loading and Dispatch
- (v) Pollution control and Fire fighting
- (vi) Power supply, control and internal communication

8.5.1 Receiving Platform and Crushing

A receiving platform of suitable size has been planned for the coal handling plant. Rear discharge dumpers to the receiving end of the CHP will carry ROM coal. Normally the size of coal received from the quarry to the receiving hopper will be of (-) 1200 mm size. One heavy duty Primary Sizer and another Secondary Sizer has been provided in the coal handling plant. The ROM coal will be dumped in the hopper of Sizer. The apron feeder of sizer will carry coal from receiving hopper to sizer. The Primary sizer will crush (-) 1200 mm ROM coal to (-) 200/250 mm size and will be fed to the Secondary sizer for crushing it to (-) 100 mm.

8.5.2 Conveying System

A short belt conveyor is provided to carry coal from primary sizer to secondary sizer. Finally, the crushed coal from secondary sizer will be discharged onto the elevating cum tripper conveyor for spreading and storage of coal in overhead hopper. The width & capacity of conveyors have been considered as 1400 mm wide and 1200 TPH capacity respectively.

8.5.3 Metal Detector / Tramp Iron Removal

- Provision has been made for metal detector to detect ferrous and non-ferrous material coming from the mine. Provision of an electro- magnetic tramp iron remover has also been made. This will facilitate removal of magnetic materials from the belt conveyor.

8.5.4 Storage & Reclamation

Provision has been made to store crushed coal in overhead hoppers. Above the hopper a tripper has been provided. The elevating cum tripper conveyor will receive crushed coal to store into the overhead hoppers (8X200 T capacity). Provision of ground stock of crushed coal has also been made to store the coal in case the hoppers are filled.

8.5.5 Loading and Despatch

Each opening of the overhead surge hoppers will be fitted with actu operated motorised / hydraulic operated gates, which may be activated loading as and when the tipping truck will be positioned underneath opening. Coal will be loaded into trucks for transport to Piparwar washe other nearby washeries. From there the coal will be dispatched to nea railway siding and loaded into the railway wagons for transportation to customers.

8.5.6 Pollution control and Fire Fighting

Necessary arrangements have been provided for dust suppression and fighting. Dust suppression arrangements has been provided at follow locations:

- a) Receiving platform of Sizer top
- b) Discharge end of Sizer
- c) Loading / transfer points.

Suitable nos. of dry type portable fire fighting equipment has been provided to protect the plant from fire hazard.

8.5.7 Power supply, control and internal communication

All the electrical equipment will be suitable for successful operation at the ambient temperature prevailing at site.

The complete electrical engineering system can be sub-divided into the following:

- (a) Power distribution system with all protections and measuring facilities
- (b) Centralised sequence control, automation, signaling & instrumentation including electric clock system.
- (c) Interlocking
- (d) Emergency stopping
- (e) Motor control center

- (f) Instrumentation
- (g) Telecommunication
- (h) Illumination
- (i) Earthing

8.6 Other Facilities

There will be a control room to control all equipment between Sizer and truck loading hoppers. The control shall be in accordance with pre-determined sequence for starting and stopping. But provision for local control of any equipment has also been provided for emergency purpose.

Two no 50 Te capacity road weighbridges has been envisaged for Weighment of trucks through which coal being dispatched to nearby wahery for washing and onward dispatch to customer. Belt conveyor shall be provided with pull chord switches at intervals of 50m along the length of conveyors for stopping of conveyors from any point in case of emergency.

9.0 Estimated Capital Cost

The estimated capital expenditure for the coal handling plant as envisaged for handling the capacity of 3.0 MTY coal is given in the Appendix: A.3.4.0

CHAPTER – IX

RAILWAY SIDING

9.1 Railway Siding

It is proposed that the coal from Purnadih OCP will be sent to Piparwar washery / nearby washery for washing and final dispatch to customer.