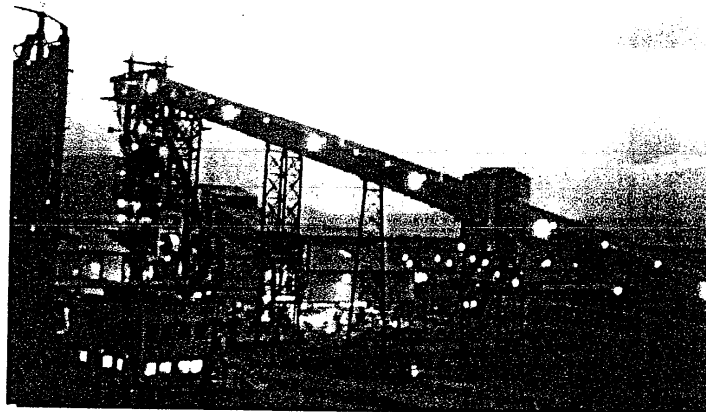


**TECHNO ECONOMIC FEASIBILITY REPORT
FOR 250Cu.M MINI BLAST FURNACE
OF**

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September, 2003

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4.0 PLANT CAPACITY AND PROCESS ROUTE

The proposed Pig Iron plant will be part of steel plant and will be provided with iron making facilities through blast furnace route to produce hot metal. Hot metal will be used for production of pigs at present and part of hot metal will be charged into electric furnace (EAF) as metallic charge for steel production at a later date. The steel plant of the second phase envisages an EAF of size 35/40 tons. With 24 heats per day and 50/60 % hot metal in charge to EAF, daily requirement of hot metal for steel making is estimated as 500-550 tons. A mini blast furnace of working volume 250 cum will deliver 550-600 tons of hot metal of basic grade suitable for steel making. At present the MBF hot metal will be cast into pigs for sale. As is evident from Sections-3, market has enough demand for the production level as envisaged in the proposed plant.

The plant will, therefore, have one Mini Blast Furnace (MBF) with working volume around 250 cum. A second blast furnace may be added in future. The pig iron plant at its full capacity is envisaged to produce around 175,000 tonnes per annum of hot metal (daily 515 tonnes of hot metal) at present. The major units and their total production capacity are shown in Table 4.1.

Table 4.1 Pig Iron Plant and Facilities

Plants and Facilities	Capacity
Mini Blast Furnace	250 m ³
Hot blast generation	40,000 NM ³ hr
Pig casting facility	700 tpd
Power generation	5.0 MW

Pay loader(2.5/3 cum)	-two (2) nos
Dumper (6/8 cum)	-Three(3) nos.
Dumper for pig handling (5/6 t)	-Three(3) nos.

10.6.9 Raw Material Charging Pattern

Production per day per furnace (t)	515
Taps per day	10
Hot metal per tap	51.5
Hot metal per hour (t)	71.46
Coke rate (12% ash). Kg/ton of hot metal (net)	650
Coke rate per hour (t)	13.95
Coke base. kg	2750
Therefore. no of charges/hour for coke	5.07

However, design will provide for upto 8 nos. of charges per hour to provide operation at a very low coke layer thickness whenever possible to derive the advantage of coke rate reduction and also for higher production in future.

For 2750 kg of coke requirement of :

Iron ore .t	6.748
Flux . t	1.083

10.7 BF GAS BASED CAPTIVE POWER PLANT

a captive power plant based on blast furnace gas as the main fuel and LDO as support fuel has been planned to generate the total power requirement for the MBF plant. For production level of 515 t/day and hot blast temperature of 1150 deg C , thermal efficiency of stove as min. 75% and blast volume of 40.000 nm³/hr. gas balance as summarised as follows:

BF gas generation per hour—55.000 nm³

BF gas consumption in stove per hour—20.000 nm³