AGREEMENT

BETWEEN

BEIJING SINO-STEEL INDUSTRY & TRADE GROUP CORPORATION & SHANXI PROVINCIAL CHEMICAL DESIGN INSTITUTE, CHINA

AND

VISA INDUSTRIES LIMITED, INDIA

FOR

400,000 TPA CLEAN TYPE HEAT RECOVERY COKE OVEN PROJECT

(DESIGN AND ENGINEERING)

BEIJING

FEBRUARY 20th, 2004

In case the commissioning cannot be started for any reason not attributable to SSIT, SSIT has the right to get the above mentioned 10% payment 24 months after the date of final dispatch of design & engineering drawings from SSIT against the following documents:

a. Four sets of original commercial invoice
b. Certificate signed by SSIT stating that the commissioning of the plant is delayed by reasons not attributable to SSIT.

Any banking charges incurred in the People's Republic of China (P.R.C) shall be borne by SSIT and otherwise incurred outside P.R.C shall be borne by VIL. The Letter of Credit shall be in conformity with the ICC 500, 1993. "Uniform Customs and Practice for Documentary Credits".

2. Payment terms for Technical supervision and instruction service

VIL shall pay to SSIT for the technical supervision and instruction service and interpretation service as stipulated in Clause B above by T/T within ten (10) calendar days of submission of one copy monthly working time sheet of SSIT's personnel signed by representatives of VIL and SSIT, along with two original copies of the commercial invoice with monthly service expense.

3. Payment terms for Training

VIL shall pay to SSIT for the training fee as stipulated in Clause C above by T/T in advance 30 days before the trainees from VIL arrive for training in China.

H. PERFORMANCE GUARANTEE

The performance guarantee of the coke oven for the production of coke should be as follows:

1. Coking time: Not greater than 66 - 68 hours.

2. Coke Production: Greater than 400,000 MT on dry basis within 12 (twelve) months from the date of commissioning under normal operation.

3. SSIT shall guarantee that the following coke quality, moisture and size shall be achieved

Coke Quality

S. No.	Tech. Particulars	
1.	Moisture	5% max.
2.	Volatile Matter	1% max
3.	Ash	12% max
4.	Sulphur	0.6% max
5.	Phosphorus	0.04% max
6.	Micum 40 Micum 10	86 min 7 max
7.	CSR CRI	68 min 25 max
8.	Size Below 25mm	 15% max

SSIT guarantee that to achieve the above coke specification, the following coal blend quality is sufficient with blend of 50% of hard coking coal and 50% of weak coking coals/anthracite/thermal coal. However, the coal blend and ratios of hard coking coal and weak coking coals/anthracite/thermal coal shall be re-confirmed after laboratory testing of the specific coals.

Coal Blend Quality

S. No.	Tech. Particulars	max/min tolerance limits
1.	Total moisture	10% max.
2.	Proximate analysis (Air dry basis BS 10.16) a) Volatile Matter b) Ash c) Sulphur d) Phos	 19-28% 9% max. 1% max. 0.05-0.08%
3.	Crucible swelling No. (CSN-ISO/501)	5 min
4.	Fluidity (ddpm)	150 min
5.	a) Mean max. Reflectance of Vitrinite (ISO/501) b) Vitrinite %age (ISO/7404)	1 min to 1.4 max. (Avg 1.2) 45% min.

4. Life of Oven & Refractory: 15 years from date of commissioning

5. Emission level:

➢ Standard Particulate Matter (SPM) for coke oven chimney	<50mg/Nm^3
➢ SPM for coke oven chimney during charging	<25mg/Nm^3
➢ SPM for coke oven chimney during coke pushing	< 5mg/Nm^3
➢ Nox at coke oven chimney	<500mg/Nm^3
➢ Particulate emission in quenching operation	<50mg per ton coke cooled

The emission level in the steam generated from quenching should be in line with the Pollution Control norms in India.

6. Gross coke yield on dry basis at different VM levels in coal blend as follows:

VM	Yield
20%	> or = 78%
21%	> or = 77%
22%	> or = 76%
23%	> or = 75%

7. Flue/Waste gas heat temperature in 22 ovens only:
   a) Temperature : greater than 900^0C
   b) Volume : greater that 36,900 Nm3/hr.

8. Normal Temperature of oven in the combustion zone: $1250\text{-}1350^0C$

9. Coal cake: > 49MT with moisture, or > 44.1MT on dry basis.

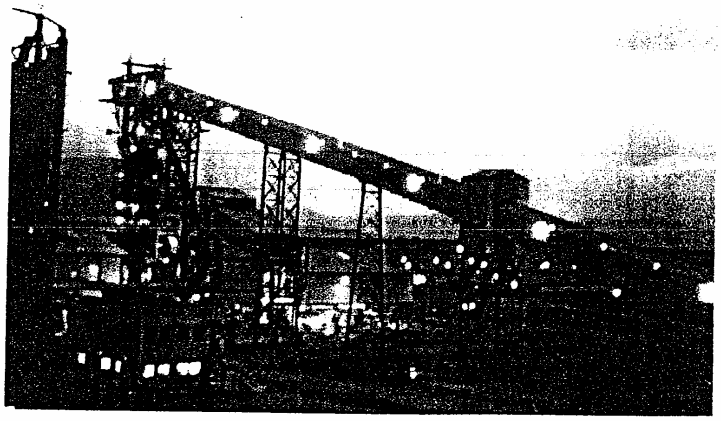
10. Stamping Car to be designed such that Compression achieved in Coal Cake shall have a Bulk density greater than 1050 kg/cu.m.

11. Average Thermal fluctuation during the pushing and charging of the ovens will not exceed 180 degrees centigrade in the roof dome.

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

VISA

VISA INDUSTRIES LIMITED
VISA HOUSE
8/10,ALIPORE ROAD
KOLKATA - 700027



September, 2003

TRF

TRF LIMITED
6TH FLOOR,TATA CENTRE
KOLKATA -700071

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 NM3 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)	21.46
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