

**GEOLOGICAL REPORT ON EXPLORATION FOR  
FERRO-SILICON / REFRACTORY GRADE QUARTZITE  
KALAKTANG BLOCK  
WEST KAMENG DISTRICT, ARUNACHAL PRADESH**

**EXECUTIVE SUMMARY**



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**1.0 LOCATION**

The area is located about 2-3 km. north of Kalaktang village between Latitudes 27°06'20" and 27°09'08" North and Longitudes 92°06'00" and 92°07'50" East and falls in Survey of India Toposheet No. 83 A/4.

**2.0 GEOLOGY AND STRUCTURE**

The low-grade meta-sedimentaries exposed in lesser Himalaya, structurally overlie the sedimentary belt and exhibit complex deformation. These have been classed under Bomdila Group, Rupa Group and Bichom Group. The high-grade metamorphites are exposed in higher Himalayas & have been classed as " Se La" Group.

Low-grade metasedimentaries of 'Rupa Group' are well exposed in the Kalaktang area. Lithounits are represented by a thick sequence of phyllite, micaceous quartzites (grey to dark grey) with white to snow white, pale bluish to pale greenish quartzites and Dolomitic limestone. At places discordant amphibolites are also recorded. Quartzite is highly fractured and jointed and forms escarpment.

The primary structure comprising of bedding & cross bedding is prominent in lower micaceous quartzite and phyllites. The white quartzite is massive and bedded in nature. The general trend of bedding as deciphered in lower quartzite varies from N30°W - S30°E to N10°W - S10°E with 20-30° northeasterly dip. Secondary structures comprise of foliation schistosity (S1), Crenulation cleavage (S2) gneissosity, joints, folds and shears.

**3.0 QUANTUM OF WORK DONE**

MECL has carried out exploration in two phases in the Block. Work carried out under Phase-I is detailed geological mapping & topographical survey covering 0.40 Sq.km area, Excavation (Shallow Pitting & Trenching 512 Cu.m.), Primary and check samples 450 NO., Whole rock analysis 10 NOs. of samples for 15 radicals, 25 NOs of samples for Petrographic Studies and 1 Bulk sample for Beneficiation studies.

In Phase-II, 0.15 Sq.km. area was covered by detailed geological mapping & topographical survey. MECL has done 484.20 Mtrs of drilling in 7 boreholes, 322 Nos number of primary and check samples (for 5 radicals i.e. SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, CaO and MgO.), 36 Nos of composite samples for (9 radicals viz. SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, CaO, MgO, K<sub>2</sub>O, P<sub>2</sub>O<sub>5</sub>, As and LOI.). 36 Nos. of composite samples for Emission Spectroscopy and XRD studies, Petrographic studies on 25 Nos. of samples and 30 Nos for specific gravity determination. Beneficiation Studies on onedrill core samples has also been carried out in the study area. Based on the above data and earlier data of GSI, an exploration report was submitted by MECL.

#### **4.0 MINERALISATION**

Three white quartzite bands with thickness ranging from 20-25 m. with two intervening amphibolite bands i.e. lower band with 6-10 m. thickness and upper band with 20-25 m thickness have been established during the present exploration. The lower quartzite band (I) is snow white in colour and is close to the specification of ferro silicon grade where as band No. II and III are slightly bluish white and slightly grayish to greenish white in colour with higher  $Al_2O_3\%$ .

#### **5.0 ORE RESERVE ESTIMATION**

The characteristics of white quartzite have been assessed at chemical cut-off of +90%  $SiO_2$ . The total in-situ geological reserves of quartzite are estimated at 5.27 million tonnes of all categories (i.e. 3.10 million tonnes of reserves under probable category while 2.17 million tonnes under possible category) with an average of 95.32%  $SiO_2$ , 1.38%  $Al_2O_3$ , and 1.01%  $Fe_2O_3$ .

**The Deposit has been classified as Category 'C' of UNFC 332.**

The studies on the baseline data of Environmental studies covering land use / land cover pattern studies have also been carried out in the block.

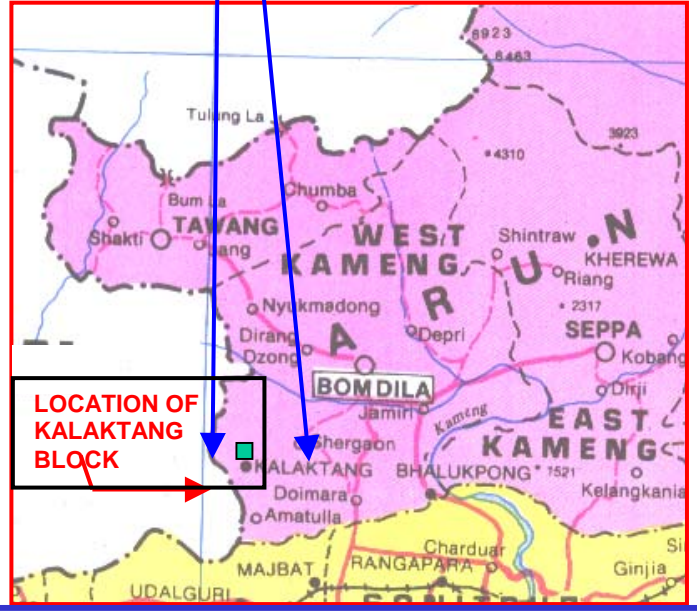
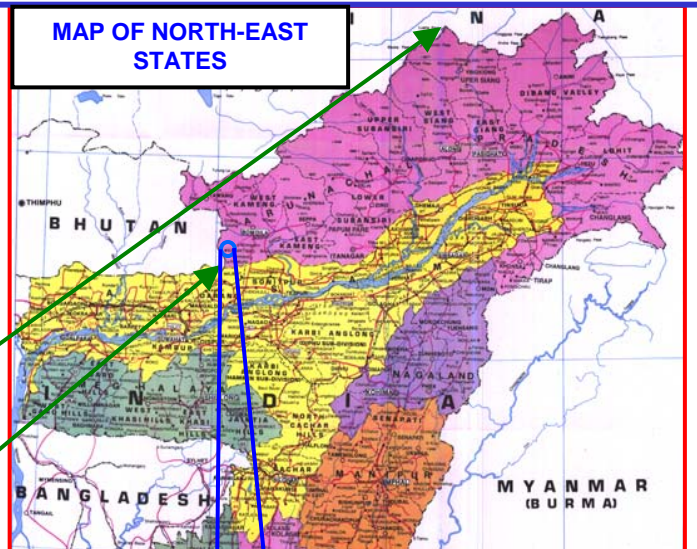
**The Total Cost of Exploration is Rs. 263.79 Lakhs.**

# LOCATION MAP

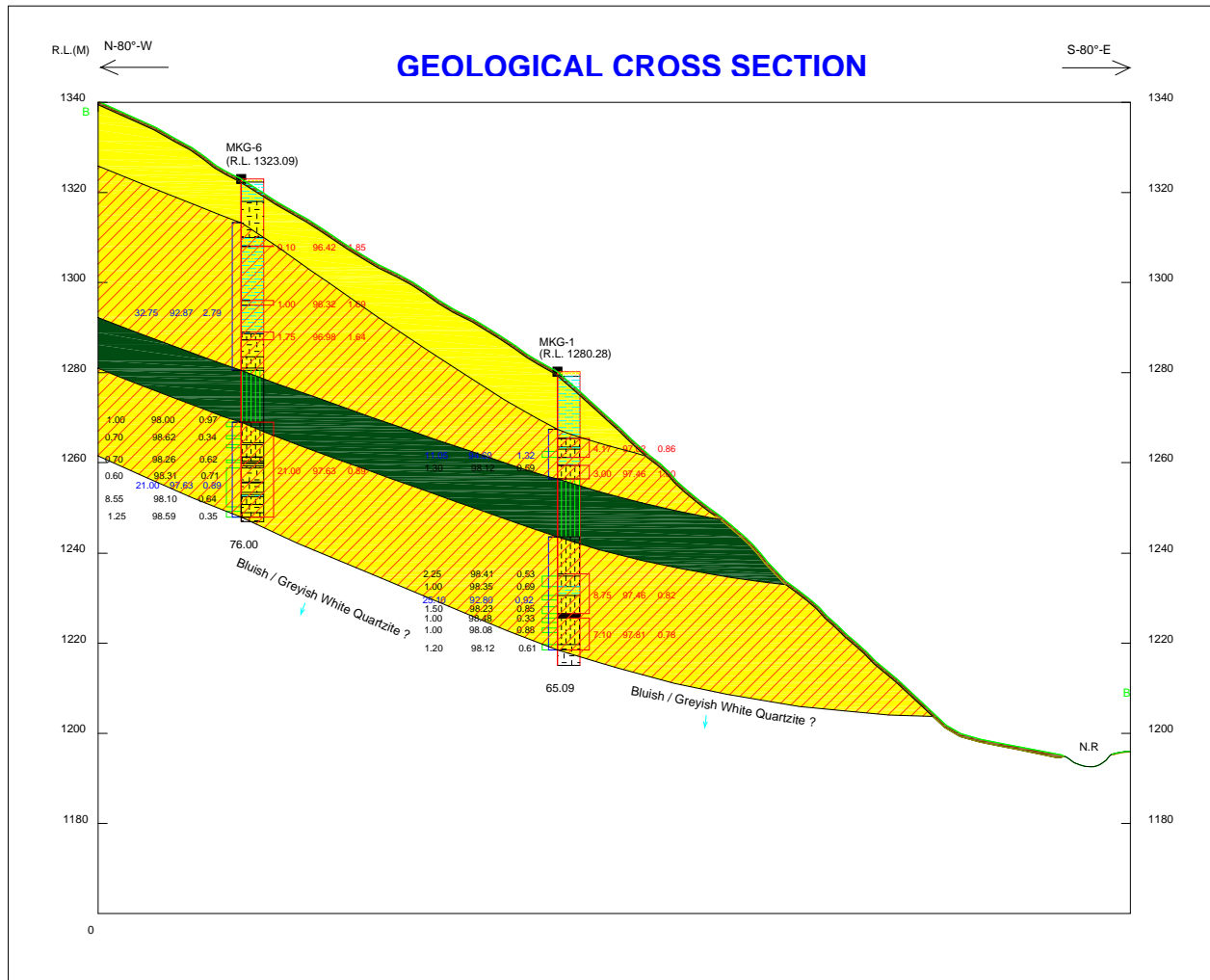


**MAP OF INDIA SHOWING ARUNACHAL PRADESH**

# MAP OF NORTH-EAST STATES



# GEOLOGICAL CROSS SECTION

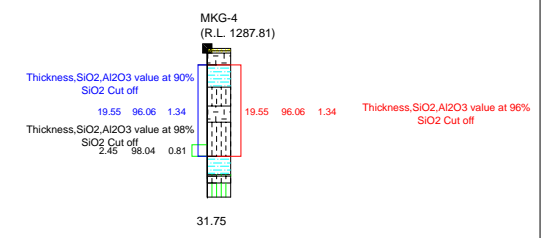


## INDEX FOR SECTION

- SOIL
- Quartzite
- Quartzite zone at 90% SiO2
- Amphibolite

## INDEX FOR GRAPHIC LITHOLOG OF BOREHOLES

- SOIL
- WHITE QUARTZITE
- BLUISH WHITE QUARTZITE
- GREYISH WHITE QUARTZITE
- MICACEOUS QUARTZITE
- AMPHIBOLITE
- PHYLLITE
- N.R. NARGUM RIVER



**TOPOGRAPHICAL & GEOLOGICAL MAP OF KALAKTANG BLOCK**  
R.F. 1:2,500

