Block-VIII

Location and accessibility

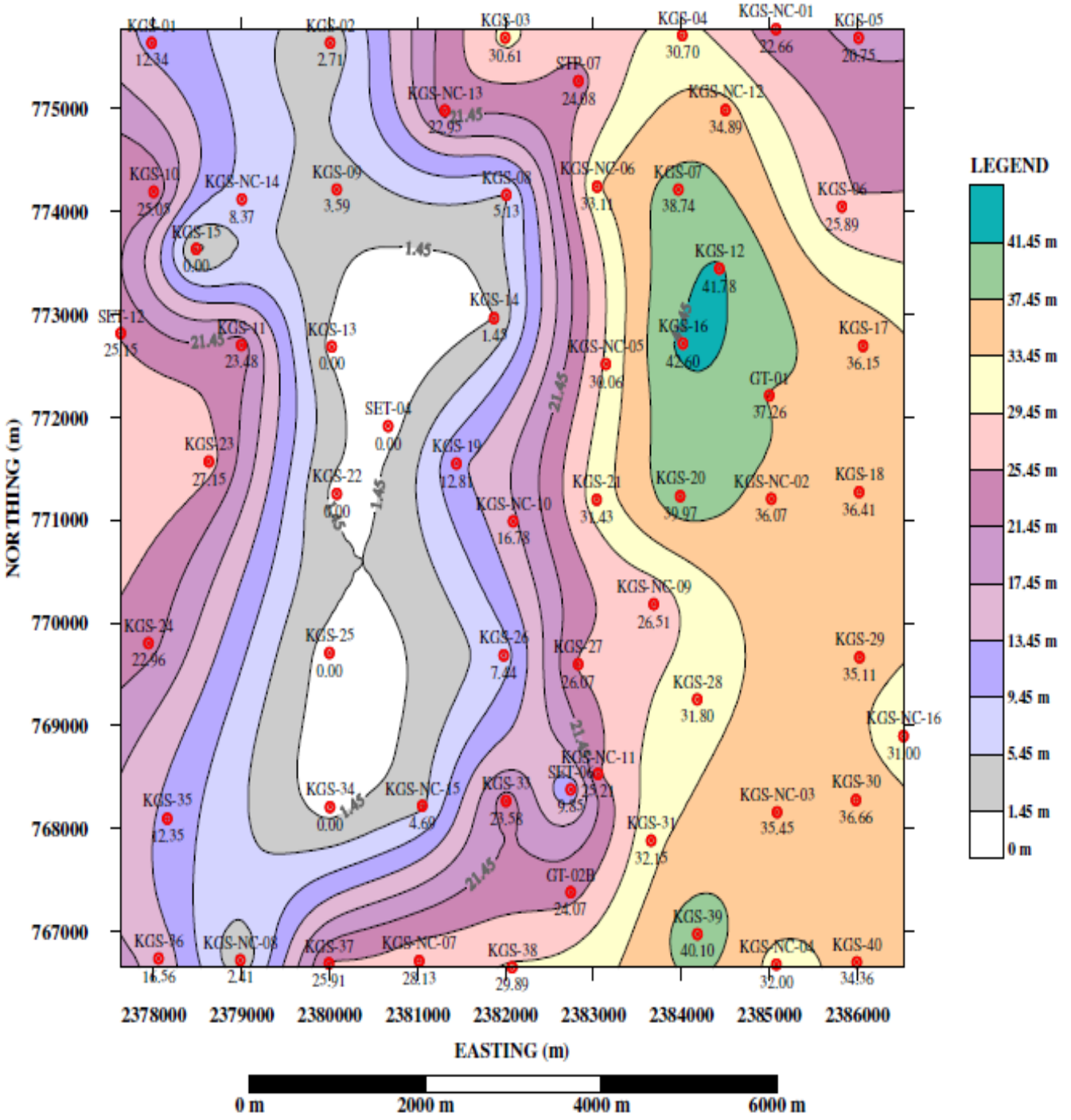
- Serial. No:- 40L/6
- Name/Blocks: Block-VIII, Khario Ghulam Shah
- Area (Sq-Km): 100 Sq.Km.
- Latitude: $24^{o}37'00"N$ and $24^{o}42'23"N$
- Longitude: $70^{o}22'30"E$ and $70^{o}28'30"E$

Relief, Topography, and Climate

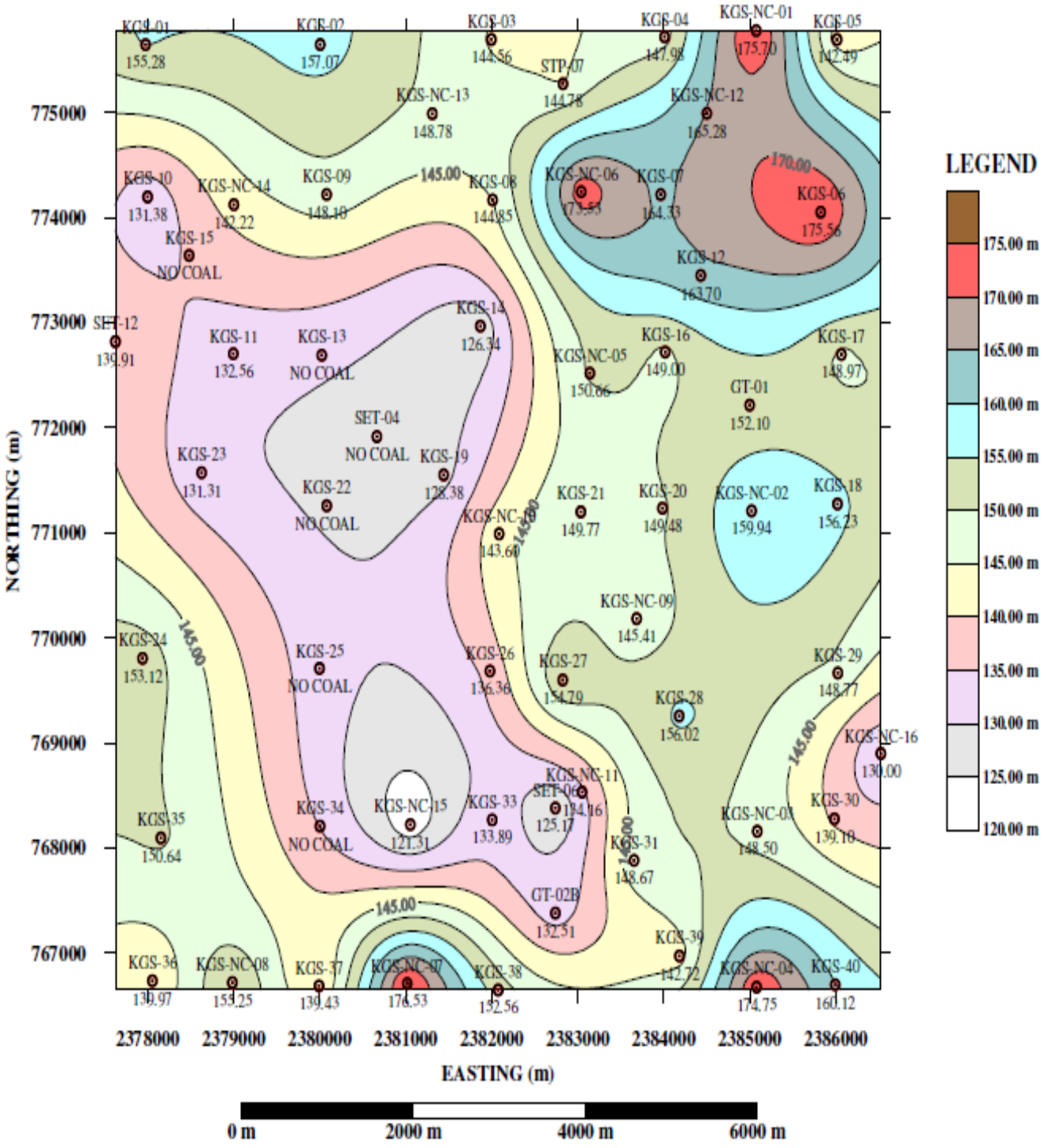
Since Block-VIII is a part of Thar Desert, the topography of the terrain covering this Block is generally similar to the topography of the whole Tharparkar district. This is characterized by typical aeolian deposits. The whole area is covered by numerous longitudinal sand dunes stabilized by herbs and shrubs, with intervening narrow and broad valleys, both trending NE-SW. Besides inter-dune valleys, there are flat tracts of land present at several locations in Thar Desert as well as in Block-VIII. Fullgrown trees are found scattered through these tracts of flat and slightly undulating surfaces. The dunes are longitudinal, ranging in relief from tens of meters to hundreds of meters. In Block-VIII, the highest point (Veri Wari Bhit, about 3 km NW of the village Ade Jo Tar that lies right on the road passing through the Block in the E-W direction) and the lowest altitude (along flat surfaces in between the dunes) are 140.82 m and 45.72 m respectively, with a relief of 95 m in the area.

Rain-fall is very scanty, and only comes in monsoon during the months of June to September. But there can be several years in a row completely without rains. The annual average rainfall ranges between 200 mm to 300 mm. Rain-fall being so rare and terrain so dry, porous and permeable, no regular drainage pattern could have developed in the area. Even heavy downpour is immediately absorbed into the sands of Thar. The temperatures in summer range between $30^{o}C$ and $35^{o}C$, whereas during winter they range from $16.4^{o}C$ to $22.6^{o}C$.

ISOPACH MAP SHOWING CUMULATIVE COAL THICKNESSES OF DRILLED BOREHOLES, BLOCK VIII KHARIO GHULAM SHAH, THAR COALFIELD



ISOPACH MAP SHOWING OVERBURDEN THICKNESSES OF DRILLED BOREHOLES, BLOCK-VIII, KHARIO GHULAM SHAH, THAR COALFIELD



Water Resources

Surface water

Owing to very little rainfall and dry hot climate coupled with sandy desert land, virtually no traditional resources of surface water such as rivers, lakes, dam reservoirs exist in Tharparkar District. People have dug large pits in the impervious clays at certain localities that are filled during the occasional rains, particularly in the monsoon season, which can serve the needs of the population and livestock for potable water for a few months. However, according to Records of Geological Survey of Pakistan, vol.115, 2002, the possible sources of surface water for use in the proposed power plants could be: (i) Left Bank Out Drain (ii) Jamrao Canal and (iii) the marshy land area in the Rann of Kutch.

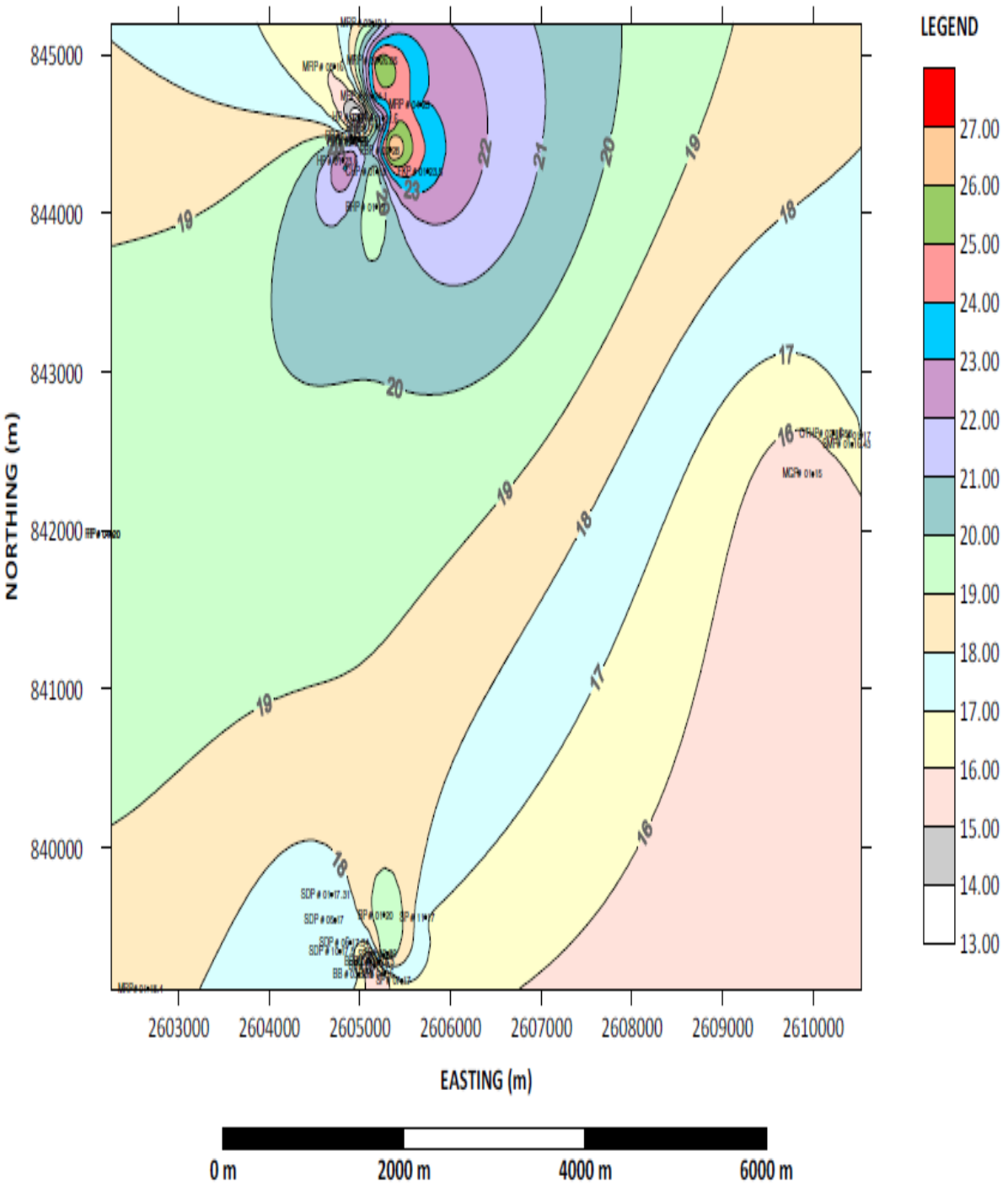
Groundwater

According to the hydrogeological investigations carried out by GSP (Records of Geological Survey of Pakistan, 2002, vol.115) a number of water wells that produce brackish water are present in the flat low-lying inter-dune playas. Some tube wells are also present. According to them drilling of boreholes has revealed the presence of three aquifers at variable depths: first above the coal zone, second within the coal zone and third beneath the coal zone.

Aquifers Above Coal Zone

A vertical zone about 80 m thick above the coal zone contains a number of aquifers; one at the contact of Dune sand and Sub-recent is almost persistent throughout the Thar coalfield at a depth of 50 to 90 m from the surface.

Water Level Contours of Shallow Aquifer in Block-VIII

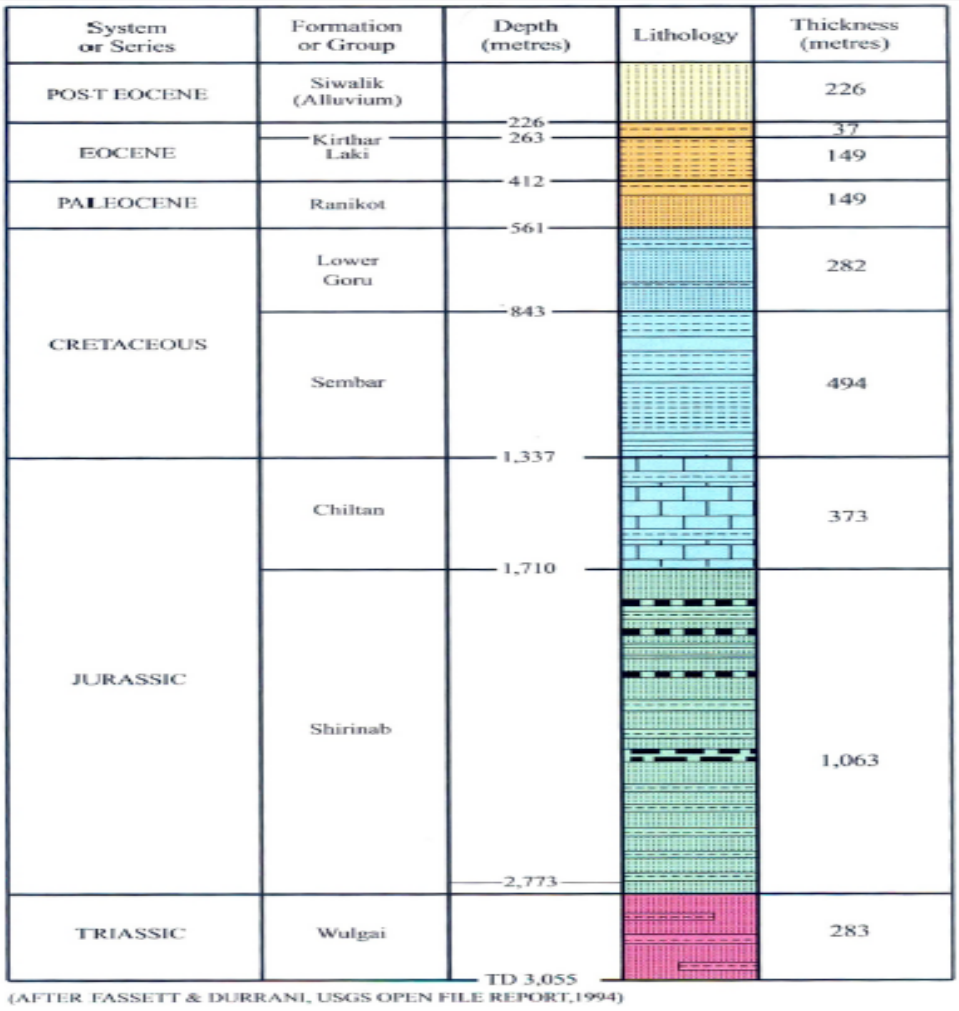


General Geology & Stratigraphy of Thar Coalfield

The stratigraphic sequence that is encountered in the area and the lithology of its various units are as follows:

Formation	Age	Lithology
Dune Sand	Late Pleistocene to Recent	Sand, silt and Clay
.....Unconformity.....		
Sub-Recent deposits	Pleistocene	Sandstone, siltstone
.....Unconformity.....		
Bara Formation (Coalbearing)	Mid Paleocene to Early Eocene	Claystone, Shale, Siltstone, Sandstone and Coal
.....Unconformity.....		
Basement Complex	Pre-Cambrian	Gray and pink granite

A Generalized Subsurface Stratigraphic Succession is Shown in following Figure (Ref. GSP IR No. 629)



(AFTER FASSETT & DURRANI, USGS OPEN FILE REPORT,1994)

Chemical Composition (as received)

- Moisture 49.57%
- Ash 7.78%
- Sulphur 1.44%
- Fixed Carbon 18.10%
- Volatile Matter 24.32%
- Heating Value 5302 Btu/lb

Cumulative Reserves

- The method used for calculation of reserves is that of Circular No.891 of USGS:

  - Measured reserves 882.81 million tonnes
  - Indicated reserves 2131.36 million tonnes
  - Inferred reserves 21.68 million tonnes
  - Total Reserves **3035.85** million Tonnes