

## **Block –X**

### **Location and Accessibility**

- Serial Number 40L/6 (Toposheet)
- Name/Block Block-X, Mithrio Sumra
- Area 100 sqkm
- Latitude 24<sup>0</sup>30'00"N and 24<sup>0</sup>36'00"N
- Longitude 70<sup>0</sup>06'00"E and 70<sup>0</sup>13'00"E

The approach to this Block is through Mithi, a town situated at a distance of 380 km from Karachi via Thatta-Badin metalled road. The town of Mithi can also be reached via an alternate route, that is, Hyderabad-Mirpurkhas-Naukot- Nagarparkar road. Then, from Mithi onwards to Block-X, a distance of about 74 km is covered towards east on the main metalled road that leads to Nagarparkar, a significant town lying in the southeast Pakistan near to the border with India.

### **Relief & Topography**

Since Block-X 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 growing herbs and shrubs, with intervening narrow and broad valleys, both trending NE-SW. Besides inter-dunal valleys, there are flat tracts of land present in Block-X, just as at several locations in rest of Thar Desert. Full-grown trees are found scattered over these tracts of flat and slightly undulating surfaces. The dunes are longitudinal, ranging in relief from tens of meters to hundreds of meters.

### **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, dams, 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 cater to 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.

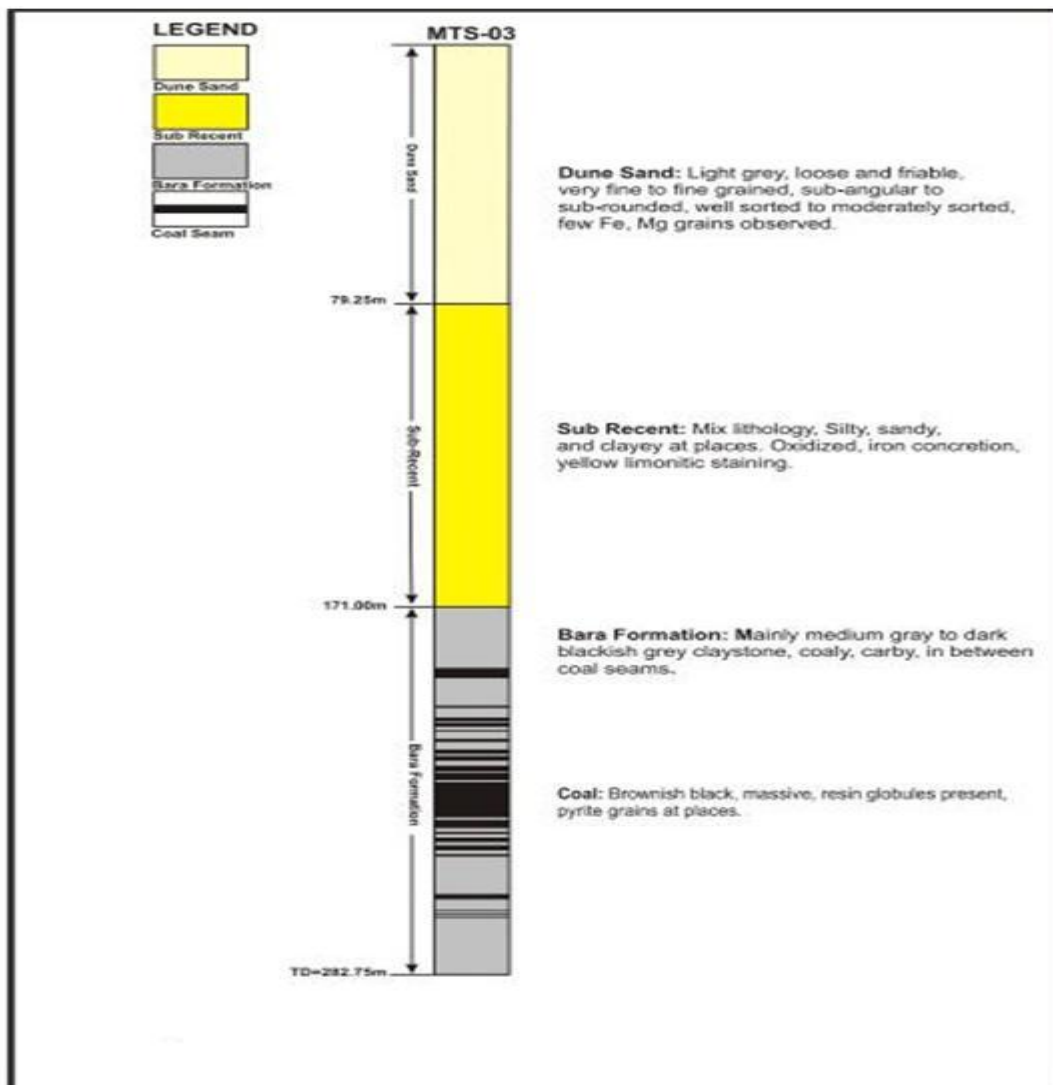
### Aquifers above coal zone

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. The water bearing horizons are medium to coarse sand ranging in thickness from 3.35 to 41.27 meters. The data showed that water bearing horizon consists mostly of dune sand and Sub-recent deposits. The water quality is mostly brackish but in some wells it is slightly saline. Also, it was sweet in three wells.

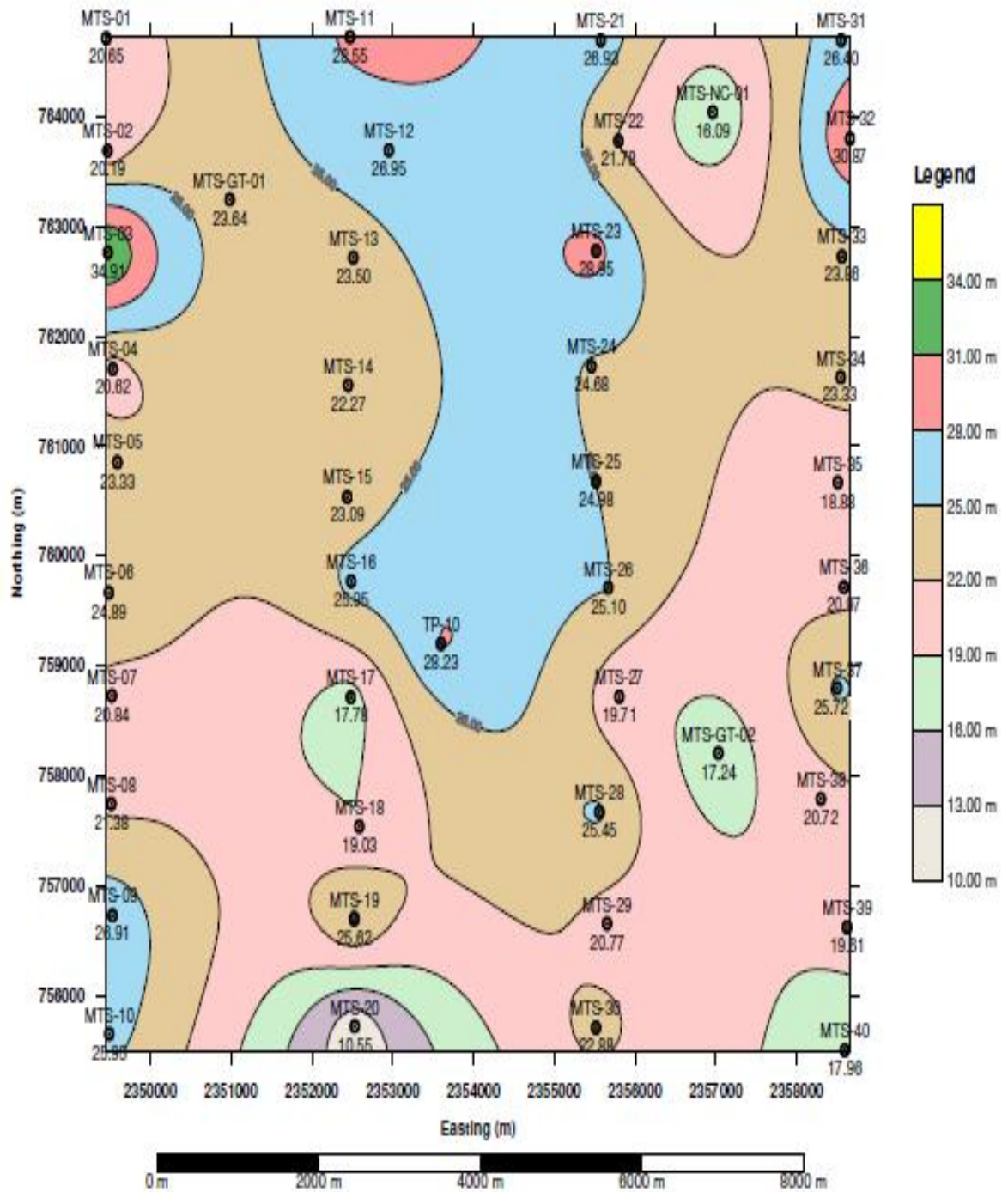
### Geology of Block –X

The Geology of Block-X is generally similar to the geology of the whole Thar Desert. The Block is covered by longitudinal, stabilized sand dunes trending NE-SW.

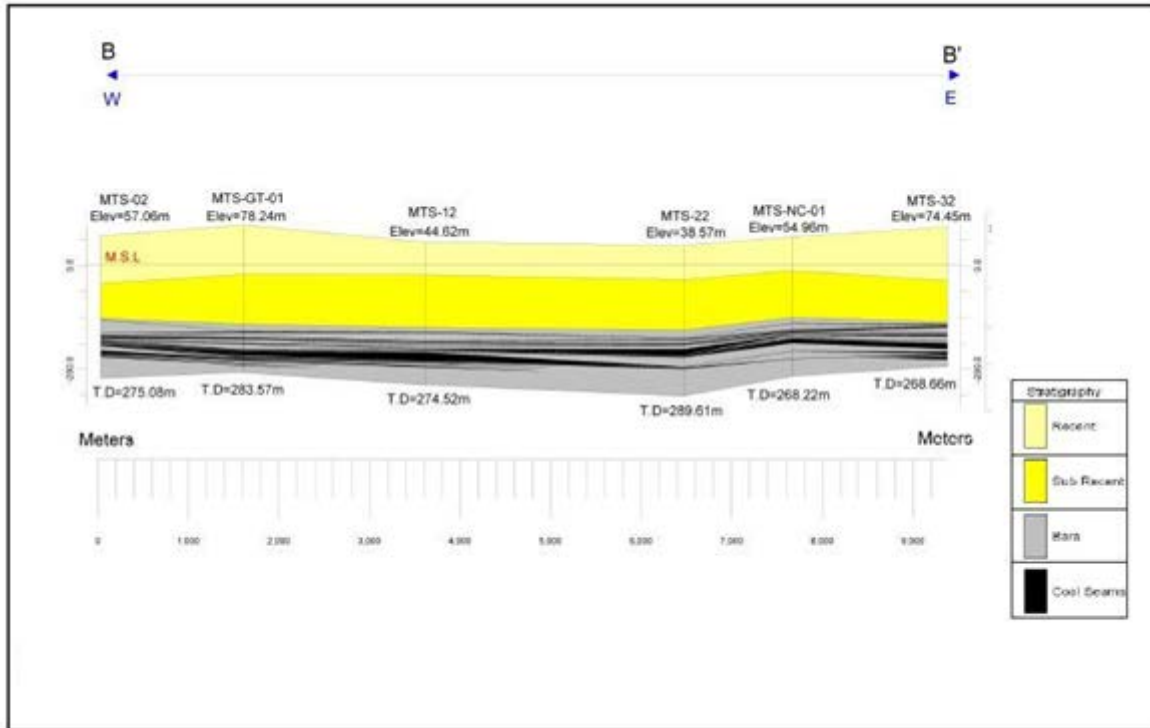
### Columnar Section of Drilled Borehole MTS-03, Block –X Mithrio Sumra, Thar Coalfield, Sindh, Pakistan



**Isopach Map Showing Cumulative Coal Thicknesses of Drilled & Previously Drilled Boreholes, Block-X, Mithrio Sumra, Thar Coal field, Sindh, Pakistan**



**Cross Section Along Line B-B' of Drilled Borehole of Block-X, Mithrio Sumra,  
Thar Coalfield, Sindh, Pakistan**



**Chemical composition (as received)**

- Moisture: 48.99%
- Ash: 6.35%
- Sulphur 1.17%
- Fixed Carbon 12.50 to 14.0%
- Volatile Matter 30.00 to 30.60%
- Heating Value 4840 Btu/lb

**Cumulative Reserves**

- The total coal resources of Block-X of 100 sq.km area calculated according to USGS circular No. 861 are as follows:
  - Measured Resources 609.05 million tons
  - Indicated Resources 1920.56 million tons
  - Inferred Resources 418.18 million tons
  - Total Resources all categories 2947.80 million tons
- The total coal resources of Block-X of 100 sq.km area calculated according to JORC are as follows:
  - Measured Resources 857.80 million tons
  - Indicated Resources 1265.59 million tons
  - Inferred Resources 747.23 million tons
  - Total Resources all categories 2870.62 million tons