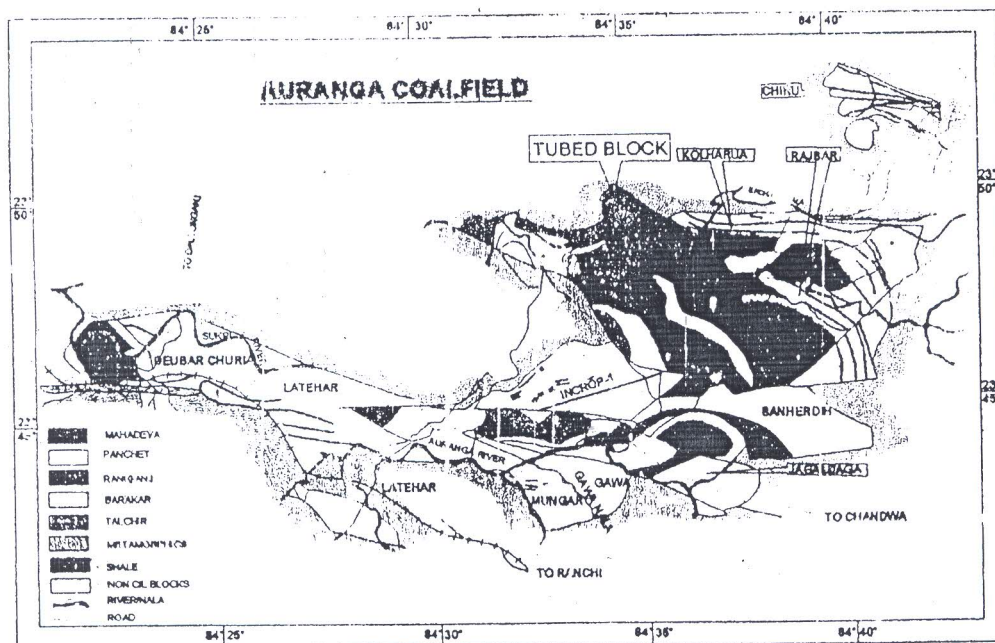


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**F.G.R.**

# **GEOLOGICAL REPORT ON EXPLORATION FOR COAL TUBED BLOCK AURANGA COALFIELD DISTRICT-LATEHAR, JHARKHAND**

**VOLUME-I  
TEXT & ANNEXURES**



**MINERAL EXPLORATION CORPORATION LIMITED  
(A Government of India Enterprise)  
EASTERN ZONE  
RANCHI**

**MARCH - 2006**

**GEOLOGICAL REPORT ON EXPLORATION FOR COAL  
TUBED BLOCK, AURANGA COALFIELD  
DISTRICT - LATEHAR, JHARKHAND  
(UNDER PRIORITY CATPIVE MINING BLOCKS)**

**SALIENT FEATURES**

1. Name of the Block : Tubed
2. Area of the Block : 4.6 Sq.km.
3. Location of the Block :
  - i) Located in the northern part of Auranga Coalfield, Dist. Latehar, Jharkhand.
  - ii) Included in Survey of India Toposheet No. 73A/9 (R.F. 50,000).
  - iii) Co-ordinates :  
Latitudes (N) : 23° 48'20" to 23° 50'09"  
Longitudes (E) : 84°34'09" to 84° 35'45"
4. Objective :
  - i) To prove the lay and disposition of coal seams
  - ii) To determine the quality and grade-wise reserves of the coal seams.
  - iii) To assess the opencast / underground Potentiality of the coal seams.
5. Duration of Field Operation : 14.06.2004 to 07.01.2005

6. Quantum of work :

**TABLE : I**

**QUANTUM OF WORK DONE IN TUBED BLOCK**

Sl.No	NATURE OF WORK DONE	QUANTUM
1	Agency - MECL Survey and Mapping :	
	i) Triangulation	4.6 Sq. Km.
	ii) Topographical Survey :	4.6 Sq. Km.
	iii) Co-ordinate : a)	20 Bhs.(MAT-1 to MAT-20)
	b)	28 Stations
	iv) Reduced levels : a)	20 Bhs
	b)	28 stations
	v) Geological Mapping	4.6 Sq. Km.
2	Exploratory Drilling:	
	Agency	Quantum(m)
	MECL (Non-CIL)	3011.15
	GSI	315.00 (Approx)
	Sub Total :	3326.15
		Borehole (Nos)
		20 (MAT series)
		2 (AR series)
		22 Bhs.
3	Coal Sampling (m) :	783.11 m, 20 Bhs (MAT-1 to 20)
4	Core Logging (m) :	3011.15 m, 20 Bhs (MAT-1 to 20)
5	Chemical analysis :	
	a) Band-by-Band : CFRI, Ranchi	: 783.11 m, 20 Bhs.
	b) Overall : CFRI, Ranchi	: 12 Bhs.
	c) Special test	
	i) Ultimate Analysis : CFRI, Ranchi	: 2 Bhs. (1 Bh. is pending)
	ii) HGI : CFRI, Ranchi	: 2 Bhs (1 Bh. is pending)
	iii) AFT : CFRI, Ranchi	: 2 Bhs (1 Bh. is pending)
	iv) Ash Analysis : CFRI, Ranchi	: 2 Bhs.*
	v) CV : CFRI, Ranchi	: 2 Bhs (1 Bh. is pending)
	vi) Petrographic results : CMPDIL, Ranchi	: 2 Bhs*
	vii) Mineralogical Study : 2 Bhs.*	
	* Yet not received	

7.

**Accessibility** : Tubed block is well connected to district headquarter Latehar by a fair weather road at a distance of about 12 km. Ranchi-Daltonganj State Highway passes through the district headquarter Latehar. The nearest rail head Latehar on Barkakana-Daltonganj broad gauge loop of Eastern Railway is about 15 km. from the block. Ranchi, the important city is located at a distance of about 100 km. from Latehar. Ranchi is well connected by road, rail and air ways.



8. **Mining Activity** : The block is virgin.

9. **Geology of Tubed Block** : Tubed Block is located in the northern part of Auranga Coalfield. It is represented by formations of Lower Gondwana Group.

Geological sequence of the block is given below in Table-II

**TABLE - II**  
**GEOLOGICAL SEQUENCE OF TUBED BLOCK**

Period	Group	Sub-Group	Formation (Thickness)	Lithology
Recent & Sub-Recent			Alluvium (2.50 to 12.00m)	Soil & Sub-soil
-----Unconformity-----				
Lower Permian	Lower Gondwana Group	Damuda Sub-Group	Barakar (15.90 to 268.00m)	Sandstones, shale, carbonaceous shale and coal seams
Permian- Carboniferous			Auranga	Absent
-----Unconformity-----				
Precambrian			Archaean Metamorphics (0.95 to 12.00m)	

- i) **Coal Seams** : The present exploration has established the presence of a total of 13 correlatable coal seams in the Barakar Formation. These coal seams in descending order are Seam VII (Top), VII (Bottom), VI, V (Top), V (Bottom), IV (Top), IV (Bottom), III (Top), III (Middle), III (Bottom), II, I (Top) & I (Bottom). Among these seam VII (Top) & VII (Bottom) are found as coalesed seam in a small patch. Seam I (Bottom) is unworkable over major part of the block. Seam I (Top) is unworkable in 3 small scattered patches while seam VI is unworkable in the entire block. Remaining seams are workable in this block. The sequence of coal seams is given in Table-III.
- ii) **Geological Structure** : Structurally the block is simple. The general strike of the beds is north-south in the major part of the block which swings to NE-SW in the extreme southern part of the block. The beds dip easterly with amount varying from 3° to 10°. However, in south central part of the block dip increases to 15°.
- iii) **Fault** : The block is traversed by 4 nos. of faults varying in thrown from 0m to 110m. In addition a two major faults, one of them is located in the northern part of the block and further towards east marks the eastern boundary of the block. The other one fault marks the western boundary of the block in the south-western part.
- iv) **Quality** : The coals of Tubed Block are high moisture, non-coking type, grading between C to G. in general the grade varies from F to G. Coke type and swelling index of coal seams are A & 0. Seam-wise quality variations are given in Table-IV. Special tests of coal seam are included in Table IVA & IVB.

10. **Reserves** : A total of 189.82 million tonnes of net Insitu reserves varying in grade from 'D' to 'G' has been established in Tubed block, out of which 151.87 million tonnes account for "Proved" opencast, 19.90 million tonnes "Indicated" open cast and 18.06 million tonnes for underground. In underground area reserves 15.10 m tonnes occur in 'Proved' category & 2.96m. tonnes in 'Indicated' category. The break up of reserves is given below :

Details of reserves	Reserves in million tonnes		
	Proved	Indicated	Total
Opencast	151.87	19.90	171.77
Underground	15.10	2.96	18.06
Total	<b>166.97</b>	<b>22.86</b>	<b>189.83</b>

The summary of seam-wise reserves under "Proved", "Indicated", opencast and underground categories is given in Table VA, the sector-wise, seam-wise, depth-wise, grade-wise opencast and underground reserves is given in Table-VB. While the seam-wise, barrier-wise, ratio-wise summarised reserves are tabulated in Table-VC and VD respectively.

11. **Overburden and Stripping Ratio** : The volumes of overburden and stripping ratio estimated are given in Tables VI.
12. **Conclusion** : The present exploration has established the presence of a total of 13 correlatable coal seams in the Barakar Formation. These coal seams in descending order are Seam VII (Top), VII (Bottom), VI, V (Top), V (Bottom), IV (Top), IV (Bottom), III (Top), III (Middle), III (Bottom), II, I (Top) & I (Bottom). Among these seam VII (Top) & VII (Bottom) are found as coalesced seam in a small patch. Seam I (Bottom) is unworkable over major part of the block. Seam I (Top) is unworkable in 3 small scattered patches while seam VI is unworkable in the entire block. Seam II to Seam VII (Top) are favourably disposed for opencast mining. Seam I (Top) can be developed by underground method.
13. **Recommendation** : A total of 22 boreholes have been drilled in Tubed block occupying 4.6 Sq.km. of area. It is recommended to drill some boreholes to bring the Indicated category reserves into 'Proved' category. It is also recommended to drill a few boreholes to precisely locate the incrops of seams and trace of fault F5 & F6 before taking of mining decision to exploit these seams.