Scheme
For
Opening
Mahadevpuri Mine (U/G)
In
Sialghogri Block
(Pench Area)

February, 86

Western Coalfields Limited
(A Subsidiary of Coal India Limited)
PLANNING DEPARTMENT
Coal Estate, Civil Lines, Nagpur-440 001

SCHEME FOR MAHADEVWURI MINE (U/G)

SUMMARISED DATA

1	(a) Geological reserves (m.te.)	..	2.912
	(b) Mineable reserves (m.te.)	..	1.893
2.	Quality of Coal, UHV (K.Cal./Kg) Seam I C	..	4223 - 5422 (Avrg. 4815)
3.	Grade of Coal	..	'C' (Steam) 'D' (Slack)
4.	Targetted output (m.te.p.a.)	..	0.15
5.	Life in years (at 100% capacity)	..	12
6.	Capital outlay (Rs in lakhs)	..	97.80
7.	O.M.S.	..	0.55
8.	Cost of production per tonne (Rs) at 100% capacity.	..	229.77
9.	Current selling price of Grade 'D' R.O.M. (in Rs)	..	209.00
10.	Profit/Loss per tonne at 100% capacity (Rs)	..(-)	20.77
11.	Manpower (No.)	..	1091
12.	Thickness of I C Seam (in Metres)	..	0.15 to 2.88 Average : 1.75 Mtrs.
13.	Gradient of seam	..	1 in 7 to 1 in 10 due North.

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S C H E M E F O R
OPENING MAHADEVPURI MINE
BY DRIVAGE OF A PAIR OF INCLINES (NO. 1 & 2)
IN VIRGIN AREA OF KHIRSADOH EXTENSION SUB- BLOCK, PENCH AREA, W.C.L.

C H A P T E R - I

INTRODUCTION :

In 1977 Madhya Pradesh Electricity Board had prepared a Feasibility Report for having a Thermal Power Station in Pench Valley Coalfield on the expected coal availability. Accordingly Government of India constituted two committees for assessment of coal reserves within Pench-Kanhan Coalfields of Madhya Pradesh to determine possibility of installation of Super Thermal Power Station near Chhindwara. The Committees recommended Sialghogri Block as one of the four priority blocks for exploration.

The Block on being explored was subdivided into the following four sub-blocks :-

(i) Khirsadoh - Extension Sub-Block.

(ii) Sialghogri - West Sub-Block.

(iii) Sialghogri - East Sub-Block.

(iv) Gajandoh Sub-Block.

While the existance of non-coking coal at depths lesser than 250 metres has been revealed in areas within Khirsadoh and Gajandoh Sub-Blocks, the coal exists at depths more than 250 metres within Sialghogri West and East Sub-Blocks.

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SCOPE OF THIS SCHEME :

The scheme for Mahadevpuri underground mine contemplates exploitation of reserves in Khirsadoh Extension Sub-Block within the area having reserves upto 250 metres depth. Adjoining area in this Sub-Block having deep seated reserves would be exploited later by having independent mines in later dates depending upon the market and technology for exploiting the deep seated reserves.

The main reasons for restricting the depth of working upto 250 metres are as follows :-

(1) Highly disturbed and complex geological structure.

(2) Highly difficult mining condition and heavy strata pressure at depths beyond 250 metres.

(3) Existance of thin seams with splitting etc.

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C H A P T E R - II

LOCATION AND COMMUNICATION

LOCATION :

Mahadevpuri u/g mine is proposed to be open within Khirsadoh Extension Sub-Block. The proposed mine will be located in the Northern part of Sialghogri plateau flanked by various working mines i.e. Mohan Colliery in the West and Chandametta and Barkui Collieries in the East (Plate No-II).

COMMUNICATION :

The nearest railway stations are Khirsadoh (1 Km. Narrow Gauge) and Parasia (1.5 Km. Narrow and Broad Gauge) of S.E. Railway on Nagpur-Parasia line. Pench Area headquarter Parasia is linked with Chhindwara (27 Kms.) Piperiya (100 Kms.) and Nagpur (150 Kms.) by State Highway No. S -19.

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CHAPT. - III

J STIFICATION FOR NE MINE

Factors justifying the scheme for opening of this mine are :-

1. To develop the TOP MOST Workable Seam (IC) as PHASE-I of the Block for getting complete and detailed picture of the geology of the Area as normal interpretation of Lithology of boreholes have failed to provide accurate geological information in Pench Coalfield. This will help in planning of extracting lower seams during Phase-II.

2. Having a replacement unit in lieu of some of old and exhausting mines of Pench Area :-

A number of collieries of Pench Area are being worked over last few decades and would be exhausted within a couple of years. Reserves and life of some of the collieries as assessed by the Area are given below :-

Sl. No.	Colliery	Existing reserves (m.te.)	Target production per year (m.te.)	Life of mine (Yrs.)	Existing Manpower (No.)
i)	E.D.C.	0.95	0.15	6	1062
ii)	Newton Chikli	0.20	0.10	2	1030
iii)	North Chandametta	0.12	0.06	2	423

Mahadevpuri mine has been planned to take up the surplus manpower of Newton Chikli/North Chandameta mines in due course of time.

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3. Economic justification to produce coal at much lesser losses to the existing units :-

Except Shivpuri o/c mine all the mines of Pench Area are making huge losses. The progressive loss (upto November,85) of underground mines varies from Rs 42.85/tonne (Pench East Mine) to as much as Rs 347.55/tonne (Newton Chikli mine). A few mines which are incurring heavy losses are :-

Sl. No.	Name of the Mine	O.M.S.	Progressive loss/tonne upto Nov.85.	Life of mine (years)
i.	Newton Chikli	0.31	347.55	2
ii.	North Chandameta	0.42	193.53	2
iii.	E.D.C.	0.53	98.16	6
iv.	Chhinda Project	0.48	121.70	New project.

Therefore, it is contemplated to produce coal from Mahadevpuri with bare minimum of capital investment by diverting the P&M of mines being closed/exhausted and utilising the available residential buildings, Workshop, Central Stores etc. of adjoining mines. This would ultimately reduce the overall losses of the area.

4. Eventuality to meet any shortfall in production from adjoining Pathakhera Coalfield or supply coal to Sarni Thermal Power Station and Khaperkheda Thermal Power Station.

5. Strategic location of the coalfield :-

Pench Valley Coalfield is geographically located almost in the centre of the country. Surplus coal can be moved in any necessary direction to meet any shortfall at various consumer centres due to less supplies from the linked sources.

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C H A P T E R - IV

G E O L O G Y

1.1 INTRODUCTION :

The proposed Mahadevpuri Project forms a part of Sialghogri Block in which extensive drilling was done by M/s. Mineral Exploration Corporation Ltd. (Ref. Plate No. 1) within the area under consideration, 23 boreholes with a metrage of 4630 m. have been drilled. As the area is covered by Deccan Trap Basalt, the geology is deciphered on the basis of drilling data only.

1.2 REGIONAL GEOLOGY :

The geological succession of the area is as follows :-

Age	Formation	Thickness Range (in Metre) Minimum	Maximum
Sub Recent - Recent.	Soil.	0.50	8.50
Upper cretaceous to Eocene.	Deccan traps with Intertrappean beds.	20.50	87.07
----------Unconformity----------			
Jurassic	Jabalpurs	0.60	14.77
----------Unconformity----------			
Permian	Moturs	12.47	143.30
	Barakars	58.20	140.40
Lower Permian	Talchirs	-	7.60

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1.3 STRUCTURE :

The Northern limit of the Sub-Block is marked by a East-West trending major fault F1-F1 which has downthrow towards South. The Southern limit is also marked by faults F9-F9 and F16-F16 in a Southernly downthrow which has upthrown the Sub-Block nearer to the surface.

The strike of the coal seam is NW-SE in the Western part, it swings almost E-W in the Central part and again swings to NE-SW in the Eastern part of the Sub-Block. The gradient of the seam is 1 in 7 to 1 in 10 due North.

There are numerous faults with throw varying from 5 metres to 150 metres.

1.4 COAL SEAMS :

There are five group of Carbonaeous horizons termed I, II, III, IV and V seams in a descending order. They are grouped into two distinct sets with major part of 15 to 25 metres. The sequence and thickness of coal seams and their partings is given below :-

Seam/ Section	Range in Metres.	Quality Grade/ U.H.V.	Remarks
1.	2.	3.	4.
IA	0.31 - 0.63	-	Not considered for mining due to thinness.
Parting	0.46 - 1.10	-	
IA + IB	0.64 - 2.99	G	Not considered for mining due to banded nature and wide variations in thickness.
Parting	1.44 - 7.10	-	

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1.	2.	3.	4.
IC	0.15 - 2.88	D (4815)	Workable seam.
Parting	4.21 - 9.34	-	-
II/II B	0.34 - 2.89	G	Not considered for mining due to lesser parting with lower seam.
Parting	1.25 - 4.94	-	-
III	0.42 - 1.79	E (3559)	Workable seam.
Parting	14.96 - 22.68	-	-
IV	0.12 - 0.77	-	Generally occurs in two thin sections and not workable.
Parting	9.02 - 15.06	-	-
V A	0.12 - 0.67	-	Not workable.
Parting	2.52 - 8.04	-	-
V B	0.39 - 0.79	-	N t workable.
Parting	2.03 - 5.61	-	-
V C	0.54 - 2.00	E (4056)	Workable seam.

From the above table, it can be seen that only three Workable seams are present, viz. I C, III and V C. The brief details of these three seams are as given below :-

1.41 SEAM DETAILS AND THEIR QUALITY :

SEAM I C :

This is the top most workable seam in this Block with incrop in the Southern part. The depth of this seam varies from 11.11 metres to 239.30 metres. The thickness varies from 0.15 metre to 2.88 metres with workable thickness

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over major part of the Block. The average thickness is 1.75 metres. The seam is devoid of any dirt band. The roof is grey shale/sandstone. The floor is also grey shale/sandstone. The quality parameters are enumerated below :-

	Range	Average
Moisture (%)	3.1 to 11.9	6.6
Ash (%)	17.7 to 32.9	23.0
UHV (K.Cal./Kg)	4223 to 5422	4815
Grade	'C/D'	'D'

SEAM III :

This is the middle workable seam and occurs over the entire area. The depth of this seam varies from 23.18 metres to 247.88 metres. The thickness varies from 0.42 metre to 1.79 metres with workable thickness over major part of the area. The average thickness is 1.35 metres. The seam contains 1 to 3 dirt bands with cumulative thickness varying from 0.13 metre to 0.32 metre. The roof and floor of the seam is grey shale/sandstone. The quality parameters of the seam is as follows :-

	Range	Average
Moisture (%)	4.1 to 11.9	6.5
Ash (%)	23.1 to 44.1	38.7
UHV (K.Cal./Kg.)	2233 to 4781	3559
Grade	'D/G'	'E'.

SEAM V C :

This is the bottom most workable seam having a thickness range from 0.54 metre to 2.00 metres. The average thickness is 1.1 metre. The depth of this seam varies from 72.04 metres to 296.75 metres. However, a few more boreholes

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will have to be drilled to ascertain the workability of this seam as only a few boreholes have been drilled upto this seam. The roof and floor of the seam is fine grained sandstone. The quality parameters are given below :-

	Range	Average
Moisture (%)	3.9 to 5.0	4.4
Ash (%)	22.1 to 31.9	30.7
UHV (K.Cal/Kg.)	3845 to 5283	4056
Grade	'C/E'	'E'

RESERVES :

MINE BOUNDARY :

The Northern and Southern boundary of the Block are formed by faults F1-F1 and F10-F10 respectively. The Eastern boundary is demarcated by the barrier marked along the Narrow Gauge railway line. The Western boundary is an arbitrary line fixed to work coal seams upto a depth of 250 metres in the top Seam I C.

The seam-wise reserves within the Block, detailed above, are given below :-

Name of the Seam	Geological reserves (Million Tonnes)
I C	2.91
III	2.58
V C	1.09
	6.58

Out of the total reserves of 6.58 million tonnes, only the reserves in the top seam amounting to 2.91 million tonnes have been considered in this scheme for exploitation. The reserves in the lower seams will be considered for exploitation at a later stage.

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C H A P T E R - V

COAL SEAMS, RESERVES, QUALITY AND LIFE OF THE MINE

The exploration in Sialghogri Block has confirmed existance of five group of Carboneaous horizons termed as I, II, III, IV and V Seam. The seams have been numbered in descending order. Only horizons termed as IC, III & V C are possible for exploitation by suitable underground mining methods.

The scheme of Mahadevpuri proposes to develop the Topmost workable seam (IC) of the block with a view to get complete and detailed picture of the geology of the Area as normal interpretation of lithologs of boreholes has failed to provide very accurate geological information in Ponch Coalfield.

Seam section IC is the bottom most and the most promising section of seam-I in the block. The depth of this seam varies from 11.11 metres to 239.30 metres. Thickness of seam varies from 0.15 metre to 2.88 metres. Average thickness is 1.75 metres. The seam is devoid of any dirt band.

ROOF AND FLOOR :

The immediate roof is grey shale but in some case it is carboneaous shale. The 3 metre strata above seam section is fine to medium grained sandstone. The immediate floor is fine to medium grained sandstone.

QUALITY :

	Range	Weighted Average
Moisture %	3.1 to 11.9	6.6
Ash%	17.7 to 32.9	23.0
U.H.V.(K.Cal/Kg)	4223 to 5422	4815
Grade (Non-coking)	'C/D'	'D'

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LIFE OF THE MINE (Phase-I) :

i)	Net geological reserves	..	2.912 million tonnes.
ii)	Extractable reserves	..	1.893 million tonnes.
iii)	Target output	..	0.15 million tonnes/year. (500 tpd.)
iv)	Life of the mine	..	12 years.
v)	Grade of seam IC		
	Steam 60%	..	Grade 'C'
	Slack 40%	..	Grade 'D'

COAL RESERVES (Phase-I and Phase-II) :

The reserves of workable seams viz Seam IC, III and V C considering the minimum thickness as 0.9 metre and within mine boundary as shown in Plate-I.

Name of the Seam	Geological reserves (in million tonnes)	
IC	2.912	(Phase-I)
III	2.577	(Phase-II)
VC	1.095	(Phase-II)
	6.584	

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C H A P T E R - VI

MODE OF ENTRY

EXISTING SHAFT :

One old shaft of 4 metre diameter called locally as 'Mahadev Shaft' was sunk upto IC seam and then abandoned. After recovery this can be used as an upcast air shaft. (Source old abandoned mine plan).

PROPOSED ENTRIES :

A pair of new Incline No. 1 & 2 at a gradient of 1 in 5 have been proposed. These inclines will touch thick section (IA + IB) of Seam-I at depths of about 30 metres (Minimum Cover) and will work as intake airways. The inclines would be driven from surface near the junction of Khirsadoh-Umrer and Parasia-Chhindwara roads to take advantage of

(a) road proximity

(b) availability of land near the inclines for construction of infrastructure on non-coal bearing land

(c) near to Khirsadoh railway station (about 1 Km)

(d) near to Rawanwara broad gauge siding (1.5 Km.).

The inclines would be driven such that existing Mahadev Shaft would be atleast 60 metres away from their alignment.

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C H A P T E R - VII

METHOD OF WORK

The seam thickness of IC varies from 0.15 to 2.88 metres and would be worked on Bord & Pillar system by driving 4 main headings of 4.2 metre width (2 for intake and 2 for return airway).

Details of Seam-I (Section IA, IB & IC) are given below :-

Seam/ Section	Range in metres (Borehole No.)	Average thickness in metre	Quality Gr./UHV	Remark
IA	0.31(SG-58)-0.63(SG-84)	Less than 0.9	-	Not considered for mining due to seam thickness less than 0.9 mtrs.
Parting	0.46(SG-58)-1.10(SG-84)			
IA+IB	0.64(SG-52)-2.99(SG-34)	1.6	G	The seam has not been considered due to :- i) Existance of 2/3 inter-band with coal section of poor thickness upto maximum about 0.9 mtr. ii) Quality of seam below grade 'G'.
Parting	1.44(SG-34)-7.10(SG-54)			
IC	0.15(SG-68)-2.88(SG-54)	1.75	D U.H.V. 4815 K.Cal/kg	Workable. Considered for exploitation.

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Plate I indicates thickness of seam 'IA+IB' to be more than 1.5 metres.

Keeping the unworkable thickness of IC seam where inclines would touch the seam $\angle$ (IA + IB) the panel would be formed by driving 4 headings (4.2 metres) along the alignment of proposed inclines as well as along the proposed haulage roadway.

These 4 level headings should be driven practically upto Borehole PKK-16 where the thickness of IC increases to more than 1.2 metres. After this these headings must be driven in IC seam only and necessary panel would be opened accordingly.

Solid blasting would be done and coal would be loaded into tubs manually.

Depillaring with caving would be done by splitting the formed pillars into two halves and then taking them into slices.

PRODUCTION PHASING :

Production phasing for achieving 0.15 mty. is as follows taking 86-87 as Zero date.

	86-87	87-88	88-89
Production mty.	-	0.04	0.15
Manpower	200	456 (0.35)	1091 (0.55)

MINE SUPPORTS :

In the working mines of this coalfield, roof fall of galleries and other underground roads have been posing serious problems. So due care would be necessary during drivage of galleries. Roadways would be adequately supported where necessary.

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All permanent roads would be adequately supported by permanent support including roof stiching and girdern.

All galleries upto 9 metres from coal face would be supported by Safari supports which would be followed by roof bolting.

TRANSPORT :

(a) Surface Transport :

ROM coal brought out from the mine would be tipped to bunker from where it would be loaded into trucks for transporting to Parasia B.G. Siding as Khirsadoh Railway Siding having narrow gauge is already handling it's optimum capacity (15,000 tonnes/month).

(b) The mine would be worked by conventional Bord & Pillar method. The underground transport system would be entirely by a combination of Endless and Direct haulages.

DEVELOPMENT OF AREA ON DOWNTHROW SIDE OF FAULT F11-F11 :

One of the objectives of drivage of Mahadevpuri Inclines is to explore the area ABCD thoroughly. Experience gained in exploring I C seam will not only be useful in exploring lower seams but also in developing the area on the down-throw side of the fault F11-F11.

In the scheme only bare minimum of investment is proposed as it would be the replacement mine. As such, capital for drivage of drifts to explore the downthrow side of the fault F11-F11 is not proposed. This can be done at a later stage by a separate proposal, if needed.

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C H A P T E R - VIII

V E N T I L A T I O N

Mine is degree I gassy mine. A Mechanical Ventilator having 60 M^3/Sec. capacity, 75 mm w.g. will be installed at Mahadev upcast shaft which will supply enough air for production of 600-800 t.p.d.

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C H A P T E R - IX

CIVIL CONSTRUCTION AND LAND

SERVICE BUILDINGS :

Service buildings like Incline Office, Unit Workshop, Pit Store, Lamp Room, Sub-station, Service Magazine, First Aid Centre, Haulage Room, Fan House will be needed and necessary fund provision has been made. (Appendix - 'B').

RESIDENTIAL BUILDINGS :

Mahadevpuri mine would replace Newton Chikli mine which has got life of hardly 2 years. All the workers of this mine would be shifted to Mahadevpuri having residential accommodation at Newton Chikli, as such, no fund provision has been made for the residential buildings.

LAND :

Only the necessary land for infrastructure for mining, e.g., Service Buildings, has been considered for acquisition. Necessary provision of fund has been made accordingly. (Appendix - 'C').

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C H A P T E R - V

M A N P O W E R

During development stage 200 manpower will be required for one year for drivage of incline, recovering of existing Mahadev shaft, installation of fan etc.

The statutory personnel and skilled workmen will be made available from Newton Chikli/North Chandameta collieries. Remaining persons will have to be transferred from surplus manpower of other units of the Area as required.

As already stated Mahadevpuri Inclines will be replacement unit most probably for Newton Chikli or North Chandameta colliery. Necessary manpower will be diverted from other collieries.

Production	O.M.S.	Manpower
0.45 mty	0.55	909
(500 Te./day)		+ 182 (20% for leave, sick etc.)
		1091

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C H A P T E R - XI

PLANT & MACHINERY, POWER SUPPLY E.T.C.

Requirement of bare minimum P&M is estimated at Rs 50.20 lakhs which includes provision of main mechanical ventilator, direct haulage, endless haulage, tubs, tippers and electrical etc.

As proposed Mahadevpuri mine will be replacing Newton Chikli/North Chandameta mines, all other P&M/Vehicles would be diverted from these mines.

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C H A P T E R - XII

CAPITAL INVESTMENT, ECONOMICS, EXPLOITATION AND [illegible]

CAPITAL INVESTMENT

The total estimated capital investment for Mahadevpuri mine having an annual production capacity of 1.15 million tonnes works out to Rs 97.80 lakhs or Rs 85.20 per tonne of annual target production after taking the bare minimum P&M and infrastructure of the mine into account.

Investment on Plant & Machinery.

Mahadevpuri mine will be replacing Newton Chikli/ North Chandameta mines so bare minimum P&M has been taken into account. Rest all P&M will be diverted from old mines as stated above.

Estimated investment on P&M works out to Rs 50.20 lakhs or Rs 43.48 per tonne of annual target production.

INVESTMENT ON TOWNSHIP :

No provision of fund has been made on township as manpower will be shifted from Newton Chikli/North Chandameta mines keeping their very short life in view.

E.M.S. & O.M.S. :

E.M.S. for Mahadevpuri mine has been taken as Rs 92.00.

0.55 O.M.S. has been kept for the proposed mine after keeping the difficult mining/geological conditions and O.M.S. of all existing mines of Pench Area in view.

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COST OF PRODUCTION, PROFIT / LOSS :

The cost of production per tonne is estimated at Rs 229.77 at 100% capacity level as given in Appendix 'C'.

IC seam falls under Grade 'C/D' but due to contamination in mining, profit/loss has been calculated taking R.O.M. price of Grade 'D'. If coal is despatched as Steam (C) and Slack (D) economics will further improve.

(i)	Sale price of coal taking R.O.M. price of Grade 'D'	..	Rs 209.00
(ii)	Estimated cost of production	..	Rs 229.77
(iii)	Anticipated loss per tonne	..	Rs 20.77
(iv)	Anticipated annual loss at targetted production	..	Rs 31.15 lakhs.

CONCLUSION :

This scheme is technically and economically sound though it would incur a loss of Rs 20.77/Tonne at 100% production compared to the loss being incurred by the existing mines in Pench Area (varying from Rs 42.85 to Rs 347.55/tonne).

This mine would replace existing Newton Chikli mine having 2 years life only and incurring the maximum loss of Rs 347.55/tonne and ultimately reduce the overall losses of the Area.

SOCIAL CONSIDERATION & OVERHEAD :

This mine would promote employment to all the workers of Newton Chikli mine which would close down within about 2 years time.

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PRECAUTIONS/RECOMMENDATIONS :

1. Reclamation of existing old Mahadev Shaft. This would help in ascertaining the thickness of seam I and mine workings if any. Necessary precautions would be necessary during drivage of headings if found waterlogged.

2 (a) Only 4 dip and level headings or exploratory headings would be driven in IA + IB section of seam I till 1.2 metres thick zone of IC section is approached. This would increase stone work i.e. heightening of galleries etc. if driven in IC section.

2 (b) Normal working would be made in IC seam after crossing the thin zone of IC seam.

3. Atleast four boreholes each, along the incline alignment and proposed haulage roadway of the first panel be drilled to ascertain the geological structure and quality of different sections of Seam-I.

4. Keeping the treacherous nature of roof in view due attention must be paid for mine support.

5. The purpose of drivages in Mahadevpuri Inclines is to explore the ar thoroughly and the experience obtained will be used for exploring the lower seams and the possibility of introduction of mechanisation in development/depillaring at appropriate stage for which a separate report will be prepared to further reduce the losses.

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SCHEME FOR OPENING MAHADEVPURI MINE BY DRIVING A PAIR OF INCLINES (NO. 1 & 2) IN VIRGIN AREA OF KHIRSADOH - EXTENSION SUB-BLOCK

APPENDIX - 'A'

CAPITAL EXPENDITURE FOR PLANT & MACHINERY

(Amount Rs in Lakhs)

Sl. No.	Item	No.	Total Value	Life (in Years)	Depreciation
1.	Main Mechanical Ventilator 60 M^3/Sec./75 mm w.g. with essential electricals.	1 Set	3.80	18	0.211
2.	Direct haulage 55 KW, 550V with NFLP electricals/ controller.	1	2.00	18	0.11
3.	37 KW Endless Haulage	1	1.00	18	0.06
4.	Main Pump + Face Pump and pipe fittings.	L.S.	4.00	18	0.22
5.	Auxilliary fan 7 M^3/Sec. 200/250 mm w.g., 37 KW motor with NFLP electricals.	2	1.00	18	0.06
6.	Canvas ducting 500 mm dia.	L.S.	0.50	3	0.17
7.	Low height tubs 1 te. capacity.	50	1.00	1	1.00
8.	Tipper	1	0.50	9	0.06
9.	Truck loading arrangement including Hopper.		5.00	18	0.28
10.	Stone drills ½ hour rated, 1.1 KW, 125 V with 100 m. trailing cable.	8	2.40	3	0.80
11.	Workshop equipments	L.S.	2.00	18	0.11
12.	Steel material for supporting	L.S.	5.00	18	0.28
13.	Tipping trucks (8 te.) for coal transportation.	4	10.00	9	1.11
14.	Electricals for substation & Power line etc.	LS	12.00	18	0.66
	TOTAL :		50.20		5.131

P&M investment cost/te. of Annual production = Rs 33.47

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SCHEME FOR OPENING MAH. EVPURI MINE BY DRIVING A PAIR OF INCLINES (NO. 1 & 2) IN VIRGIN AREA OF KHIRSADOH - EXTENSION SUB-BLOCK

APPENDIX - 'B'

STATEMENT OF CAPITAL REQUIREMENT ON ESSENTIAL SERVICE BUILDINGS

(Amount in Rs Lakhs)

Sl. No.	Particulars	Amount
1.	Manager's Office	1.10
2.	Pit Store	0.70
3.	Unit Workshop	1.00
4.	Sub-station	0.85
5.	Service Magazine	0.60
6.	First Aid Centre	0.25
7.	Cap Lamp Room	1.10
8.	Haulage Room	2.10
9.	Fan House	2.10
10.	Cycle shed & Rest Shelter	1.20
	TOTAL :	11.00

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SCHEME FOR OPENING MAHADEVPURI MINE BY DRIVING A PAIR OF INCLINES (NO. 1 & 2) IN VIRGIN AREA E KHIRSADOH - EXTE SION SUB-BLOCK

APPENDIX - 'E'

STATEMENT OF UNIT COST ESTIMATE

E.M.S. = 92.00

O.M.S. = 0.55

Production= 0.15 m.t./Annum. (500 t.p.d.)

Sl. No.	Particulars	Cost/Tonne (Rs)
1.	Wages & Salaries ..	167.27
2.	Stores ..	20.00
3.	Power ..	10.00
4.	Administrative Charges (2.5% of total capital) ..	2.45
5.	Miscellaneous expenditure including Workshop Debit	
	(a) 2.5% of wages = 4.18	5.19
	(b) 2% of cost of P&M = 1.01	
6.	Depreciation -	
	(a) 3.42 (P&M)	6.07
	(b) 2.65 (Development activities including land)	
7.	Interest -	
	(a) On Loan Capital @ 14%	6.84
	(b) On Working Capital @ 17.5%	11.95
	TOTAL :	229.77

SCHEME FOR OPENING MAHADEVPURI MINE BY DRIVING A P R OF INCLINES (NO. 1 & 2) IN VIRGIN AREA OF KHIRSADOH - EXTENSION SUB-BLOCK

APPENDIX - 'C'

(Amount : Rs in Lakhs)

STATEMENT SHOWING
REQUIREMENT OF LAND AND COST OF LAND WITH COMPENSATION.

Particulars	Requirement of land (in Hectares)	Rate/ Hectare	Total Cost
Land with compensation. (Area for infrastructure facilities like Workshop, Service Buildings etc.)	10	0.20 ~~0.02~~	2.00 ~~0.20~~

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SCHEME FOR OPENING MAHADEVPURI MINE BY DRIVING A PAIR OF INCLINES (NO. 1 & 2) IN VIRGIN AREA OF KHIRSADOH - EXTENSION SUB-BLOCK

APPENDIX - 'D'

STATEMENT SHOWING CAPITAL OUTLAY FOR DEVELOPMENT ACTIVITIES

Production/Annum = 0.15 m.t.
Life of Mine = 12 Years.

Sl. No.	Particulars	Quantity	Rate (in Rs)	Total cost (Rs in Lakhs)
1.	Drivage of No.-1 Incline at 1 in 5(4.5M x 2.4 M)	115 Mtrs.	Rs 12000/ Mtr.	13.80
2.	Drivage of No.-2 Incline at 1 in 5(4.5 M x 2.4 M)	115 Mtrs.	Rs 12000/ Mtr.	13.80
3.	Recovery of abandoned Mahadev Shaft.	L.S.	L.S.	5.00
4.	Land with compensation	10 Ha.	Rs 20,000/ Ha	2.00
5.	Construction of road to Incline site.	L.S.	L.S.	2.00
6.	Service buildings	L.S.	L.S.	11.00
	TOTAL :			47.60

SCHEME FOR OPENING MAHADEVPURI MINE BY DRIVING A PAIR OF INCLINES (NO. 1 & 2) IN VIRGIN AREA S KHIRSADOH - EXTE ION SUB-BLOCK

APPENDIX - 'E'

STATEMENT OF UNIT COST ESTIMATE

E.M.S. = 92.00

O.M.S. = 0.55

Production= 0.15 m.t./Annum. (500 t.p.d.)

Sl. No.	Particulars		Cost/Tonne (Rs)
1.	Wages & Salaries	..	167.27
2.	Stores	..	20.00
3.	Power	..	10.00
4.	Administrative Charges (2.5% of total capital)	..	2.45
5.	Miscellaneous expenditure including Workshop Debit		
	(a) 2.5% of wages = 4.18		5.19
	(b) 2% of cost of P&M = 1.01		
6.	Depreciation -		
	(a) 3.42 (P&M)		
	(b) 2.65 (Development activities including land)		6.07
7.	Interest -		
	(a) On Loan Capital @ 14%		6.84
	(b) On Working Capital @ 17.5%		11.95
	TOTAL :		229.77