



वेस्टर्न कोलफील्ड्स लिमिटेड
Western Coalfields Limited

बोर्ड सचिवालय
BOARD SECRETARIAT

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**BOARD MATTER
CONFIDENTIAL**

WCL/BD/SECTT/BM-281/2016/612

DATE : 29/09/2016

Reproduced below is the relevant excerpt from the minutes of 281st meeting of the Board of Directors of WCL held on 19th September, 2016 :

"ITEM NO.281/ C-1

SUB Recast Project Report (including Mining Plan) of Dhankasa UG Mine

- i) In consideration of the proposal brought out in the agenda note, the Board after deliberation approved the following:
- (a) Recasted Project Report (Including Mining Plan) of Dhankasa UG Mine (May 2016) with a capacity of 1.00 Mty and capital requirement of Rs.458.0660 crores on departmental option, yielding an IRR of 13.31% at 85% capacity for Power Sector at Notified Selling Price.
 - (b) To obtain Environmental Clearance upto 1.25 Mty at peak capacity.
- ii) GM (P&P) to take necessary action in the matter."


COMPANY SECRETARY

✓ GENERAL MANAGER (P&P)

cc : DIRECTOR (TECHNICAL) OP
DIRECTOR (PERSONNEL)
DIRECTOR (FINANCE)
DIRECTOR (TECHNICAL) P&P


Area Planning Officer
WCL, Pench Area

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**Board Note for 281st Meeting of the Board of Directors
Western Coalfields Limited**

ITEM NO. 281/C-1

SUB : Recast Project Report (Including Mining Plan) of Dhankasa UG Mine

1.0 INTRODUCTION

Dhankasa UG Mine has been planned in the Geological blocks of Dhankasa and Naheriya (partly) located in the north-eastern part of Pench-Kanhan Valley Coalfield, District Chhindwara, Madhya Pradesh. Dhankasa geological block is a virgin block. The Recast PR is considering deployment of Continuous Miner Technology to generate higher production & productivity.

2.0 SALENT FEATURES OF APPROVED PROJECT REPORT(Feb 2008)

Earlier Recast PR for Dhankasa U/G Mine was prepared in February-2008 for a target capacity of 1.0 Mty with 2 nos of Continuous Miner districts & 1 LHD district (with 2 LHDs) considering both Departmental & Partial hiring options. In Departmental option, the Recast PR was not yielding the desired IRR at 85% target capacity. However, in Partial Hiring option the project was yielding a IRR of 17.66% & 12.05% at 100% & 85% target capacities respectively with the hiring cost capped at Rs 418.00/T.

The salient features of the Approved Recast PR of Dhankasa UG Mine (Feb-2008) (Partial Hiring option) is tabulated below :

Sl.No.	Particulars	Value
1	Extractable Reserves (Mt)	17.714
3	Grade of Coal/ UHV in K.Cal/Kg	D / 4660
5	Manpower Requirement (nos)	455
6	EMS (Rs)	917.27
7	Overall OMS (T)	8.395
8	Hiring Cost of coal production (Rs/T)	418.00*
9	Total Capital requirement (RsCrores)	152.86
13	Financial IRR (%) at 100% capacity	(+) 17.66
	85% capacity	(+) 12.05

Note : * 418.00 is Capping cost for hiring of CM to achieve 12% IRR at 85% target capacity.



Area Planning Officer
WCL, Pench Area

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WCL Board in its 212th meeting held on 17.06.2008, considering that the hiring cost considered (Rs 418.00/T) was very less as compared to the prevailing hiring cost at that time, administratively approved the **Recast Project Report for Dhankasa UG Mine** for a capacity of 1.00 Mty with a total capital cost of Rs 152.86 Crores in "Partial Hiring" option subject to "Cost Plus Agreement" with prospective customer.

3.0 UPDATION OF P.R. & PREPARATION OF RFQ DOCUMENT

Updation of the Recast Project Report of Dhankasa U/G Mine was done on Departmental Option in January 2014 and accordingly the Model RFQ Document was customized. During the deliberations, the Committee directed CMPDIL, RI-IV to Recast the P.R. after consultation with CMPDIL (HQ), Ranchi so that the provisions in the P.R. are commensurate with stipulation in the MDO document prepared by CMPDIL (HQ).

Project Report for Dhankasa U/G Mine was updated on Departmental Option only for the purpose of putting the Indicated Project Cost in Model RFQ Document for this Project. The Recast PR & MDO document were recommended by TSC of WCL Board.

4.0 APPROVAL OF UPDATED PROJECT REPORT BY COMPETENT AUTHORITY

WCL Board in its 253rd meeting held on 22.02.2104, while advising CMPDI, RI-IV to explore the possibility of increasing capacity of Dhankasa U/G Mine based on Technical Consideration so as to improve Economics of the mine before inviting RFQ under MDO concept through Global Tender, accorded approval for the following :

- a) Project Report of Dhankasa UG mine at an estimated capital of Rs. 426.27 crores on departmental option only for the purpose of arriving at the indicated capital requirement for inviting RFQ/RFP.
- b) Inviting RFQ for development and operation of Dhankasa UG mines under MDO route through Global Tender by CMC department.
- c) Acquisition of land and extending R&R benefits etc, as an advance action, at updated estimated cost of Rs. 68.9714 crores (maximum) for Dhankasa UG mine.

5.0 FURTHER DEVELOPMENTS WITH THE PROJECT (PRESENT STATUS)

Taking WCL Board directions into consideration, a Conceptual Note on possibility of increasing production from Dhankasa U/G Mine was prepared with 3 nos of CM districts for 1.20 Mty and discussed at CMPDI (HQ) in April-2014. CMPDI -HQ suggested to explore the possibility of an O/C Mine to extract more coal reserves with better economics.

Hence a Conceptual Note for Dhankasa O/C mine was prepared for a capacity of 1.50 Mty & discussed at CMPDI-HQ, Ranchi. Later it was suggested to prepare an OC Report with a capacity of about 2.0 Mty in May-2014. Accordingly, an OC Mine for 2.0 Mty capacity with a mineable reserve of 40.23 Mt and Overall Stripping ratio of 20.58

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Cum/t, was planned in Dhankasa Block & discussed in the chamber of DT(P&P) of WCL. The Project was further not taken up due to :

- High stripping ratio (about 20.58 Cum/t)
- Presence of Forest Land for about 60 % of Land Area
- Presence of thick Basalt/Deccan Trap (upto 201.m)

As a result of this, Dhankasa UG project was included for Recasting/Updation in the Annual Plan of CMPDI-RI-4.

6.0 PROJECT SITE INFORMATION

Dhankasa geological block covers an area of 7.40 km². The proposed Dhankasa UG mine is planned in the block which also includes Sector-4 (about 0.30 sq.km.) of Neighboring Nahariya geological block which is in structural continuity with Sector-3 of Dhankasa block. Sector-4 of Nahariya geological block was not included in Nahariya U/G mine due to 20-30m down throw fault $F_{8(N)}-F_{8(N)}$ and Gunor River flowing over this sector.

7.0 GEOLOGY

7.1 Recast Project Report for Dhankasa U/G Mine is based on

- (1) Geological Report on Exploration for Coal, Dhankasa Block', Pench-Kanhan Valley Coalfield, Chhindwara District, Madhya Pradesh, prepared by MECL, Nagpur, in November 1997.
- (2) Geological Report on Exploration for Coal, Nahariya Block', Pench-Kanhan Valley Coalfield, Chhindwara District, Madhya Pradesh, prepared by MECL, Nagpur, in October 1994.

7.2 Strike and Dip

The strike of the coal seam is in general NE-SW swerving to NNE-SSW. However, local undulations and drag effects can be seen near the faults. The dip of the coal seam, in general, is towards north-west and varies from 3° to 6° (1 in 10 to 1 in 20).

7.3 Faults & Dykes

Based on the sub-surface data obtained from boreholes, there are series of faults in the Dhankasa Block, which have rendered the mine property into small sectors. There are 12 nos. faults with throw varying from 5m to 40m in the mining area.

A dyke/sill is encountered in borehole No. PU-85 at the depth of 151.18m to 161.29m where localized effect of igneous activity is noticed in Seam-II & Seam-III.

7.4 Coal Seams

Exploration in Dhankasa Block has confirmed the presence of all the five major coal seams (and their sections) of Pench-Kanhan Valley Coalfield, namely: I, II, III, IV

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and V in descending order. The youngest Seam-I is represented by three sections namely, IA, IB and IC. Seam-III and IV occur as coalesced as well as split sections designated as Top and Bottom. Seam- II and V occur as independent seams.

Details of coal seams have been given in the following table:-

Sl. No	Seam No. / Parting	Floor Depth (m)		Thickness (m)		Dominant Thickness (m)	Remarks
		Min	Max	Min	Max		
01.	IA	113.70	244.42	0.04	3.03	0.49	
	Parting			7.46	11.36	9.41	
02.	IB	146.98	238.84	0.07	1.66	0.43	
	Parting			0.31	4.44	2.00	
03.	IC	122.80	241.49	0.11	2.67	2.00	Seam-II (Pack) Considered workable
	Parting			0.40	7.12	0.60	
04.	II	110.10	243.95	0.22	3.10	1.90	
	Parting with III Comb.			0.51	12.90	4.31	
05.	III(T)	124.18	272.25	0.36	1.49	0.74	
	Parting			0.39	2.51	0.96	
06.	III(B)	126.02	263.36	0.12	0.94	0.48	
07.	III Comb.	96.00	259.88	0.20	2.55	1.37	
	Parting			0.43	15.55	2.54	
08.	IV(T)	115.75	255.09	0.71	2.20	1.10	
	Parting			0.40	0.96	0.58	
09.	IV(B)	122.15	256.86	0.58	5.74	2.21	
10.	IV(B)/ Comb.	104.74	251.44	1.30	7.48	4.50	IV B/Comb. Considered workable
	Parting			0.26	5.93	2.95	
11.	V	109.78	282.61	0.07	2.57	0.90	

Out of 11 coal seams/seam sections, only 2 coal seams/sections namely Seam-II Pack & Seam-IVB/Comb have been considered for Mining.

7.5 Depth of Coal Seams

The depth range of all coal seams / seam sections is about 105 m to 250m.

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8.0 MINE BOUNDARY, RESERVES, QUALITY, TARGET OUTPUT & MINE LIFE

8.1 Mine Boundary

Following features form the boundaries of the proposed Dhankasa U/G mine.

- Northern boundary – Fault F₇-F₇, arbitrary line which corresponds to common block boundary between Dhankasa and Sonpur Geological Blocks, Faults F₈-F₈ and Fault F₄-F₄.
- Eastern boundary - Subcrop of Seam-IV (B)/(Combine)
- Southern boundary - Gunor river and Fault F_{8(N)}-F_{8(N)}
- Western boundary - An arbitrary line 200m west of boreholes PJP-1, PD-59, PU-87, PD-38, 64, 65 to be extended to grid line.

8.2 Coal Reserves & Quality

The seam-wise net geological, mineable and extractable reserves (greater than 1.5 m thickness) in the proposed Dhankasa U/G mine: (Figs. in Mt)

Seam	Net Geo. Res.	Mineable Res.	Min. Loss	Extra. Res.
Seam II Pack	19.430	17.810	9.670	8.140
Seam IV(B)	28.711	26.611	15.751	10.860
Total	48.141	44.421	25.421	19.000

The average grade of Seam-II Pack is G-10 while that of Seam-IV B/Comb is G-6. The weighted average grade, of the entire extractable reserves of Dhankasa UG mine for the whole life of mine works out to G-7 with a GCV value of 5208 K.Cal/Kg.

8.3 Target Output & Mine Life

It has been proposed to work 2 CM-districts at a time with a production target of about 1675 tpd from each face. Hence, the total production from 2 panels would be about 3350 tpd (1.00 Mty). With an estimated extractable reserves of 19.00 Mt. & target coal production of 1.00 Mty, the total life of Dhankasa UG Mine works out to 23 years. Out of this 23 years of mine life, a period of 2 years will be the pre-construction & construction period and the coal production starts from 3rd year.

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9.0 DETAILS OF PROPOSED MINE ENTRIES

The dimensions and purpose of proposed mine outlets is tabulated below:

Entry	Dimension (m)	Length (m)	Gradient	Purpose
Incline No. 1	5.0 x 3.0	468.65	1 in 4.5	Belt conveyor, traveling route & main intake.
Incline No. 2	5.0 x 3.0	468.65	1 in 4.5	Haulage, intake airway & man-riding system
Airshaft	5.0 dia	129.50	Vertical	Return air way

10.0 METHOD OF MINING

In Dhankasa U/G mine development is proposed by Bord & Pillar method. The main dips and the panels will generally consist of 5 headings. The pillars and galleries in Seam-II Pack and Seam-IVB/Comb will be vertically superimposed. The pillar sizes in the panels will be 25.5m, 34.5m & 45.0m centre to centre as per depth in each sector for a gallery width of 4.8m. The height of development galleries will be restricted to 3.0m for trunk roads while that of other working panels would be 4.6m or the seam thickness whichever is lesser. Mine development is also proposed to be done by Continuous Miner packages.

During the end of 2nd year, the Inclines will touch Seam-IV B/Comb. Seam-II Pack also will be accessed through a couple of drifts during the same year. Once both seams are accessed, 1 C.M sets each will be put in operation for each Seams/sections. C.M Package no-1 will be deployed in Seam-II Pack while package no-2 will be deployed in Seam-IVB/Comb for development of main-dip panels. 5 Heading Main-dip panels will be established in each seams almost along the centre of property from rise side to dip side. Trunk belt conveyor of 1200 mm width will be installed along trunk road in Seam-IVB/Comb. Coal from Seam-IVB/Comb will be transported through this trunk belt. Coal from upper seam-i.e. Seam-II Pack will be transported through 7 nos of strata bunkers made along the main-dip panel cutting through the parting between these 2 seams.

Once main-dips development is reached the dip most part of the block (MD-8), panels in strike direction (Panel-2, Panel-1) at the north eastern part of the block will be developed. In Panel-1, depillaring will be commenced immediately after its development. Depillaring in Panel-2 will be followed after depillaring of Panel-1. The further sequencing of panels will be-Panel-3(devt. & depillaring), Panel-4 (devt. & depillaring), MD-7 (depillaring), Panel-5(devt. & depillaring), Panel-6(devt. & depillaring) etc. The sequence will be almost similar in both the seams.

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11.0 PRODUCTION PARAMETERS

2 nos of C.M districts are proposed in Dhankasa UG Mine. By considering the seam thickness & other geo-mining parameters in Dhankasa UG Project, each CM district is expected to produce about 1675 tpd of coal. Hence the total coal production in this Mine from 2 CM districts works out to 3350 tpd, i.e 1.00 Mty.

12.0 VENTILATION

Exhaust ventilation system has been proposed for this mine with two inclines (both of them will act as downcast airways) and one return airshaft (as up cast airway). The main mechanical ventilator will be installed at the fan drift of airshaft with properly constructed airlock arrangement at the top of the shaft. This Project Report has proposed a fan, capable of delivering about 80-120 m³/sec at 67-100 mm WG.

13.0 UNDERGROUND TRANSPORT & COAL HANDLING ARRANGEMENT

The coal cut by the Continuous Miner will be loaded onto the shuttle car bucket by the gathering arms and in-built chain conveyor. Coal from the shuttle car bucket will be discharged into the receiving hopper of the feeder breaker. The bigger lumps of coal will be crushed to - 200 mm size in feeder breaker. The feeder breaker (mobile type) will transfer coal onto the gate belt conveyor of 1000mm wide with 250 tph capacity and then to the out-bye conveyor system-i.e. trunk/ incline belt. Coal from the underground will be brought to surface by trunk belt conveyor TB1 and discharged in to double roll crusher for crushing of coal up to (-100 mm) size. Crushed coal transported through 1600 mm wide picking belt conveyor. One sets of 2 x 100 t (totaling 200 t) capacity overhead bunkers have been provided for coal and one 50 t bunker for the stone/shale picked/separated from the belt conveyor.

Trucks will be loaded below these hoppers with the help of hydraulic gate at the bottom openings of the hopper. An electronic road weigh-bridge of capacity 100t will be provided near the CHP which will be used for weighment of empty as well as loaded trucks. Such weigh-bridge arrangement will be equipped with printing facilities for keeping records and preparation of bills and statements.

14.0 POWER SUPPLY & ILLUMINATION

It is proposed to draw 20 km long 33 kV overhead line from Amarwada 132 kV/33 kV, 40 MVA grid substation for feeding power to Dhankasa U/G. This feeder from Amarwada to Dhankasa in the long run may be used as standby feeder for Naheria UG, Urdhan OC, Jamunia UG and other upcoming mines. This feeder from Amarwada to Dhankasa in the long run may be used as standby feeder for Naheria UG, Urdhan OC, Jamunia UG and other upcoming mines. The proposed Main substation (33 kV/3.3 kV, 2x 5 MVA capacity) will be located near Dhankasa UG incline site. The salient features of electrical parameters of the proposed Dhankasa U/G Mine for Departmental Option are given below :

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Sl. No.	Particulars	Departmental Option
1	Specific Energy Consumption (total)	20.87 kWh / t
2	Specific Power Cost (total)	Rs. 201.60/t
3	Specific Demand	5.290 MVA/Mt.
4	Capacitor Bank Provided (Including Township)	3725 kVAR
5	Average Cost of Purchased Power	Rs. 9.66 / kWh

15.0 CIVIL CONSTRUCTION WORK

The Building Cost Index for M.P. Region has been worked out to 471 in 2016 (1st half) taking the prevalent rates of materials and labours. This Building Cost Index is with reference to base 100 in Nagpur as on 1.1.1992. Keeping in view the needs and requirements of the mine, provision for service buildings such as Project office / Manager office, Unit workshop, Unit Stores, Sub-station, statutory/community buildings and other welfare/residential buildings, roads & culverts and water supply & sewerage have been kept in this Report.

16.0 MANPOWER & PRODUCTIVITY

The proposed manpower, production & productivity for a target capacity of 1.00 Mty in Departmental Option with 2 nos of CM panels are tabulated below:

Sl. No.	Group Name	Departmental Option			
		Including Welfare		Excluding Welfare	
		Strength (Nos.)	OMS (t)	Strength (Nos.)	OMS (t)
1	Underground	379	10.104	379	10.104
2	Surface	111	34.125	97	39.050
	Total	490	7.796	476	8.027

17.0 LAND ACQUISITION

The total land requirement for Dhankasa UG project is 582.651 Ha, out of which 549.131 Ha land is involved for mining purpose and the remaining 33.52 Ha land for approach road, colony, infrastructures and rationalization of plots etc. The breakup of total land requirement is summarized in the following table :

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Type of Rights	Govt. Land (Ha)	Tenancy Land (Ha)	Forest Land (Ha)	Total (Ha)
All Rights	1.463	85.903	206.927	294.293
Surface Rights	-	33.520	-	33.520
Mining Rights	13.882	62.042	178.914	254.838
Total	15.345	181.465	385.841	582.651

A capital provision of Rs. 55.0077 Cr has been made for acquisition of land for Dhankasa UG mine which includes cost of land (Tenancy & Govt.), one time monetary compensation to the tenancy land losers (for 50% of total tenancy land) and NPV for Forest Land (including compensatory afforestation charges) etc. The land rates for proposed Dhankasa UG mine are taken based on the letter received from Area General Manager, Pench Area (letter no- WCL/Pench Area/Area G.M/Planning/2015-16/571 dt. 04.01.2016).

No villages are involved within mine boundary. Hence no shifting of villages or rehabilitation is proposed. One time Monetary Compensation for the tenancy land losers in lieu of employment has been considered for 50% of total tenancy land (50% of 119.423 Ha=59.712 Ha) @ Rs 5.00 lacs /acre. For the balance land, WCL may consider to offer employment in lieu of monetary compensation if the land losers are not willing to accept monetary compensation subject to provisions of new R & R policy of CIL.

18.0 ENVIRONMENT MANAGEMENT

A detailed Environment Management Plan will have to be prepared for this Project Report. The Ambient Air Quality, Water Quality, Noise Levels, Flora & Fauna, Micrometeorological Data and Socio-Economic status in core and buffer zone will have to be determined on the basis of Base Line Data Generation. A total capital provision of Rs 118.00 lacs has been made for environmental protection measures including Continuous Air Quality Monitoring Stations (CAQMS). Rs 6 / T under revenue head has been kept to cater for Plantation & Green belt development, Environmental Monitoring, Social development, Miscellaneous Pollution control measures etc.

19.0 MINE CLOSURE COST

Mine Closure cost has been computed based on the recent guidelines circulated by Government of India, Ministry of Coal, Shastri Bhawan, New Delhi. The closure activities will include subsidence survey for a period of 3 years after mine closure, filling of subsidence cracks, fencing of caved out area and post-project monitoring for a period of 3 years after mine closure. Taking the recent guidelines into consideration, the Mine Closure Cost in the proposed Recast Project Report for Dhankasa U/G Mine works out to Rs. 7.70/t.

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20.0 FINANCIAL EVALUATION

In Recast Project Report for Dhankasa U/G Mine (May-2016), the economics has been worked out on both Departmental & Partial Hiring options. The following table shows the Total Capital Investment under the major heads in Departmental & P.H options in Recast Project Report for Dhankasa UG Mine:

A/C Head	Particulars	Addl. Capital Investment (Rs. Lacs)	
		Dept. Option	P.H. Option
01	Land	5500.77	5500.77
02	Buildings:		
	a) Service Buildings	659.94	659.94
	b) Residential Buildings	1544.92	1071.82
03	Plant & Machinery	29954.61	9419.87
04	Furniture & Fittings	25.00	25.00
05	Railway Siding	-	-
06	Vehicles	11.68	11.68
07	Prospecting & Boring	171.24	171.24
08.1	Capital outlay in mines	5047.44	5045.03
08.2	Roads & Culverts	690.85	673.25
08.3	Water Supply & Sewerage	1278.70	1241.36
08.4	EMP & PR Preparation Cost	230.77	230.52
08.4 (A)	Env. Pollution Control Measures	118.00	118.00
08.5	Scientific Research Costs	150.00	150.00
09	Net Rev. Expenditure. Capitalized during development period	422.68	426.00
	Additional Capital Investment	45806.60	24744.48

20.1 Foreign Capital

The total foreign exchange requirement including customs duty, port handling cost, inland transportation, etc. for the imported equipment of two nos. Continuous Miner packages in Departmental Option works out to Rs. 196.628 crores considering exchange rate of 1 US \$ = Rs. 66.84 which was the ruling rate on 26.03.2016.


Area Planning Officer
WCL, Panch Area

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20.2 Grade of Coal & Weighted Average Sale Price

The annual grade of coal despatch during its total life of the mine varies from grade 'G-8' to 'G-7' as per GCV depending upon the year wise location of working panels and seams. The weighted average sale value considering 98.5% of the year-wise grade of coal and Rs. 79/t as processing charge for dispatching (-) 100 mm size coal works out to Rs. 1882.84/t for Power Sector.

20.3 Opening of Revenue Account

Dhankasa U/G Mine will have cash surplus during 3rd year of mine operation and the mine is expected to come into Revenue from 3rd Year.

20.4 E.M.S.

E.M.S. in Departmental Option for Dhankasa U/G Project (May-2016) works out to Rs. 2147.96 & Rs 2224.05 for Departmental and P.H options respectively. This has been considered for determining economics in this Report.

20.5 Unit Cost of Production

The following table shows the Cost of Production in Departmental & P.H options in Recast PR for Dhankasa U/G Mine (May-2016):

(Amount in Rs)

Sl. No.	Particulars	Departmental Option		Partial Hiring option	
		100%	85%	100%	85%
1	Salaries and Wages	276.34	325.11	183.08	215.39
2	Stores	280.93	311.85	68.84	76.42
3	Power	208.15	220.29	151.71	160.38
4	Environment Pollution Control	6.00	7.06	6.00	7.06
5	Misc. Exp.(incl. Induced caving)	97.49	104.13	82.71	87.47
6	Mine Closure Cost	7.70	9.05	7.70	9.06
7	Administrative Overhead	187.22	220.26	187.22	220.26
8	Hiring / Outsourcing Cost	-	-	1229.58	1229.58
9	Depreciation	378.57	445.37	153.40	180.47
10	Interest on Working Cap. @ 14.50%	43.27	48.30	84.50	87.35
11	Interest on Loan Capital @ 11.50%	60.00	70.58	32.00	37.64
	Total Cost of Production	1545.67	1762.03	2186.74	2311.08

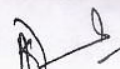
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As per decision made earlier, the operation and maintenance of C.M. Packages in departmental option can be done by WCL on its own as this technology is no longer new for WCL/CIL. Accordingly, the store cost for Dhankasa U/G Mine has been worked out as per CMPDI norms and considered in the cost of production.

20.7 Total Capital Investment, Cost of Production, Profitability & IRR

The Total Capital Investment, Cost of Production, Profitability, IRR at 100% and 85% target capacity in Departmental and Partial Hiring Options of Recast PR for Dhankasa UG Mine (May-2016) is tabulated below:

Sl. No.	Parameters	Dept. Option		P.H Option	
		100%	85%	100%	85%
1	Total Capital Investment incl. WDV (Rs. Cr)	458.0660		247.4448	
2	Total Cost of Production (Rs./t)	1545.67	1762.03	2186.74	2311.08
3	Avg. Sale Price(Power Sector)	1882.84			
4	Profit / Loss for Power Sectors	(+)337.17	(+)120.81	(-)303.90	(-)428.24
5	Avg. Sale Price(Non Power Sector)	2241.25			
6	Profit/Loss for Non Power Sectors (Rs./t)	(+) 695.58	(+) 479.22	(+)54.51	(-)69.83
•	I.R.R. for Power Sector (%)	(+) 21.86	(+) 13.31	(-) ve	(-) ve
•	I.R.R. for Non-Power Sector (%)	(+) 34.35	(+) 24.30	(+) 18.47	(+)10.80



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21.0 CONCLUSION

The Salient Features of the Approved PR (P.H option-June 2008) & the proposed Recast PR (Both the options -May 2016) for Dhankasa UG Mine is tabulated below-

Sl. No	Particulars	Approved PR (June-'08)	Recast PR (May-'16)	
			Dept.	P.H
1	Extractable Reserves (Mt)	17.714	19.00	19.00
2	Mining Technology (No of panels)	2 CM + 1 LHD	2 CM	2 CM
3	Avg Grade of Coal	D	G-7	G-7
4	Mine production capacity (Mty)	1.00	1.00	1.00
5	Manpower Requirement (nos)	455	490	313
6	EMS (Rs)	917.27	2147.96	2224.05
7	Overall OMS (T)	8.395	7.796	12.184
8	Hiring Cost of coal production (Rs/T)	418.00*	-	1229.58**
9	Total Capital required (Rs Crores)	152.86	458.0660	247.4448
10	Cost of production (Rs/T) at 100 %	969.16	1545.67	2186.74
	85%	1040.25	1762.03	2311.08
11	Avg. Sale Price of coal-Power (Rs/T)	1198.20	1882.84	1882.84
12	Estimated Profit/Loss (Rs) at 100% cap	(+) 229.04	(+) 337.17	(-) 303.90
	85% cap	(+) 157.95	(+) 120.81	(-) 428.24
13	Fin. IRR (%) - Power at 100% cap.	(+) 17.66	(+) 21.86	(-) ve
	85% cap.	(+) 12.05	(+) 13.31	(-) ve

Note : * Capping cost for hiring of CM to achieve 12% IRR at 85% target capacity

** Hiring Cost of CM package based on Pinoura UG Mine contract.

In Departmental option of proposed Recast PR for Dhankasa (May-2016), with an average sale price of Rs. 1882.84/t for Power Utilities, Fertilizer & Defence Sectors etc., the mine is expected to make a profit of Rs 337.17/t at 100% & Rs 120.81/t at

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Area Planning Officer
WCL, Panch Area

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85% target capacities respectively. The IRR at 100% and 85% target capacity for Power sector works out to (+) 21.86% & (+) 13.31 % respectively.

In Partial Hiring option of proposed Recast PR for Dhankasa (May-2016), with an average sale price of Rs. 1882.84/t for Power Utilities, Fertilizer & Defence Sectors etc. the mine is expected to make a loss of Rs 303.90/t at 100% target capacity & Rs.428.24/t at 85% target capacities respectively. The IRR at 100% and 85% target production capacity for Power sector are (-)ve.

The proposed Recast PR of Dhankasa UG Mine is achieving the desired IRR at 85% target production capacity for both Power as well as Non-Power Sectors in Departmental option.

22.0 DELIBERATION OF RECAST PROJECT REPORT (INCLUDING MINING PLAN) BY THE TECHNICAL SUB COMMITTEE OF WCL BOARD

The Recast Project Report (Including Mining Plan) of Dhankasa U/G Mine prepared in May 2016 was presented by RI-IV, CMPDIL in the Technical Sub Committee Meeting of WCL held on 05.08.2016 at WCL (HQ), Nagpur. After detailed deliberations, the Technical Sub Committee of WCL Board recommended the Recast Project Report (Including Mining Plan) of Dhankasa U/G Mine for placing before the WCL Board for :

1. Approval for the Recast Project Report (Including Mining Plan) of Dhankasa UG Mine with a capacity of 1.00 Mty with a capital requirement of Rs. 458.0660crs on Departmental Option, yielding an IRR of 13.31% at 85% capacity for Power Sector at Notified Selling Price.
2. Approval to obtain Environment Clearance upto 1.25 Mty peak capacity.

23.0 FINANCIAL APPRAISAL of RECAST PROJECT REPORT:

As per the directives for investment proposal, the Recast Project Report (Including Mining Plan) of Dhankasa UG Mine (May 2016) has been financially appraised by M/s Infrastructure Development Consulting Services (IDCS) and the report submitted. The report of Financial Appraisal endorses the financial calculations of the Recast Project Report for Dhankasa UG Mine (May 2016) and the details are as given below :

IRR on Departmental Option is in line with the CMPDIL and comes out to be 13.31% at 85% for power sector.

Area Planning Officer
WCL, Panch Area

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27.0 SUBMISSION

As recommended by Technical Sub Committee of WCL Board and subsequent Financial Appraisal endorsement and cleared by FDs, the Recast Project Report (Including Mining Plan) for Dhankasa UG (May 2016) is placed before the WCL Board for ;

1. Approval for the Recast Project Report (Including Mining Plan) of Dhankasa UG Mine (May 2016) with a capacity of 1.00 Mty and capital requirement of Rs. 458.0660 crs on Departmental Option, yielding an IRR of 13.31% at 85% capacity for Power Sector at Notified Selling Price.
2. Approval to obtain Environment Clearance upto 1.25 Mty peak capacity.

Company Secretary



Area Planning Officer
WCL, Panch Area

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**MINUTES OF TECHNICAL SUB COMMITTEE OF WCL BOARD FOR PROJECTS
HELD ON 05-08-2016 AT WCL (HQ), NAGPUR**

PRESENT:

- | | |
|--------------------------------|------------|
| 1. Shri T.N.Jha, DT. (P&P) | - Chairman |
| 2. Shri S.M.Choudhary, D(F) | - Member |
| 3. Shri S.K.Srivastav, GM(S&C) | - Member |
| 4. Shri S.Suresh Rao, COIA | - Member |

IN ATTENDANCE:


1. Shri A.R.Azami, GM (P&P), WCL-HQ
2. Shri Manoj Kumar, HOD , CMPDIL, RI-IV

(i) Recast Project Report (Including Mining Plan) for Dhankasa UG Mine (May 2016)

The team of CMPDIL, RI-IV presented the brief of the Recast Project Report (Including Mining Plan) for Dhankasa UG Mine (May 2016) :

The Committee was informed that:

1. WCL Board in its 212th meeting held on 17.06.2008 approved the Recast PR for Dhankasa UG Mine for a capacity of 1.00 Mty with a total capital cost of Rs. 152.86 Crores on Partial Hiring Option subject to an agreement on cost plus basis with prospective customer, agreeing to pay a price which yields the requisite IRR percentage.
2. WCL Board in its 253rd meeting held on 22.02.2014, while according Board approval, advised CMPDI, RI-IV to explore the possibility of increasing the capacity of Dhankasa UG Mine based on the technical consideration so as to improve the economics of the mine before inviting RFQ. The Board after detailed deliberations, in order to facilitate early opening of Dhankasa UG Project, accorded approval for the following :
 - a) PR of Dhankasa UG Mine at an estimated capital of Rs. 426.27 Crores on Departmental Option only for the purpose of arriving at the indicated capital requirement for inviting RFQ/RFP.
 - b) Inviting RFQ for development and operation of Dhankasa UG mine under MDO route through Global Tender.
 - c) Acquisition of land and extending R&R benefits etc., as an advance action at updated estimated cost of Rs. 68.9714 Crores (max).
3. Taking WCL Board directions into consideration, a Conceptual Note on exploring the possibility of increasing production was prepared with 3 nos. of Continuous Miner districts. It was discussed at CMPDI (HQ), Ranchi and it was suggested to explore the possibility of operating an opencast project comprising Dhankasa block & nahariya block.


Area Planning Officer
WCL, Panch Area

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4. Hence an OC mine with a production capacity of 2.0 Mty was planned in Dhankasa geological block with a mineable reserve of about 40.23 Mt in 2 quarries. The overall stripping ratio worked out to 20.58 m³/t. Finally the project did not take up due to high stripping ratio & presence of forest land for more than 60% of surface land area. The presence of thick Deccan Trap/Basalt formation (thickness up to 201 m) in the area was also a deterrent factor on going for opencast mining.

5. Hence, a Recast PR for Dhankasa UG Mine is prepared as on May 2016 by operating 2 nos. of CM districts for a production target of 1.0 Mty. Both Departmental option & Partial Hiring options have been considered for the proposed Report.

Salient features Recast PR (Including Mining Plan) of Dhankasa UG Mine (May 2016)

The net extractable reserves 19.00 Mt having an anticipated life of 23 years at the capacity target of 1.0 Mty. Total manpower required in departmental option is 490 with an OMS of 7.796. The weighted average Grade of coal is G7.

Total land requirement for the proposed Recast PR of Dhankasa UG Mine (May 2016) is 582.651 Ha (15.345 Govt land, 181.465 Tenancy land and 385.841 Forest land). It is proposed to acquire 549.131 Ha (within mining area) through CBA Act 1957, for which sec-11(1) are completed. The remaining 33.52 ha land base with surface rights will be acquired by direct negotiations.

Other Economical parameter of Recast PR:- (May 2016)

Sl. No.	Particulars	Recast PR (May 2016) (Departmental)
01	Extractable Reserves (Mt)	19.00 ✓
02	Grade of coal GCV (kCal/kg)	G7 (5208 k.cal/Kg) ✓
03	Mine Capacity (Mty)	1.00 ✓
04	Manpower Requirement (Nos.)	490 ✓
05	Overall OMS (t)	7.796 ✓
06	Capital required (Rs. In Crores)	458.0660 ✓
07	Cost of Production (Rs./t)	
	a) At 100% capacity	1545.67 ✓
	b) At 85% capacity	1762.03 ✓
08	Av. Selling Price for Power Sector (Rs./t)	1882.84 ✓
09	Profit/Loss (Rs./t) For Power sectors	
	a) At 100% capacity	(+) 337.17 ✓
	b) At 85% capacity	(+) 120.81 ✓
10	Financial IRR (%)	
	a) At 100% capacity	(+) 21.86 ✓
	b) At 85% capacity	(+) 13.31 ✓


Area Planning Officer
WCL, Ranch Area

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Considering the above, Technical Sub Committee recommended the recast PR for placing before the WCL Board for:

1. Approval for the Recast Project Report (Including Mining Plan) for Dhankasa UG Mine (May 2016) with a capacity of 1.00Mty and capital requirement of 458.066 crores on Departmental Option, yielding an IRR of 13.31% at 85% capacity for Power sector at Notified Selling Price.
2. Approval to obtain Environmental Clearance upto 1.25Mty peak capacity.

(ii) Project Report (Including Mining Plan) of Niljai Expansion (Deep) OC mine (updated June 2016) :

The team of CMPDIL, RI-IV presented the brief of the Project Report of Niljai Expansion (Deep) OC mine (updated June 2016) :

The Committee was informed that:

The Project Report of Niljai Expansion (Deep) OC mine was approved in February, 2011 by WCL Board in Partial hiring option for a target production of 3.00 Mty and additional capital of Rs. 414.1063 crores subject to cost plus agreement with the customer. The cost plus agreement with prospective customer has not been finalized till date. The balance coal and OB available in both the quarries (Niljai North OC and Niljai South OC) of Niljai OC mine as on 01.04.2016 including coal of the approved Schemes and barrier is likely to exhaust in 1-2 years.

The PR of Niljai Expansion (Deep) OC mine has been updated with revised sale price of coal and considering revised norms of PR preparation as per the decision of 317th CIL Board meeting.

Present status of Land Acquisition

1786.22 ha land is involved for proposed Niljai Expansion (Deep) OC mine out of which 1350.75 ha land is already in possession existing Niljai OC mine. For balance 410.47 ha land (360.22 ha tenancy land and 50.25 ha government land) is already acquired U/s 11 of CBA act 1957 notified on 14.07.2015. Land to be acquired outside project for rehabilitation of Uknj village is 25 ha (additional)

Status of Environmental Clearance

Environmental Clearance for production capacity of 3.5 MTPA was granted vide letter no J-11015/261/2011-1A- II (M). dated 12.10.2015.

Salient features PR (including mining plan) of Niljai Expansion (Deep) OC mine

The net mineable reserves 47.87 Mt having an anticipated life of 15 years with an average stripping ratio of 7.93 M³/t.


Area Planning Officer
WCL, Panch Area

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Total land requirement for the proposed Niljai Expansion (Deep) OC mine is 410.47ha, including 360.22 ha tenancy land and 50.25 ha government land is acquired U/s 11 of CBA act 1957 notified on 14.07.2015. Land to be acquired outside project for rehabilitation of Ukni village is 25 ha (additional).

The Project Report of Niljai Expansion (Deep) OC mine has been updated for Partial Hiring option for enhanced target capacity of 3.50 Mty. It is proposed to work entire coal and parting OB by Departmental HEMM. Removal of Top OB above coal seam and rehandling of OB already dumped in dipside coal bearing area are proposed by outsourcing of HEMM. Two options have been worked out in this updated PR i.e. OPTION-I & OPTION-II.

OPTION-I: It is Partial Hiring Option with mine capacity of 3.50 Mty and manpower of 407. This manpower is actual requirement for the mine to produce 3.5 Mty. IRR of the project will be 26.03 % at 85% capacity.

OPTION -II: It is Partial Hiring Option with mine capacity of 3.50 Mty. In this option, 400 additional manpower has been absorbed in addition to actual requirement of 407 manpower. Thus 807 is the maximum manpower which can be absorbed to make the mine economical.

Other Economical parameter of PR:- (Updated June 2016)

Sl. No.	Particulars	Approved PR (December, 2010) (Partial Hiring)	Updated PR (June, 2016) (Partial Hiring) OPTION-I	Updated PR (June, 2016) (Partial Hiring) OPTION-II
01	Mineable Reserves (Mt)	45.30 (10% mining losses)	47.87 (5% mining losses)	47.87 (5% mining losses)
02	Grade of coal GCV (kCal/kg)	'E' Proc. ROM	4790 (G-9)	4790 (G-9)
03	Volume of OB (Mm ³)	383.51	379.61	379.61
04	Average S/R (m ³ /t)	8.47	7.93	7.93
05	Mine Capacity (Mty)	3.00	3.50	3.50
06	Manpower Requirement (Nos.)	873	407	807
07	Overall OMS (t)	13.02	32.57	16.428
8	Capital required (Rs. In Crores)	430.9415	390.7210	390.7210
	a) Additional Capital	414.1063	306.0295	306.0295
	b) WDV of Existing assets	16.8352	84.6915	84.6915
09	Cost of Production (Rs./t)			
	c) At 100% capacity	1460.73	1258.20	1295.97


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WCL, Panch Area

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	d) At 85% capacity	1581.29	1332.60	1377.89
10	Av. Selling Price (Notified) (Rs./t) For Power sectors	1074.50	1333.00	1333.00
11	Profit/Loss (Rs./t) For Power sectors			
	c) At 100% capacity	(-) 386.23	74.80	37.03
	d) At 85% capacity	(-) 506.79	0.40	(-) 44.89
12	Financial IRR (%)			
	a) At 100% capacity	NEGATIVE	63.10	33.94
	b) At 85% capacity	NEGATIVE	26.03	12.32
13	Price to yield 12 % IRR @ 85% capacity (Rs./t)	1916.72	-	-

After detailed deliberation, the Committee directed to update the PR considering the manpower & other capital provisions against compensation for houses in village rehabilitation, concrete road for coal transportation within mine premises etc. as proposed by Area.

Considering the above, the Technical Sub Committee has recommended PR (including Mining Plan) to place before the WCL Board for:

1. Approval of the Project Report (including Mining plan) of Niljai Expansion (Deep) OC (June 2016) with capacity of 3.5 MT at an additional capital requirement of Rs 306.0295 crores* excluding WDV of Rs 84.6915 crores on partial hiring option yielding an IRR 12.32 %* (* under revision for incorporation of above changes) at 85% capacity at notified price applicable for power sector.

CHIEF OF INTERNAL AUDIT
MEMBER

GENERAL MANAGER (S&C)
MEMBER

DIRECTOR(F)
MEMBER

DIRECTOR (TECH) P&P/OP
CHAIRMAN

Area Planning Officer
WCL, Panch Area

Chapter 8: Critical Appraisal

The key observations after the critical review of the data for the Dhankasa UG mine are as follows:

- NPV is positive and the IRR is above the benchmark of 12% at both 100% as well as 85% capacity utilizations for the Departmental Option.
- This project has specific execution risk/constraints which need to be removed/ taken care of for speedy project development.

On the basis of Review /Appraisal of the Recast PR prepared by CMPDIL in May 2016, the IRR works out to be positive at both 100% and 85% capacity utilizations on Departmental option.

- The Project IRR is 21.86% at 100% capacity utilization.
- The Project IRR is 13.31 % at 85% capacity utilization.

In light of the above findings the project seems viable for implementation through Departmental option.


Area Planning Officer
WCL, Pench Area



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अप्रति सचिवालय	
NOTE SHEET NO.	1920
सोडिंग नंबर	
Date/दिनांक	26/8/16

Accordingly, GM(P&P) has recommended for approval for placing the Recast Project Report (Including Mining Plan) for Dhankasa UG (May 2016) before WCL Board for:


1. Approval for the Recast Project Report (Including Mining Plan) of Dhankasa UG Mine (May 2016) with a capacity of 1.00 Mty and capital requirement of Rs. 458.0660 crs on Departmental Option, yielding an IRR of 13.31% at 85% capacity for Power Sector at Notified Selling Price.
2. Approval to obtain Environment Clearance upto 1.25 Mty peak capacity.

D(T)P&P has also agreed to the proposal on N/15.


In view of above, Director(Fin) may kindly agree and recommend to the competent authority for approval for placing the Recast Project Report (Including Mining Plan) for Dhankasa UG (May 2016) before WCL Board for kind approval.


Chief Manager(F)FC

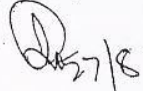
~~General Manager(Fin)-I~~


25/8/16

~~Director (Fin)~~


25/8/2016

~~C.M.D~~

For P&S

27/8

GM(Fin) 3604404
25/08/16

Co. Secy


Area Planning Officer
WCL, Panch Area

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FDs MATTER
CONFIDENTIAL

WESTERN COALFIELDS LIMITED
BOARD SECRETARIAT
COAL ESTATE, CIVIL LINES, NAGPUR

REF.WCL/BD.SECTT/FD-684/2016/ 532


DATE : 01.09.2016

Reproduced below is the relevant excerpt from the minutes of 684th meeting of the Functional Directors of WCL held on 31.08.2016:


ITEM NO.684/11

SUB Recast Project Report of Dhankasa UG Mine (Including Mining Plan) (May 2016), PENCH AREA

- i) Shri A.R. Azami, GM (P&P) explained the proposal to the FDs.
- ii) FDs, after deliberation, cleared the proposal for placing before the Board for approval after due deliberation as brought out in the agenda note.
- iii) GM (P&P) to take necessary action in the matter.


COMPANY SECRETARY

✓ GM (P&P) - Along with original Papers / File.


Area Planning Officer
WCL, PENCH AREA

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NOTING SHEET



WESTERN COALFIELDS LIMITED
(A Govt. of India Undertaking)

File No.: WCL/NGP/P&P/ 638

Sheet No. :

Name of Officer

Dealing Clerk :

Dt 02.09.2016

Subject: Recast Project Report (Including Mining Plan) of Dhankasa UG Mine

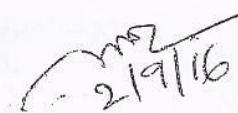
The Proposal of Recast Project Report (Including Mining Plan) of Dhankasa UG Mine (May 2016) has been agreed by FDs for placing before the WCL Board for approval.

Board Note is enclosed for kind perusal and approval for submission to WCL Board.


Submitted please.

Encl.: - as above.


General Manager (P&P)


Dir.(Tech) P&P

Company Secretary


Area Planning Officer
WCL, Panch Area