



वेस्टर्न कोलफील्ड्स लिमिटेड

Item No: 345/C-17

Western Coalfields Limited

पंजी. क्र.: कोयला विहार, सिविल लाइन्स, नागपूर (महाराष्ट्र)-440001

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BOARD MATTER

CONFIDENTIAL

REF: WCL/Office of CS/BM-347/2022-23/836

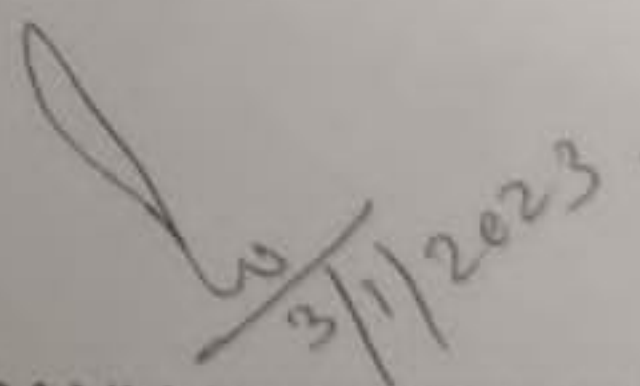
DATE: 03.01.2023.

Reproduced below is the relevant excerpt from the minutes of 347th meeting of the Board of Directors of WCL held on 16th December, 2022:

"ITEM NO.347/ C-14

SUB Proposal for Mining Plan of Ambara OC Patches Extension (including mine closure plan), Kanhan Area.

- i) While deliberating on the subject brought out in the agenda note, Shri Anil Kumar Singh, Director (Technical) P&P apprised the salient features of the Mining Plan for Ambara OC Patches Extension including Mine Closure Plan, Kanhan Area to the Board.
- ii) The Board, after deliberation and to enhance the production from 1.00 MTPA to 1.315 MTPA, accorded its approval to the Mining Plan including Mine Closure Plan of Ambara OC Patches Extension with extension in land area from 162.153 Ha to 264.621 Ha as brought out in the agenda note.
- iii) General Manager (P&P) to take necessary action in the matter."


3/1/2023
COMPANY SECRETARY

GENERAL MANAGER (P&P)

CC: DIRECTOR (PERSONNEL)

DIRECTOR (TECHNICAL) OP

DIRECTOR (FINANCE)

DIRECTOR (TECHNICAL) P&P



MINING PLAN

***AMBARA OC PATCHES EXTENSION
MINE (from 162.153 Ha to 264.621 Ha)
and enhancement in production capacity
from 1.00 MTY to 1.315 MTY.***

***AMBARA COLLIERY, AMBARA SUB AREA
KANHAN AREA, WCL***

INDEX

SL. NO.	CONTENTS	PAGE NO.
A)	TEXT	
1.0	Background	3-6
2.0	Topography, Drainage and Climate	6
3.0	Geology	6-9
4.0	Production Details, Mine Life and Grade of Coal	9-11
5.0	Mining Strategy	11-13
6.0	OB Dumps and Dumping Strategy	13-15
7.0	Coal Dispatch	15
8.0	Land Details	15-18
9.0	Employment/ Monetary Compensation	18
10.0	Land Use Pattern	18-19
11.0	Land Acquisition Details	19
12.0	Manpower and Civil Activities	19-20
13.0	Safety	20-22
14.0	Scientific Studies	23
15.0	Environmental Management	23-30
16.0	Mine Closure Planning	30-34
17.0	Conclusion	34

MINING PLAN

AMBARA OC PATCHES EXTENSION MINE FROM (162.153 Ha to 264.621 Ha) WITH PRODUCTION CAPACITY ENHANCEMENT FROM (1.00 MTPA TO 1.315 MTPA)

1. BACKGROUND

Ambara OC patches mine is a part of Mohan Colliery and is situated in Kanhan area of WCL in PENCH & Kanhan coal fields. The colliery was opened in the year 1920 by M/s Hassan jee & Bheeljee Co. & M/s Sial Ghogri & Co. During pre-nationalisation the mine was being operated in the name of Sial Goghri Mines. Subsequently after nationalization the name of the mine was changed to Mohan Colliery since 1976.

Prior to nationalization the mine was operated by erstwhile owners by OC method in patches, while UG method of working was being done through number of inclines. The area in which underground working was being done had been developed and depillared. To exploit the left out coal during depillaring by underground mining, where there is possibility of getting coal, are identified for Opencast Mine.

1.1 INTRODUCTION

MECL took up the detailed exploration for coal in Sial Ghogri block in July 1980 and divided the block into three sub blocks, i.e. Gajandoh, Sial Ghogri east and Sial Ghoghari west for purpose of interpretation and reserves estimation, the south side property namely maori block was annexed with the mohan colliery and rationalized block falls in PENCH Kanhan Coalfield and located in Parasia Tahsil of Chhindwara District, Madhya Pradesh. The block is about 15 km in west direction from Parasia, a major mining town and about 40 km from Chhindwara which is a District HQ. The area is covered under Survey of India Topo sheet No. 55J/12. In Maori Mining block, 57 boreholes of PM, PKSG and SG series were drilled in an area of 7.31 sq. km. with a metreage of 11096.65 and the borehole density is 8.

The PENCH Kanhan Valley coalfields extend over a strike length of about 64 Km. The Talchirs are exposed all along the southern limit of basin, while the Moturs with thin strips of Barakars in between, occur in the central part. In the northern part Bijori and Panchmarhi formations overlie the lower Gondwanas. Over lying the lower Gondwanas sediments, the Jabalpurs are exposed in small patches in eastern part of the coalfield. The regional strike of the

sedimentary is ENE-WSW with northerly dip ranging between 5° and 15°. The Pench valley area is affected by network of faults in which the strike faults are dominant. As a result of these faults of varying amounts of throw, local change in dip and strike are common. The faults zone has prominent topographical expressions in the form of linear ridges, fractured and slickenside rocks and faulted/unconformable contact with Precambrian crystalline in the southern part of the basin. The coal bearing Barakars so conformable relation with the overlying laying moturs, but having distinct unconformity with Jabalpur. A number of coal seams occur in barakar formation. Coal seams are No.I Seam, Leader of II Seam, No. II(A) Seam, No. II(B) Seam, No. III(A) Seam & No. III(B) Seam.

Ambara OC patches mine is falling under the leasehold area of Mohan Colliery, Kanhan Area of Western Coalfields Limited. The extension in existing Ambara OC patches mine is proposed in order to excavate the remaining coal quantity left after the underground operations during the pre-nationalized period & nationalized period. The extension in mine is proposed from an area of 162.153 Ha to 264.621 Ha and production capacity enhancement from 1.00 MTPA to 1.315 MTPA.

Environment Clearance from MoEF&CC, New Delhi vide letter no. J-11015/252/2007-IA.II(M) dated 18.03.2008 exists for the present Ambara OC patches mine having production capacity of 1.00 MTPA in an area of 162.153 Ha. The present working patch Mohan OC Phase-IV patch and it's extension is a part of the Ambara OC patches mine. Extension is proposed for the existing Ambara OC patches mine (from 162.153 Ha to 264.621 Ha) to extract the coal from proposed Mohan OC Phase-V patch with enhancement in production capacity from 1.00 MTPA to 1.315 MTPA and mine life of 05 years. The proposed Mohan OC Phase-V patch has 102.468 Ha land outside the existing project area of Ambara OC patches mine. Hence, application for extension in Environment Clearance of Ambara OC patches mine(from 162.153 Ha to 264.621 Ha) with production capacity enhancement from 1.00 MTPA to 1.315 MTPA and mine life of 05 years has to be made for the proposed Mohan OC Phase-V patch for which scheme has already been prepared.

Scheme of Mohan Opencast Mine, Phase V was sanctioned on for capital of Rs. 34.38 Cr. and production capacity of 1.315 MTY for a life period of 5 years. The total quantity of coal to be extracted is 6.567 MT and OB is 58.93 M cum with a stripping ratio of 1:8.97 and Grade of Coal is G-12. The aforesaid scheme has been dovetailed in the existing Ambara OC quarry patches and

the resultant mining plan in the name of ‘**Ambara OC patches extension mine**’ has been prepared and being submitted for approval of competent authority.

1.2 JUSTIFICATION

The mines of WCL are under constant pressure to meet the increasing demand of non-coking coal for power houses and other bulk consumers from western as well as southern part of country. The justification of this mine has been studied in the light of estimated demand for non-coking coal from power & Non-power sectors and production forecast from existing, completed, ongoing & future projects of WCL. In order to reduce the gap between demand & supply of coal, it is very essential to either open new mines or increase the production capacity from existing mines of WCL.

The target capacity of 1.315 MTY from Ambara OC patches extension mine will bridge the gap to the extent of planned coal production. The marketing of non-coking coal produced from Mohan OC will not be a problem as there is a readily available market. There is huge demand of coal from power sector and the coal may be supplied to the power houses of MPPGCL/ NTPC or captive power houses. Also there are many miscellaneous industries in non-power sector which can utilize part of the coal (20%) produced from this mine.

The production from Kanhan area is continuously decreasing due to closing down of old mines due to exhaustion of reserve and the area is incurring huge loss. At present in Kanhan area no OCM is in operation. The last working was carried out in Ambara OC patches mine in Mohan OC Phase IV patch having a coal reserve of 0.126 MT. Coal evacuation and OB removal work at Extension of Mohan OC Ph-IV patch has been completed HOE means. The HOE work commenced on 12.05.2022 and completed in Sep 2022. After this there is sudden drop in the coal production of Ambara Sub Area and Kanhan Area too. The mine officials have identified a patch adjoining to the last working of Ambara OC patches mine with a reserve of 6.56 MT with stripping ratio 1:8.97 which may be a viable prospect for continuing the area by maintaining production.

1.3 LOCATON AND COMMUNICATION

Ambara OC patches extension mine is located approximately in the central part of the Pench – Kanhan Valley Coalfields in District Chhindwara of Madhya Pradesh State which will be operated under administrative control of Kanhan Area of Western Coalfields Limited. The area is approximately bounded by latitudes 22°10’0” N & 22°12’56” N and longitudes 78°37’39” E &

78°41'54" E. Ambara OC patches extension mine is well connected by rail and road. The Parasia – Damua main road which runs almost in East-West directions lies 1.00 to the north of the block and connected by Ambara-Umreth MDR road. The block is approachable from Chhindwara, the district headquarters, by a 40 Km long all weather road via Parasia. The nearest rail-head i.e. Palachori Siding is located at a distance of 04 Km from the mine. The Palachori Siding lies on Amla – Chhindwara broad gauge railway line and Amla is a junction on the Madras – Delhi broad gauge line.

2. TOPOGRAPHY, DRAINAGE AND CLIMATE

The Area mostly undulates with few mounds and undulating topography with general slope towards South to North direction. The altitude of the area varies between 830 M to 870 M above sea level. Pench River flowing at a distance of 6.0 Km in North-East direction controls the main drainage of the area towards south, which is controlled by seasonal nullahs. The flow of the seasonal nallah is guided by the local topography to ultimately meet in the major nallah flowing on the north-west side beyond the property.

The area falls under tropical climate zone experiencing mild hot summer and mild winter. In summer, general maximum and minimum temperature is about 41°C and 26°C respectively. However, rarely the summer temperature shoots up as high as 45°C in May / June. In winter generally maximum and minimum temperature is about 27°C and 10°C respectively. However, minimum temperature seldom falls to as low as 6°C in December / January. Monsoon is normally active during the period from 15th June to 15th September. The average annual rainfall is about 800 mm to 1000mm.

3. GEOLOGY

3.1 GENERAL

The Pench Kanhan Valley coalfields extend over a strike length of about 64 Km. The Talchirs are exposed all along the southern limit of basin, while the Moturs with thin strips of Barakars in between, occur in the central part. In the northern part Bijori and Panchmarhi formations overlie the lower Gondwanas. Over lying the lower Gondwanas sediments, the Jabalpurs are exposed in small patches in eastern part of the coalfield. The regional strike of the sedimentaries is ENE-WSW with northerly dip ranging between 5° and 15°. The Pench valley area is affected by network of faults in which the strike faults are dominant. As a result of these faults of varying amounts of

throw, local change in dip and strike are common. The faults zone has prominent topographical expressions in the form of linear ridges, fractured and slickenside rocks and faulted/unconformable contact with Precambrian crystalline in the southern part of the basin. The coal bearing Barakars so conformable relation with the overlying laying moturs, but having distinct unconformity with Jabalpur.

3.2 BOUNDARY OF PROPOSED AMBARA OC PATCHES EXTENSION MINE FOR OPERATION OF MOHAN OPENCAST PHASE V PATCH AS PER APPROVED SCHEME-

In the Mohan OC, Phase V patch, the bottom Seam –II (B) has been considered as lowest horizon with following limits.

East- Common Lease Boundary of Chandameta Colliery and Barkui Colliery.

West- Barrier against Dhau Busty of village Ambara.

South- Barrier against populated area of Ghogri Raitwari village.

North- Leasehold boundary of Ambara Colliery.

3.3 EXPLORATION STATUS AND RECENT STUDIES

MECL took up the detailed exploration for coal in Sial Ghogri block in July 1980 and divided the block into three sub blocks, i.e. Gajandoh, Sial Ghogri east and Sial Ghogri west for purpose of interpretation and reserves estimation, the south side property namely maori block was annexed with the mohan colliery and rationalized block falls in PENCH Kanhan Coalfield and located in Parasia Tahsil of Chhindwara District, Madhya Pradesh. The block is about 15 km in west direction from Parasia, a major mining town and about 40 km from Chhindwara which is a District HQ. The area is covered under Survey of India Topo sheet No. 55J/12. In Maori Mining block, 57 boreholes of PM, PKSG and SG series were drilled in an area of 7.31 sq. km. with a metreaqe of 11096.65 and the borehole density is 8.

In the proposed Ambara OC patches extension mine, total 10 number boreholes exists. To quantify actual Coal and Overburden quantity, data from these 10 nos. boreholes is taken in consideration.

The sequence of coal seams and thickness in proposed quarry area are tabulated below:

Sl. No.	Seam Details	Status of working	Thickness of Seam
1	Seam-I	Virgin	Min. - 5.71M Max. – 6.00 M.

		Goaved out Area	4.50 M (Average Thickness)
2	(Leader Seam)	Virgin	Min. – 0.55M Max. –1.00 M.
3	Seam-IIA	Virgin	Min. – 0.40 M Max. –0.51 M.
4	Seam-IIB	Virgin	Min. – 1.21 M Max. –1.40 M.
		Standing on Pillar	1.05 M (Average Thickness)
		Goaved out Area	0.42 M (Average Thickness)

3.4 GEOLOGICAL STRUCTURE OF BLOCK

3.4.1 STRIKE & DIP

The general strike of the coal seam is North-east in the major part of the area. The dip of strata is towards North to east, the amount of dip ranges from N 23°10 E to N 73°15 (Gradient 1 in 8 to 19).

3.4.2 FAULTS

There are six major faults running in the area covered for excavation in the proposed extension of Ambara OC mine, which are running along East -West direction whose magnitude varies from 4m to 16m. Name & Throw of faults are as tabulated below:

S.No.	Name & No. of Fault	Throw
1	F4	6 M
2	F5	15 M
3	F8	10 M
4	F11	4 M
5	F13	16 M
6	F15	16 M

3.5 COAL SEAMS PROPOSED FOR EXTRATION IN MOHAN OC PHASE V PATCH OF THE AMBARA OC PATCHES EXTENSION MINE

As per the approved scheme, total four numbers of coal seams have been considered for extraction in the proposed quarriable viz. Seam No. I, Leader Seam, Seam No. IIA and Seam No. IIB. Seam No. I is the topmost seam and virgin & goaved out in the entire area. The underlying seam i.e. Leader seam and No. IIA are virgin. The lower most seam considered for extraction is seam No.

IIB which is partly virgin, partly developed & depillared. The average thickness of all four seam is 7.50 M (Approx).

3.6 COAL RESERVES

The total mineable coal reserve in the proposed Mohan OC Phase V patch of Ambara OC patches extension mine comes to 6.567 MT and total OB to be excavated comes to 58.937 Mcum at an overall stripping ratio of 8.97. The grade of coal is G-12. The life of scheme is planned for 5 yrs with an annual capacity of 1.315 MTY.

4. PRODUCTION TARGET, MINE LIFE AND GRADE OF COAL

4.1 Production Details

The production details of the different patches operated under existing Ambara OC patches mine is tabulated below-

Mine	Patch	Quantity		Year	
		OB (Lm ³)	Coal (in LTe)	Starting	Completion
Ambara OC patches mine	Tuti	22.000	4.500	1998	2002
	Amba	26.200	5.100	2002	2004
	Hinglaj	27.300	4.000	2003	2004
	Bharti	35.300	5.200	2003	2006
	Vaibhavi	49.420	7.530	2006	2009
	Kalyani	62.400	7.900	2009	2012
	Mohan OC Phase-I	10.450	2.780	2005	2006
	Mohan OC Phase-II	19.280	2.480	2006	2008
	Mohan OC Phase-III	88.110	14.870	2016	2019
	Mohan OC Phase-IV	37.380	11.420	2019	2022

Mohan OC Phase-IV extension	0.303	0.141	2022	2022
Sub Total (A)	378.143	65.921		
Proposed Mohan OC Phase-V patch (B)	589.310	65.670	Proposed in 05 years with 1.315 MTY	
Total (A+B)	967.453	131.591		

The approved scheme for Mohan OC, Phase V patch was prepared for an annual targeted capacity of 1.315 MTY. For this, enhancement in EC capacity of existing Ambara OC patches mine from 1.00 MTY to 1.315 MTY is proposed with extension in area from 162.153 Ha to 264.621 Ha. The calendar program for coal production and OB removal is as follows:

Year-wise break up of Coal & OB Quantity for the proposed Ambara OC patches extension mine-

Year	Coal (Mt)	OB (Mm3)	Cum. OB(Mm3)	S.R (m3/t)
1 st	1.315	9.90	9.90	7.53
2 nd	1.315	12.60	22.50	9.58
3 rd	1.315	12.60	35.10	9.58
4 th	1.315	12.60	47.70	9.58
5 th	1.307	11.23	69.08	8.59
Total	6.567	58.93	58.93	8.97

Year-wise break up of OB Quantity-

Year	Soft OB	Hard OB	Basalt (Trap)	RH
1 st	1.369	6.586	0	1.949
2 nd	1.369	6.586	4.645	0
3 rd	1.369	6.586	4.645	0
4 th	1.369	6.586	4.645	0
5 th	0	6.586	4.645	0
Total	5.474	32.93	18.580	1.949

4.2 Mine Life

The proposed extension of Ambara OC patches mine is for operation of Mohan OC Phase V patch for which scheme has already been approved. As per the approved scheme of Mohan OC, Phase V patch, the annual target of coal production is 1.315 MTY and peak OB removal is 12.60 Mm³/annum. It is proposed to extract entire coal and overburden by hiring. The mine life is 5 years. Thus, the Ambara OC patches extension mine shall have mine life of 05 years.

4.3 Grade of mineable Coal

The declared grade of coal in the same seam of existing Ambara OC patches mine (Mohan OC Phase III and Phase IV patch), as G-12 (GCV 3701-4000 Kcal/kg). Hence the grade of coal for the proposed Ambara OC patches extension mine is considered as G-12.

5. MINING STRATEGY

5.1 Geo-mining Parameters

Sl. No.	Particulars	Existing Ambara OC patches mine EC (162.153 Ha)	Details of Additional land(102.468 Ha) for proposed extension of Ambara OC patches mine	Proposed Ambara OC patches extension mine (264.621 Ha)
1	Area of the Quarry			
a)	On floor	0.751 sq. km.	0.531 sq.km.	1.282 Sq. Km
b)	On surface	1.073 sq.km	0.758 sq km	1.832 sq km
2.	Depth			
a)	Initial	8.00m	10.00m	8.00 m
b)	Final	90.00 m	117.00m	117.00 m
3.	Gradient of Seams			

	No 1 Seam	Avg. 1 in 8 to 14.8, direction N 23°10" E	Avg. 1 in 8 to 14.8, direction N 23°10" E	Avg. 1 in 8 to 14.8, direction N 23°10" E
	No. IIB Seam	Avg. 1 in 19, direction N73°15"E	Avg. 1 in 19, direction N73°15"E	Avg. 1 in 19, direction N73°15"E
4.	Average thickness of Seam (m)			5.5 M
	No 1 Seam	6.00m	6.00m	6.0 M
	No. IIB Seam	1.40m	1.40m	1.40 M
5.	Average Strike length (m)	250 min & 400 max	850 min & 1650 max	250 min & 1650 max
6.	Width at Top (m)	140min & 560 max	200 min & 700 max	140 Min & 700 max
7.	Width on floor (m) [dip rise]	80 min & 380 max	160 min & 540 max	80 Min & 540 max
8.	Grade of Coal	G-12, GCV 3701-4000 kcal/kg	G-12, GCV 3701-4000 kcal/kg	G-12, GCV 3701-4000 kcal/kg
9.	Mineable Reserves (Mt)	6.578	6.567	13.145
10.	Total OB (Mm ³)	37.784	58.931	96.715
11.	Average Stripping ratio	5.74	8.97	7.36

5.2 Coal and OB Quantity

In this mining Plan, total four numbers of coal seams have been considered for extraction in the quarriable area viz. Seam No. I, Leader Seam, Seam No. IIA and Seam No. IB. Seam No. I is the topmost seam are virgin and goaved out in the entire area. Leader Seam, Seam No. IIA and Seam No. IIB. Seam No. I is the topmost seam and virgin & goaved out in the entire area. The underlying seam i.e. Leader seam and No. IIA are virgin. The lower most seam considered for

extraction is seam No. IIB which is partly virgin partly developed & depillared. Seam-wise & Coal and OB quantities in the proposed quarry are as under:

COAL (MT)		OB (MCum)	
Seam-I	4.635	Soft OB	5.474
(Leader Seam)	0.828	Hard OB	32.930
Seam-II A	0.328	Basalt (Trap)	18.580
Seam-IIB	0.776	RH	1.949
Total	6.567		58.93

6. OB DUMPS

6.1 Dumping Strategy

The proposed extension in Ambara OC patches mine (Mohan OC Phase V patch) quarry will generate about 58.93 Mm³ of overburden during its mine life of 5 years. Out of this, the mine will generate about 9.09 Mm³ of overburden in the 1st year and is proposed to be dumped in external Dump and into the old voids of Ambara OC patches mine (Mohan OC Phase III & IV patch). From 2nd year and onwards 12.60 Mm³ OB will be generated which will be backfilled in the void generated during mining in Ambara OC patches extension mine (Mohan OC, Phase V patch).

6.2 Lead and hiring rates

As per the approved scheme, the coal Production and OB removal is proposed by hiring of equipment (HOE) (Hydraulic excavator + Dumper combination).

Based on the quarry and OB dump configuration and distance between quarry and coal stock yard/OB dump, the following average weighted haul distance (Lead) have been calculated for OB and coal

Sl. No.	Details	Avg. Weighted Lead (km)	Hiring Rate (in Rs./Te)
1	RH OB	0.883	Rs. 55.78
2	Soft OB	1.318	Rs. 73.16
3	Hard OB	0.992	Rs. 80.47
4	Basalt (Trap)	1.026	Rs. 169.78
5	Coal	1.05	Rs. 55.78

6.3 Details of Existing and Proposed OB dumps with capacity:

Sl. No.	OB Dump	Location	Dump Height (m)	Capacity(Mm ³)	
				Existing	Proposed
1.	EXTERNAL OB DUMP				
1.1	Existing Dump- There is no external dump in the existing Ambara OC patches mine.				
1.2	Proposed Dump				
	Ambara OC patches extension mine (Mohan OC Phase V patch)	Dump No. 1	42.00	0.00	8.00
	Total External Dump			0.00	8.00
2.	DETAILS OF EXISTING INTERNAL DUMPING OF DIFFERENT PATCHES WORKED OUT IN EXISTING AMBARA OC PATCHES MINE				
2.1	Amba	De-coaled Void of Amba	860 RL	2.62	-
2.2	Tuti	De-coaled Void of Tuti	820 RL	2.20	-
2.3	Hinglaj	De-coaled Void of Tuti & hinglaj	760RL	2.73	-
2.4	Bharti	De-coaled Void of Hinglaj & bharti	876 RL	3.53	-
2.5	Vaibhavi	De-coaled Void of bharti & vaibhavi	875 RL	4.942	-
2.6	Kalyani	De-coaled Void of vaibhavi & kalyani	880 RL	6.24	-
2.7	Phase - I	De-coaled Void of Phase I	880 RL	1.045	-
2.8	Phase - II	De-coaled Void of Phase I & II	856 RL	1.928	-

2.9	Phase - III	De-coaled Void of Phase II & III	850 RL	8.811	-
2.10	Phase - IV	De-coaled Void of Phase III & IV	840 RL	3.738	-
DETAILS OF PROPOSED INTERNAL DUMPING AMBARA OC PATCHES EXTENSION MINE					
2.11	Proposed Mohan OC Phase V patch of Ambara OC patches extension mine	De-coaled Void of Phase IV & V (Dump No. 2)	897 RL	-	50.931
Total Internal Dump				37.784	58.931
TOTAL(INTERNAL+ EXTERNAL)				96.715	

7. COAL DISPATCH

The project life is about 5 years at the daily rate output of coal production of about 3650 Tonnes which works out to 1.315 MTPA. Palachourai siding is the nearest siding and is located at a distance of about 4.0 km from Ambara OC patches mine. The capacity of Palachourai at the maximum is 87 boxes or one & half rake loaded in a day and at present this siding is handling only about 2000 Tonnes of coal per day from Ambara OC patches mine and Maori UG mine. There is surplus capacity available at Palachourai siding which will cater to the proposed additional coal production from the proposal under consideration. Mobile crushing on hiring basis for (-)100 mm sizing has been envisaged in the project.

8. LAND DETAILS

Ambara OC patches mine is a working mine having an EC land area of 162.153 Ha and with a production capacity of 1.00 MTY. The pre-mining status of land is given below-

Type of land	Acquired Area in Ha.	Area to be acquired in Ha.	Total Area in Ha	Remarks
Tenancy Land/Agricultural land	81.033	30.646	111.679	
Forest land	33.64	2.22*	35.86	33.64 Ha Forest land is included in Stage-II Forestry Clearance (48.918 Ha) already obtained vide F. No. 8-113/2011-FC dated 02/07/2015
Waste land/Govt. Land	Nil	14.614	14.614	
Total	114.673	47.48	162.153	

*Note-This 2.22 Ha forest land forms part of the proposed additional forest land to be acquired i.e. (2.22 Ha. + 87.19 Ha. = 89.410 Ha). There has been no mining activity in this 2.22 Ha of forest land. It is proposed to expand Ambara OC patches mine both in terms of production capacity (from 1.00 MTY to 1.315 MTY) as well as land area (from 162.153 Ha to 264.621 Ha). The details of mining parameters w.r.t. production have been given in previous paragraphs. Land Break-up of existing Ambara OC patches mine as per EC area of 162.153 Ha has already been presented in previous paragraph. Now, the additional land requirement is being discussed in subsequent paragraphs.

The proposed land area of Ambara OC patches mine during expansion will be 264.621 Ha.

Therefore, increase in land area beyond the existing EC area is 102.468 Ha

Break-up of additional 102.468 Ha land for proposed expansion of Ambara OC patches mine is as follows-

Type of land	Acquired Area in Ha.	Area to be acquired in Ha.	Total Area in Ha	Remarks
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Tenancy Land/Agricultural land	Nil	Nil	Nil	
Forest land	15.278	87.19*	102.468	15.278 Ha Forest land is included in Stage-II Forestry Clearance (48.918 Ha) already obtained vide F. No. 8-113/2011-FC dated 02/07/2015
Waste land/Govt. Land	Nil	Nil	Nil	
Total	15.278	87.19	102.468	

*Note- Additional 2.22 Ha is already explained above.

From the above it may be seen that the additional land of 102.468 Ha involves forest land only. Out of this 102.468 Ha of additional forest land, 87.19 Ha is proposed to be diverted for non-forestry purpose under FC act 1980 for this project, remaining 15.278 Ha of forest land is already acquired. As indicated earlier, the balance land of 15.278 Ha is already acquired and covered under 48.918 Ha Stage II Forestry Clearance obtained vide F. No. 8-113/2011-FC dated 02/07/2015. In addition to the above, 2.22 Ha of forest land which is left over in the existing EC (proposed to be utilized now) also needs to be diverted for non-forestry purpose. Thus, the total diversion of Forest Land for non-forestry purposes in the present proposal is solicited for 89.410 Ha.

Therefore, the final land breakup of total land of 264.621 Ha of proposed Ambara OC patches extension mine is place below-

Type of land	Acquired Area in Ha.	Area to be acquired in Ha.	Total Area in Ha	Remarks
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Tenancy Land/Agricultural land	81.033	30.646	111.679	This is already covered under existing EC of 162.153 Ha.
Forest land	48.918	89.410	138.328	48.918 Ha Stage II Forestry Clearance (48.918 Ha) already obtained vide F.No. 8-113/2011-FC dated 02/07/2015
Waste land/Govt. Land	Nil	14.614	14.614	This is already covered under existing EC of 162.153 Ha.
Total	129.951	134.670	264.621	

For diversion of 89.410 Ha Forest Land for non-forestry purpose (for this project-coal mining purpose) under FC act 1980, a provision of Rs. 17.88 Crores is envisaged in the approved scheme.

9. EMPLOYMENT/ MONETARY COMPENSATION

As already indicated in previous paragraph the entire additional land earmarked for this proposed extension is forest land.

About 89.410 Ha of Forest Land is required for acquisition of land from Forest Department, provision of Rs. 17.88 Crores for acquisition of Forest Land from Forest Department is envisaged in the approved scheme and provision of Rs. 3.0 Crores is also there for monetary compensation for shifting of 57 nos houses is approved in the Scheme of Mohan OC Phase V patch. There is no additional involvement of tenancy land in the proposed project.

10. LAND USE PATTERN

The mining activities will be carried out as per the proposed EC of Ambara OC patches extension mine- 1.315 MT. Details of land use of proposed Ambara OC patches extension mine will be as follows:

Sr. No.	Particulars	Existing Ambara OC patches mine EC (162.153 Ha)	Proposed Additional land for EC extension	Total land for proposed Ambara OC patches extension mine (264.621 Ha)
1	Existing Quarry area	112.173	0.00	
2	Additional Quarry area	0.00	75.83	
	Total Quarry Area in extension OC			188.003
3	Existing External OB Dump	0.00		
4	Additional External OB dump		8.89	
	Total External OB dump in extension OC			8.89
5	Existing Infrastructure	2.50		
	Proposed additional Infrastructure for extension OC		4.65	
	Total infrastructure in extension OC			7.15
6	Existing Undisturbed land	47.48		
	Proposed additional Undisturbed land		13.098	
	Total Undisturbed land in extension OC			60.578
		162.153	102.468	264.621

11. LAND ACQUISITION DETAILS

Total required area for project will be 264.621 Ha (89.410 Ha Land is proposed to be acquired from Forest Department). Provision of Rs. 3.0 Crores is also there for monetary compensation for shifting of 57 nos houses and is approved in the Scheme of Mohan OC Phase V. Provision of Rs 5.10 crores is kept in the Capital head for diversion of MDR road.

12. MANPOWER AND CIVIL ACTIVITIES

About 100 nos. of departmental manpower including statutory persons will be required. An approximate 300 nos. of manpower shall be deployed on hiring basis by the HOE contractor.

Residential arrangement of Manpower deployed-Departmental Manpower deployed in the proposed Ambara OC patches extension mine shall be accommodated in the existing combined colony of Mohan (Maori) UG mine and Ambara OC patches mine. There shall be no separate residential structures constructed for the proposed Ambara OC patches extension mine.

Details regarding Civil Structures-Construction of administrative/office building, store, substation etc. have been proposed in the scheme of Mohan OC Phase-V patch for which there is a capital provision of Rs. 50.00 lakhs in the scheme.

13. SAFETY

The project report has been drawn in conformity with the prevailing statutory provisions as per Mines Act, 1952 and CMR, 2020 applicable for safety in Opencast Mines. However, all statutory rules, regulation, applicable laws etc. and statutory requirement related to Govt. licenses, workers compensations, Insurance, etc. shall be adhered to. All the regulations & schedules of Coal Mines Regulations, 2020 and subsequent amendments relating to opencast mining shall be adhered to and implemented in order to maintain day to day safety precautions as per statute.

13.1 Safety Aspect for Blasting Operations

As explosives are required in bulk for blasting in OC mines, provision of CMR 2020 would be ensured. All blasting operations shall be carried out in day light. Suitable precautions shall be taken as per statute before and after blasting operations. Controlled blasting technique has to be practiced to minimize fly off rock and ground vibrations and keep them within safe limits. In order to be keep the ground vibrations within the permissible limit as per DGMS Circular No. 7 of 1997, to avoid flying of rock fragments and also to achieve satisfactory blasting results, optimized drilling/blasting parameters depending upon rock formation using combination of relays/ delays will be evolved. It is further recommended that at the time of actual execution, proper study for controlled blasting and ground vibration shall be done through scientific body in order to evolve site specific charge distance relationship.

13.2 Safety Aspects for Outsourcing/ hiring of Machineries

Special precaution should be taken while deploying workers in the mine. Before employing any labour to the mine proper vocational training should be imparted and recommendations of Recent Safety Conference should be strictly followed. Terms and conditions shall be fixed by management for deployment of labours by leaser HEMM as well as machineries.

The project report has been drawn in conformity with the prevailing statutory provisions as per Mines Act 1952 and CMR 1957 and its subsequent amendments applicable for safety in Opencast Mines. However, all statutory rules regulations, applicable laws etc and statutory requirement related to Govt. Licenses, workers compensation, Insurance, etc. including minimum wages act for workers employed by the agency outsourcing HEMM shall have to be adhered to all the regulations & schedules of coal mines Regulations 1957 relating to opencast mining have to be adhered to and implemented in order to maintain day to day safety precautions as per statute.

13.3 Precautions against Surface Water

About 900 m Garland Drain shall be provided around the quarry edge to avoid the inrush of rain water in the proposed Ambara OC patches extension mine (Mohan OC, Phase V patch).

13.4 Dust Suppression

Suppression of mine dust may be done by using package bond & dust bond, for methodology of application DGMS Circular No. 8 of 1997 may be referred.

13.5 Fire & Spontaneous Heating

Wild or herbaceous plants shall be removed from the mine. No person shall deposit heated material or ashes on any opencast working. Also no persons shall light a fire or permit a fire to be lighted in any OC working except by the permission in writing of the Manager and only for a special purpose specified therein. NO coal shall be left exposed in coal benches more than its incubation period to avoid fire in seam due to spontaneous heating. Proper type of the extinguisher to be kept in each HEMM ready for use in case of emergency. In Coal stock, coal shall be dispatched on the basis of first in first out and proper arrangement shall be made for water sprinkling.

13.6 Slope Stability

It is suggested that following action may be taken to deal with slope stability problem.

- i) Vulnerable area may be identified and marked on quarry plan.
- ii) Observation of actual alignment of fault, its throw, joints, etc. May be recorded during the process of exploitation.
- iii) Water drainage system may be properly implemented to prevent accumulation of water in crack. Also dumps shall be leveled to prevent accumulation of water over it Proper drainage in dumps shall also be provided to prevent erosion of toe of dump.
- iv) Regular monitoring of tension cracks, horizontal and vertical movement of strata in critical area may be done.
- v) Rise side slope to be reinforced if reinforced if required because it has to stand throughout quarry life. No dumps/surface structure to be located within 15m of quarry edge as it will act as surcharge there by destabilizing the slope.
- vi) No undercutting of slopes to be done.
- vii) Proper hydro geological studies to be done if water table is at level of slope it should be brought down by using submersible pumps to prevent hydrostatic pressure.
- viii) Proper selection of site for dumping to be done before dumping place shall be made free from loose material. Dumping shall not be done at an angle more than angle of repose of material being dumped.
- ix) After completion of dumping operations dump to be stabilized by growing vegetation.
- x) Every person deployed by leaser of HEMM must be trained & briefed about aspects related to slope stability.

13.7 Haul Road Maintenance

Adequate care must be taken for proper construction and maintenance of haul road as per the existing guidelines. The gradient of haul road should not be steeper than 1 in 16.

13.8 Blasting

As explosive are required in bulk for blasting in OC mines, provision of CMR 2020 Should be ensured. All blasting operations shall be carried out in day light. Suitable precautions shall be taken as per stature before and after blasting operations. Controlled blasting technique has to be practiced to minimize fly off rocks and ground vibrations and keep them within safe limits. In order to keep

the ground vibrations within the permissible limit as per DGMS Circular No. 7 of 1997, to avoid flying of rock fragments and also to achieve satisfactory blasting results, optimized drilling/blasting parameters depending upon rock formation using combination of relays/delays will have to be evolved. It is further recommended that at the time of actual execution, proper study for controlled blasting and ground vibration is done with scientific body in order to evolve site specific body in order to evolve site specific charge distance relationship.

14. SCIENTIFIC STUDIES

Ambara OC patches mine (Mohan OC Phase-III patch) has been successfully extracted as per scientific studies done by IIT, Kharagpur in 2020. Fresh Scientific study for working and slope stability shall be carried out before the commencement of Ambara OC patches extension mine (Mohan OC, Phase V patch).

Following areas have been identified for detailed Scientific studies in the proposed extension of Ambara OC patches mine:

a) Slope Stability

It is proposed to carry out scientific study on slope stability of external and internal OB dumps as well as for final slope of quarry batter. Based on the finding of scientific research the proposed slope of dumps and batter in the report may change.

b) Drilling & Blasting

For optimum fragmentation of rock and coal to minimize the overall cost of excavation, it is proposed in this report to engage some scientific body to carry out research for optimum drilling and blasting. Accordingly, the powder factor suggested after this study will be followed in the proposed mine.

In addition to this, various other parameters like, soil testing, etc needs scientific study.

15. ENVIRONMENTAL MANAGEMENT:

Environment Clearance from MoEF&CC, New Delhi vide letter no. J-11015/252/2007-IA.II(M) dated 18.03.2008 exists for the present Ambara OC patches mine having production capacity of 1.00 MTPA in an area of 162.153 Ha. The last worked out patch Mohan OC Phase-IV and its extension is a part of the Ambara OC patches mine.

For the proposed extension of existing Ambara OC patches mine (Mohan OC Phase-V patch)

additional 102.468 Ha land is required in addition to the existing EC area of Ambara OC patches mine (162.153 Ha). Therefore, extension in EC area is proposed for the existing Ambara OC patches mine (from 162.153 Ha to 264.621 Ha) to extract the coal from Mohan OC Phase-V patch with enhancement in production capacity from 1.00 MTPA to 1.315 MTPA and mine life of 05 years. Hence, application for extension in Environment Clearance of Ambara OC patches mine (from 162.153 Ha to 264.621 Ha) with production capacity enhancement from 1.00 MTPA to 1.315 MTPA and mine life of 05 years has to be made for which scheme of the aforesaid patch has already been approved by the competent authority.

PRESENT PROPOSAL & JUSTIFICATION OF MINING PLAN PREPARATION

Mohan OC Phase-V patch is a part of the proposed Ambara OC patches extension mine. Based on the approved scheme of Mohan OC Phase-V patch, it is proposed to obtain Environment Clearance extension of Ambara OC patches mine from 162.153 Ha to 264.621 Ha with production capacity enhancement from 1.00 MTPA to 1.315 MTPA. For the application of Environmental Clearance and Forestry Clearance from MoEF&CC, mining plan has been prepared.

15.1 DESCRIPTION OF ENVIRONMENT

Air Quality:

Ambara OC patches mine is an existing project and regular environmental monitoring is being carried out. Proposed Mohan OC Phase-V patch shall be an extension of Ambara OC patches mine.

Water Quality:

Ambara OC patches mine is an existing project and regular environmental monitoring is being carried out. Proposed Mohan OC Phase-V patch shall be an extension of Ambara OC patches mine.

Noise Quality:

Ambara OC patches mine is an existing project and regular environmental monitoring is being carried out. Proposed Mohan OC Phase-V patch shall be an extension of Ambara OC patches mine.

Hazardous Waste:

Hazardous waste such as spent oil, ETP sludge, battery waste etc will be generated during the mining activities which will be disposed as per the statutory requirement such as Hazardous Waste Management Rules, 2016 and other applicable rules issued and updated by MoEF&CC.

15.2 AIR POLLUTION CONTROL MEASURES

Mining operation and associated activities are having potentially negative effect on air quality, and the major air pollutant is the suspended particulate matter. Most of the air pollution problems are due to fugitive dust emission. The air quality impact assessment will be carried out with AERMod Software developed by USEPA based on Gaussian Dispersion Equation. It is a steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment to both surface and elevated sources, and both simple and complex terrain (USEPA,2005).The intensity of dust generation in the mining is influenced by factors such as hardness of rock, mining technology and material handling etc.

Fixed Sprinklers along the haul road, coal transportation route, CHP and other dust generating sources and other air pollution control systems etc are also being proposed. Following provisions have been made for air pollution control measures-

Sl.No.	Particulars	Capital Provision made in scheme (in Rs. Lakhs)
1	Installation of fixed type sprinklers/mist spray for dust control (including water reservoir, Pump, Pipeline)	30.00
2	Protective green belt development	15.00
3	Continuous Ambient Air quality Monitoring Station(CAAQMS)	80.00

15.3 WATER POLLUTION CONTROL MEASURES

15.3.1 Water Demand

Water demand for proposed project Ambara OC patches extension mine (264.621 Ha) includes water to be supplied for manpower engaged in the project, dust suppression, firefighting, water sprinkling on roads, etc. The total water requirement for project site has been worked out to 190 KLD detail of which is given below-

Industrial Water Requirement (Dust Suppression, fire fighting, water sprinkling, ETP operation for HEMM washing etc.) – 190 KLD.

There is no residential infrastructure proposed in the project area of 264.621 Ha.

15.3.2 Water Pollution Management

Coal Mining discharges strata seepage water to keep the working face dry. This results in

impact on hydro-geological regime. The major impact of deep and large mines is on natural groundwater table. Lowering of water table may result in reduced groundwater availability. Extraction of different minerals is known to lead to water pollution due to heavy metal, acid discharges and increased suspended solids. Water is utilized in associated activities such as sprinkling, firefighting, HEMM cleaning etc. Following provisions have been for water pollution control measures. They are as follows:

Sl.No.	Particulars	Capital Provision made in scheme (in Rs. Lakhs)
1	Augmentation of Sedimentation Pond for Treatment of Mine water	30.00
2	Installation of Effluent Treatment Plant	40.00
3	Sewage treatment Plant	125.00
4	Installation of Piezometer with telemetry	40.00
5	Digital water meters with telemetry system	10.00

15.4 NOISE LEVEL MANAGEMENT

Monitoring of the noise control will be carried out on regular basis as per the Environment (Protection) Amendment Rule 2000. While planning for an effective noise attenuation measures, the concept of source, path and receiver will be considered. The detailed noise control measures will be provided in the EIA-EMP report.

15.5 LAND RECLAMATION

Fig. in Hectare

Sl. NO.	Land use category (in Ha)	As per existing EC of Ambara OC Patches (162.153 Ha)	Proposed Ambara OC patches extension mine, 1st year	Proposed Ambara OC patches extension mine, 2nd year	Proposed Ambara OC patches extension mine, 5 th year	Proposed Ambara OC patches extension mine,

						5 years after end of mine life
1	Backfilled Area (Reclaimed with Plantation)	88.12	96.57	112.61	162.03	162.03
		35.00	35.00	43.00	68.00	121.00
2	Excavated Area (Not reclaimed)/void	24.053	24.78	26.68	25.973	25.973
3	External OB Dump (Reclaimed with Plantation)	0.000	8.89	8.89	8.89	8.89
		0.000	0.000	8.00	8.00	8.00
4	Undisturbed area (area brought under plantation at the end of Mine life)	47.480	126.531	108.591	60.078	60.078
		0.000	0.000	0.000	0.000	5.00
5	Roads(avenue plantation)+Area around buildings and infrastructure/railway siding/colony	1.20	5.85	5.85	5.85	5.85
		0.000	0.000	0.000	0.000	5.00
6	Garland Drains, catch drains etc.	1.30	1.80	1.80	1.80	1.80
		0.000	0.000	0.000	0.000	0.000
Total		162.153	264.621	264.621	264.621	264.621
Total Plantation		35.000	35.000	51.000	76.00	139.00

Year-wise proposed plantation/reclamation details for the Ambara OC patches extension mine-

Year	External OB Dump	Backfilled area	Undisturbed area	Infrastructure area	Total
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	Area (in Ha.)	No. of trees	Area (in Ha.)	No. of trees	Area (in Ha.)	No. of trees	Area (in Ha.)	No. of trees	Area (in Ha.)	No. of trees
1 st Year	0	0	35.00	87500	0	0	0	0	35.00	87500
2 nd Year	8.00	20000	43.00	107500	0	0	0	0	51.00	127500
5 th Year	8.00	20000	68.00	170000	0	0	0	0	76.00	190000
Post Mining	8.00	20000	121.00	302500	5.00	12500	5.00	12500	139.00	347500

Post-mining land use details-

Sl.	Land use post mining	Land use (ha)				
		Plantation	Water Body	Public use	Undistur bed	Total
1	External OB Dump	8.00	0.00	0.000	0.89	8.89
2	Excavated Area (Backfilled)	121.00	0.00	0.00	41.03	162.03
3	Void Area	0.00	25.973	0.000	0.00	25.973
4	Undisturbed area	5.00	0.00	0.000	55.078	60.078
5	Roads (avenue plantation) + Area around buildings and infrastructure	5.00	0.00	0.85	0.00	5.85
6	Garland drain	0.00	0.00	0.00	1.80	1.80
	Total	139	25.973	0.85	98.798	264.621

15.6 FLORA & FAUNA CONSERVATION

Baseline data will be generated during preparation of EIA report. In case any schedule-I species is reported within the area, wildlife conservation plan will have to be prepared by the project

proponent.

15.7 ENVIRONMENT MANAGEMENT STRUCTURE

To have a close watch on the environmental condition and implementation of the various measures suggested, a multi-disciplinary approach is essential. At present WCL headquarter acts as apex body which supervises the activities relating to environment at project level through the General Manager. General Manager of the area coordinates the activities of various disciplines in the area to render all necessary assistance at the implementing level i.e. the project. Area Nodal Officer (Environment) monitors all aspects of environment on behalf of the General Manager. He also takes suitable steps for generation of environment data along with its analysis and interpretations. Plantation activities are carried out through the state forest departments. Sub-Area Manager is responsible for mechanical reclamation of the area. He is also responsible for biological reclamation with the assistance of GM's office.

15.8 EQUIPMENT OF ENVIRONMENTAL RECLAMATION

In order to mitigate the pollution generated due to opencast coal mining, various state of art pollution control equipment's are being proposed in this project report. Mobile/static Fogging machines are proposed to be installed to suppress the dust along the coal transportation. Continuous ambient air quality monitoring station for various air quality parameters is proposed to be installed. Piezometers with telemetry are proposed for monitoring of ground water level. Sewage treatment plant, effluent treatment plant and sedimentation tank of suitable capacity are proposed to be installed for the water pollution control.

15.9 ENVIRONMENTAL MEASURES

Following provisions have been made for environmental protection measures. They are as follows:

Sl.No.	Particulars	Capital Provision made in scheme (in Rs. lakhs)
1	Augmentation of Sedimentation Pond for Treatment of Mine water	30.00
2	Installation of Effluent Treatment Plant	40.00
3	Base Line Environment Data Generation	60.00
4	Scientific Studies related to Environment	20.00

5	Installation of fixed type sprinklers/mist spray for dust control(including water reservoir, Pump, Pipeline)	30.00
6	Protective green belt development	15.00
7	Digital Mapping for Land Use Plan	15.00
8	Continuous Ambient Air quality Monitoring Station (CAAQMS)	80.00
9	Digital water meters with telemetry system	10.00
10	Sewage treatment Plant	125.00
11	Installation of Piezometer with telemetry	40.00
12	Miscellaneous Provisions	25.00
13	Budgetary Provision for compliance of issues raised during Public Hearing	100.00
	TOTAL	590.00

In addition to above, provision of Rs. 6.00/t has been made in the cost of production to meet the revenue nature of expenditure related to environmental protection measures.

16. MINE CLOSURE PLANNING

Mine closure planning has to be carried out at the starting of the mine and needs periodic reviewing and revision during its life cycle to cope with the geo-technical constraints, safety and economic risks, social & environmental challenges. For the Mine Closure activities, a corpus fund is created by opening an escrow account with the coal controller organization in nationalized bank. For opencast mine, an amount @ Rs 9.00 lakhs per Ha of the project area and for underground mine, an amount @ Rs 1.50 lakhs per Ha of the project area is required to be deposited in this account for final mine closure. Progressive mine closure is done with the fund provided in approved report. The above rate has been adopted as per revised Circular No.34011/28/2019-CPAM, GOI, MoC dated 29thMay, 2020).

In the proposed mining plan of Ambara OC patches extension mine, the total land Involved as project area works out to 264.621 Ha (162.153 Ha existing EC of Ambara OC patches+ additional 102.468 Ha required for proposed extension of Ambara OC patches mine). Ambara OC patches

mine already has an escrow account in which total corpus amount of Rs. 1503.71 had been deposited as per the approved Mine Closure Plan of Ambara OC patches mine till FY 2020-21. Hence, in this Mining Plan, the total corpus of closure cost has been worked out for the proposed Ambara OC patches extension mine having area of 264.621 Ha and mine life of 5 years from the FY 2022-23.

The detailed calculation of the corpus fund as well as annual corpus amount for the proposed Ambara OC patches extension mine has been worked out and the details are tabulated below.

The annual corpus is to be deposited in the escrow account after operation of the mine (1st year of the Mining Plan) and in subsequent years with 5% escalation.

Sl. No.	Details	
1	WPI for All Commodities for April 2019 (New Series)	121.1
2	WPI for All Commodities for Aug, 2022 (New Series)	153.2
3	Ratio of WPI =(2) / (1)	1.2651
4	Total land area requirement for the project (Ha) =	264.621
5	Mine closure cost @ Rs 9 Lakhs/Ha (Rs in Lakhs) =	2381.589
6	Mine closure cost after indexing from April,2019 to Aug'2022 (Rs. In Lakhs) = (5) x (3) =	3012.877
6 A	Corpus already deposited for existing Ambara OC patches mine	1503.71
6 B	Additional amount to be deposited for proposed Ambara OC patches extension mine (6-6A)	1509.167
7	Life of proposed Ambara OC patches extension mine in years starting from 1 st year (2024-25)	5
8	Annual Contribution to Escrow fund as on 2022-23 (Rs. In Lakhs) = (6)/(7)	301.833

The annual Mine Closure Cost with 5% escalation and schedule of deposit from FY 2022-23 in subsequent years is tabulated below, however actual deposit in the escrow account shall be made after operation of the Ambara OC patches extension mine-

Sl. No.	Financial Year	Schedule of Deposit (Rs. Lakhs)
1	2022-23	301.833
2	2023-24	316.925
3	2024-25	332.771
4	2025-26	349.410
5	2026-27	366.880
	Total Amount to be deposited in addition to the existing corpus amount	1667.819

Total Corpus Fund for proposed Ambara OC patches mine= Rs. 3171.53 lakhs (Rs. 1667.819 lakhs corpus to be deposited for proposed Ambara OC patches extension mine + Rs. 1503.710 lakhs corpus already deposited for existing Ambara OC patches mine)

16.1 ACTIVITY-WISE WEIGHTED % OF MINE CLOSURE COST

The different mine closure activities and weighted percentage of mine closure cost for these activities are tabulated below. Total Mine Closure Amount = Rs.3171.53 Lakhs (Rs.1667.819 Lakhs + Rs.1503.710 Lakhs)

Sl. No.	Activity	Weighted % of Mine Closure Cost			Mine Closure Amount (Rs. in lakhs)
		Progressive	Final	Average	
A.	Dismantling of structure	0.00	8.50	4.25	134.79
	Service Building				
	Residential Building				
	Industrial Structure				
B.	Safety & Security	6.50	3.20	4.85	153.82
	Random rubble masonry/concrete wall				

	Toe wall around dump/Gabbion wall				
	Barbed wire fencing				
	Fencing/Boundary wall, fencing around water body				
	Garland Drains				
C.	OB Dumping Reclamation				
C1.	Technical Reclamation	60.50	60.50	60.50	1918.78
	Re-handling of OB				
	Levelling by Dozer				
	Grading				
	Levelling and Grading of highwall slopes and OB Dump				
C2.	Biological Reclamation & Plantation	15.00	11.70	13.35	423.40
	Top Soil Management				
	Grassing of OB Dump				
	Plantation around virgin area, safety zone, green belt over external dump and internal reclamation area				
	Plantation post care(incl.manpower)				
	Plantation over cleared area obtained after dismantling				
D.	Landscaping of the open space in leasehold area for improving its esthetic. Drain, pipelines, peripheral road, gates, View points, cemented steps on bank	4.00	5.50	4.75	150.65

	Development of Agriculture Land				
E.	Environment Mitigation and Manpower	12.00	1.50	6.75	214.08
	Air Quality (Water tanker, Sprinkler & Other control measures.)				
	Water Quality (ETP & STP etc operating cost)				
	Manpower cost and Supervision				
F.	Post Closure Monitoring	0.00	3.20	1.60	50.74
	Air Quality				
	Water Quality				
	Power Cost				
	Manpower cost and supervision				
G.	Entrepreneurship Development (Vocational/Skill development training for sustainable income of affected people)	1.00	0.50	0.75	23.79
H.	Miscellaneous & Other measures like Golden Handshake, one time financial grant, alternative jobs, other services etc.	1.00	5.40	3.20	101.49
	TOTAL	100	100	100	3171.53

17. CONCLUSION

Based on the above, the approval of Mining Plan is being solicited for proposed Ambara OC patches extension mine from 162.153 Ha to 264.621 Ha with enhancement in production capacity from 1.00 MTPA to 1.315 MTPA (dovetailing the approved scheme of Mohan OC Phase V). The Application for Environmental Clearance for Ambara OC patches extension mine and Forestry

Clearances for 89.410 Ha shall be made to the MoEF&CC, post approval of mining plan from the competent authority.

