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MINING PLAN
(INCLUDING MINE CLOSURE PLAN)

FOR

BHARAT OC PATCHES
(UNDER GHORAWARI OC)
(TARGET: 0.47 MTPA IN ML AREA OF 111.489 Ha.)
(KANHAN AREA)

WESTERN COALFIELDS LIMITED
(JOB No. - 4020424009)

(TEXT, ANNEXURES & PLANS)

JUNE - 2024

CMPDI
REGIONAL INSTITUTE-IV, KASTURBA NAGAR,
JARIPATKA, NAGPUR, PIN – 440 014

AN ISO 9001:2000 COMPANY

CERT. NO.: C I /8656

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SN	Name of Annexure
I	WCL Board Approval of Mining Plan of Bharat OC Patches Extension (ML Area 111.489 Ha)
II	Approved Mine Closure Plan
III	Environmental Clearance MOEF Ref. Letter No. J-11015/367/2008-IA.II(M) , Dated 26-Dec-2008
IV	MCR Lease Grant

List of Plate (As applicable as per guidelines dated 29-05-2020):

SN	Name of Plate
I	Location Plan
II	Plan showing existing working and other detail of Bharat OC Patches
III	KML Plan showing Project Boundary / Block Boundary and MCR Lease Boundary
IV	Proposed Quarry and Surface Layout Plan

Att.

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CHAPTER- 1: PROJECT INFORMATION

	Parameters	*Detalls*
1.1	**INTRODUCTION**	
1.1. I	Name of Coal/Lignite Block	**Name of the Mine**: Bharat OC Patch **Name of Coal Block**: Datla West
1.1.2	Name of the Coa1field/ Lignite Field	PenchKanhanTawa valley Coalfield
1.1.3	Base date of Mining P1an/ Mine Closure Plan	1) Mine Closure plan of Ghorawari OC Patch approved by WCL Board vide resolution dated 06/02/2014 on 252nd meeting and Bharat OC Patch is a part of Ghorawari OC Patch.
1.1.4	Linked End Use Plant	The coal is supplied to Thermal Power Plants of MPGCL and other miscellaneous consumers.
1.1.5	Distance of End use plant from the pit head of the project in "km"	The Sarni TPS is at a distance of 50 km (approx.) from the mine pit head.
1.1.6	Mode of Coal Transport	Coal by Rail and Road.

1.2 LOCATION, TOPOGRAPHY AND COMMUNICATION

1.2.1	Location of coal deposit (District and State)	The mine is located between 22°12′22′′ to 22°12′49′′ latitude and 78°32′59′′ to 78°34′37′′ longitudes . The Bharat OC Patch is Situated in Tehsil Junnardeo of Chhindwara District.
1.2.2	Communication: PWD roads, railway lines, Air	Bharat OC Patch is connected by all weather road and also by rail. Nearest railway station is Junnardeo (JNO) which is connected by broad gauge line with Amla Jn. (approx. 68 km) on the main line of Central railway. Junnardeo is also linked to Chhindwara town by broad gauge line of South Eastern Railway. Chhindwaratown is 120 km by road from Nagpur. Nearest Airport is Dr. Baba sahib Ambedkar International airport, Nagpur situated 170 km approx. away from the mine.
1.2.3	Availability of powersupply, water etc.	The source of power supply of Bharat OC Patch from 11 kV Sub Station Situated at Pit Head of Mine & the Sub Station is connected from MPEB. The water requirement for the project is met from the mine discharge water.
1.2.4	Prominent physiographic features, drainage pattern, natural water courses, rainfall data, highest flood level	The area has hilly terrain with generally undulating in the mineable area of the mine with surface elevation ranging from 770m to 830m. There is one number seasonal nallah exists at western side of OC Patch which flows north to south which discharge at Takia Nallah at distance of 1.5km. The H.F.L. of Seasonal Nallah is 774.131 m. Pench river flows at a distance of 7.0 km from the mine on the North-Eastern side.
1.2.5	Important surface features Within the project area and major diversion or shifting involved	Bharat OC Patch is a opencast mine with temporary Operational and service building only. There is no major diversion or shifting involved in the project.

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1.3 DETAILS OF THE ALLOTMENT AGREEMENT

1.3.1	Name the Allottee	Western Coalfields Limited WCL is a Category – I Mini Ratna Company, CPSU and Subsidiary of Coal India Limited (MahaRatna) under Ministry of Coal, Government of India.
1.3.2	Details of allotment/ vesting order	MCR Lease No. 11 are vested to Coal India under Coal Mines Nationalisation Act 1973. After formation of WCL on 01.11.1975 the mines automatilcally come under administrative control of WCL. As per Section 3 of the Coal India, Reg of Transfer and Validation Act 2000, these leases were deemed to be fresh mining lease w.e.f. 01/11/1975 MCR 1960 and valid till year 31/03/2030
1.3.3	Name and address of the applicant	Western Coalfields Limited, Coal Estate , Civil Lines, Nagpur (MS) – 440001
1.3.4	Name of the Previous Allottee of the Block	Not Applicable
1.3.5	Starting Date of the Mine as per CMDPA	Not Applicable as WCL is Govt. PSU
1.3.6	Rated Capacity as per CMDPA	Not Applicable as WCL is Govt. PSU
1.3.7	Production Schedule as per opening permission (meeting provisions of CMDPA if any)	Not Applicable as WCL is Govt. PSU
1.3.8	End Use of Coal/Lignite as per allotment order if any	Power Generation / miscellaneous consumption in Non-Power sector
1.3.9	Cardinal points co-ordinates of the Block boundary	Kml of boundary of Block Boundary Enclosed.

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1.4 DETAILS OF THE PREVIOUS APPROVAL OF MINING PLAN

1.4.1	Date of Approval	Scheme was approved in the year 24.09.2012 (Phase-I)
1.4.2	Conditions, if any	Nil
1.4.3	Scheduled year of start of production	Mine is in operation since 28.06.2015
1.4.4	Proposed year of achieving the targeted production	1st year
1.4.5	Date of actual commencement of mining operations, if operations already started	Mine operation started in 28.06.2015 (After approval of Phase-I in land area under physical possession in 62.285 ha. (Forest land 19.5ha. after forest clearance+Non Forest land 42.785 ha) and further this area is also a part of project Area of 111.489 Ha in this mining plan.
1.4.6	Likely date of mining operations, if operations not yet started & reasons for non-commencement of operations.	Not applicable.
1.4.7	Planned production and actual levels achieved in last 3 years (Coal in Mte, OB in MM³):	

Phase	Year	Planned Coal Production (MT)	Actual Production (MT)	Actual OB excavation Mm³
Ph-I	2015-16	0.200	0.257	1.143
	2016-17	0.254	0.104	0.662
	2017-18	0.209	0.042	0.009
	2018-19	0.000	0.000	0.000
	2019-20	0.075	0.086	0.251
	2020-21	0.040	0.040	0.064
	2021-22	0.000	0.000	0.000
	2022-23	0.000	0.000	0.000

1.4.8	Statutory obligations vis- a-vis compliance status in a tabular form	Existing coal mining operations are being carried out as per the following: 1. EC secured vide MoEF& CC letter No. J-11015/382/2007-IA.II(M) dated 19-02-2008 with production capacity of 1.50 MTPA and total lease area is 1296.011ha for Ghorawari OC coal mine andBharat OC Patch(Land area 111.489 ha.)is also part of aforesaid Ghorawari OC coal mine. 2.Consent: CTO secured vide Consent No. AW-59782 valid upto 31st Jan 2026 for Ghorawari OC Patch. 3. Environment Monitoring: Complying, as per EC conditions.
1.4.9	Reasons for difference between the planned and actual production levels.	Due to adverse geo-mining conditions such as faults and , dewatering of water from the UG galleries hampered productions.

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1.5 PARAMETERS OF APPROVED MINING PLAN VIS-A-VIS PROPOSED MINING PLAN

S.No	*Parameters*	Proposed Mining Plan
1.5.1	Block Area in "Ha"	111.489 Ha.
1.5,2	Block Area Projectised"Ha"	111.489 Ha.
1.5.3	Lease area "Ha"	111.489 Ha.
1.5.4	Project Area "Ha"	111.489 Ha.
1.5.5	Life of the Project "Years"	06 Years as on 01.04.2024 (including 2 years for land acquisition)
1.5.6	Minimum and Maximum Depth of working "m"	Min Depth = 15 Mtr. Max Depth = 90Mtr.
1.5.7	Net Geological Block "Ha"	111.489 Ha.
1.5.8	Production Target"MTPA"	Coal – 0.47 MTPA
1.5.9	Seams Available "As per GR"	One No. Seam i.e. MEC-III
1.5.10	Seams not considered for Mining with Reasons	Nil
1.5.11	Gross Geological Reserve "Mt"	Coal- 3.908 (MEC-III)
1.5.12	Net Geological Reserve "Mt"	3.908
1.5.13	Blocked Reserve "Mt"	1.649
1.5.14	Minable Reserve "Mt"	2.259
1.5.15	Extractable Reserves "Mt"	2.259
1.5.16	% of Extraction/ recovery	100%
1.5.17	Reserve Depleted (till the base date) Reserves " Mt"	0.529 Mt as on 01.04.2024
1.5.18	Balance Extractable reserve "Mt"	Balance reserves as on 01-04-2024 is 1.73
1.5.19	Average Grade (Proposed in approved Scheme of Phase-II & III)	80 % of Grade G-13 for Power sector and 20 % of Grade (G-10 (60%) + G11 (40%)) for Non Power Sector
1.5.20	OB in Mm^3	16.316
1.5.21	SR Mm^3/te	9.43
1.5.22	Mining Technology	Opencast mining method
1.5.23	Coal Beneficiation envisaged	Nil
1.5.24	Handling of Rejects	Nil
1.5.25	Land use pattern "Ha"	
1	External OB Dump	Nil
2	Excavation / Quarry Area (12.86 Ha. already excavated (phase-I) + 40.12 Ha. to be excavated) * Excluding the area of previous quarry. In Bharat OC phase-I, backfilling in 5.08 ha has already done	52.98 Ha.
3	Infrastructure including Roads	4.00 Ha.

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4	Blasting Zone & Rationalization Area	12.519 Ha.
5	Embankment	4.5 Ha.
6	Dumping in void of previous quarry (26.39 Ha. already backfilled + 8.50 Ha. to be backfilled)	34.89 Ha.
7	Other (Green Belt)	2.60 Ha.
8	**Total**	111.489 Ha.
9	**Proposed Back filed Area** (8.50 Ha. at previous quarry + 35.55 Ha at Bharat OC)	44.05 Ha.
1.5.26	Reasons for revision	• Mining Plan of Bharat OC Patch consist of Phase-I ,II& III including land area of old quarries (42.785 ha). Total land area works out to 111.489 ha. Out of 111.489 ha of land, Forest land is 68.704 and Non Forest is 42.785 ha. Total land in physical possession is 62.285 ha. (Forest land 19.5ha. +Non Forest land 42.785 ha). Balance land to be acquired is 49.204 ha . which is totally forest land. • In acquired land, Phase-I mine working with statutory approvals was worked and exhausted. • In addition to the above phase-I, mine has been proposed to worked in phases, namely Phase-II &Phase-III in 49.204 ha forest land (Phase-II :14.0 ha . and Phase-III : 35.204 ha.). A scheme for phase-II OC mine has already been approved by competent authority and a combined scheme for Phase-II and Phase-III is being prepared. • In view of the above proposed mining workings, Mining Plan of Bharat OC Patch has been prepared. • The application for diversion 14.0 Ha. forest land was submitted to MOEF vide Online Application No. FP/MP/MIN/26356/2017. • The Letter of MOEF Ref No. 8-112/2006-FCVOl Dated 18-Sept-2023 the MOEF is asked for Submitting the Mining Plan of Bharat OC Patch.

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CHAPTER- 2: EXPLORATION, GEOLOGY, SEAM SEQUENCE, COAL QUALITY AND RESERVE

	Parameters	*Details*
2.1	DETAILS OF THE BLOCK	
2. 1.1	Particulars of adjacent blocks: North, South, East, West	Jharna Extension block is adjacent The detail of mine boundaries are given below: North = Forest South = Residential Area East = Junnardeo Township West = Jharna UG
2.1.2	Location of the Block District/ State	District – Chhindwara, State – Madhya Pradesh
2.1.3	Area of the Block "Ha"	111.489 Ha.
2.1.4	Area of the geological block projectized "inHa" (Area of the geological block considered for liquidation of coal reserve)	111.489 Ha.
2.1.5	Balance area yet to be projectized "Ha"	**Nil**
2.1.6	Likely Reserve in the area yet to be projectized	Nil
	Cardinal Point Co-ordinates of the non-coal/lignite bearing area/existing mining lease outside the allotted Geological Coal/Lignite block	(In decimal degree)
2.1.7	(Duly certified in line with para 1.9 of the Guideline, if fresh mining lease required)	

S.No.	Longitude	Latitude
1	78.5643960400	22.2111160300
2	78.5630865364	22.2113617771
3	78.5623003269	22.2116369336
4	78.5620204455	22.2120045248
5	78.5614826010	22.2123221780
6	78.5604305170	22.2124996911
7	78.5592777699	22.2125030192
8	78.5555581170	22.2115422043
9	78.5536295660	22.2110641982
10	78.5510106515	22.2108195493
11	78.5499483968	22.2106464595
12	78.5494996827	22.2102040760
13	78.5493583240	22.2096286129
14	78.5496030054	22.2088029908
15	78.5503035576	22.2084422738
16	78.5539196726	22.2093556285
17	78.5553775919	22.2094898020
18	78.5554396700	22.2082755098

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	Parameters	Details		
		19	78.5578600024	22.2082940857
		20	78.5580362579	22.2075243249
		21	78.5587963872	22.2071274689
		22	78.5586548938	22.2062374865
		23	78.5594335156	22.2060982603
		24	78.5605736393	22.2060903851
		25	78.5615359920	22.2064057828
		26	78.5620326374	22.2069880383
		27	78.5638012600	22.2069848100
		28	78.5656715531	22.2074869548
		29	78.5659788994	22.2084045190
		30	78.5677089106	22.2089832722
		31	78.5696033847	22.2089283547
		32	78.5767343227	22.2114368439
		33	78.5768218609	22.2133278128
		34	78.5737529126	22.2138440046
		35	78.5706147800	22.2138182457
		36	78.5658502965	22.2137310841
		37	78.5614716600	22.2134974300
		38	78.5643960400	22.2111160300
2.1.8	Certificate of Qualified person/ Accredited Mining Plan **preparing** agency (MPPA)if the project area is confined within the vested/allotted block boundary/existing mining lease and	MCR Lease No. 10 &11 are vested to Coal India under Coal Mines Nationalisation Act 1973. After formation of WCL on 01.11.1975 the mines automatically come under administrative control of WCL. As per Section 3 of the Coal India, Reg of Transfer and Validation Act 2000, these leases were deemed to be fresh mining lease w.e.f. 01/11/1975 MCR 1960 and valid till year 31/03/2030		
	Where the project area extends beyond the block boundary, a certificate of Qualified person/ Accredited Mining Plan preparing agency (MPPA)should be supported with a certificate of State Government mines and Geology department must be attached, which should specify (a) intent of the state government for grant of lease beyond the vested geological boundary;(b)non-existence of Coal/ Lignite in the area beyond the vested/allotted geological block boundary/existing			

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	Parameters	Details
	mining lease to rule out the issue of encroachment and use of coal bearing area(beyond the vested/allotted block boundary/existing mining lease in the mining plan. The Project area, Lease area and geological block area in "Ha" shall also be envisaged.	
	Any other adjacent block, and non-coal bearing certificate of the area in case any proposed infrastructure or OB dump is outside the block	Not Applicable
2.1.9	KML file of the Proposed lease area, Project Area and Geological block.	Enclosed as Annexure – I
2.1.10	Whether the proposed project area is confined Within the allotted block boundary/existing mining lease, if not, the reason for deviation from allotted block boundary may be given.	The proposed project is confined within the allotted block.
2.1.11	If the project area extends outside the allotted block boundary/existing mining lease, confirmation about non-occurrence of coal/ lignite in the area under reference needs to be furnished	Nil
2.1.12	Type of the Project (Operating /under Implementation) and year of Starting.	Bharat OC Patch is in operation since 29.06.2015 & the opencast mining is being carried out in small patches thereby extracting the erstwhile left out coal pillars in the old underground workings. In this sequence 19.50 Ha quarry in Phase-I has got exhausted. The OB generated from this Phase-I has been filled in internal dump of adjoining Old quarry located in west (6A &6B). Bharat OC Patch in Phase- II is an already approved scheme which will be work in quarry in 14.0 Ha. The void created in Phase-I will be utilized by

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into the picnic spot. Both side of this haul road will be afforested.

3.6.2 Slope stability arrangement for high wall and back filled dumps

During operation of the mine, overall slope will be maintained at an angle not exceeding 25-28 degrees. Vegetation cover will also be provided along the slopes to arrest any failure.

As regards stability of back-filled dumps, the final level of reclaimed backfill will be matched with the levels of surrounding ground level leaving a final residual void. For the stability of the back-filled dump the slope of the dump will be maintained at the stable angle of 25-28 degrees. Vegetation cover will also be provided along slopes to arrest any failure.

3.7 Survey records of workings

All the mine workings including quarry, roads, ponds, tanks, etc shall be resurveyed and records shall be updated. Copy of such records shall also be submitted to the appropriate competent authorities, such as DGMS and state authorities.

3.8 Disposal management of hazardous material

At the time of closure, assessment would be made as to find whether there is any hazardous material that could cause problem. Such hazardous material e.g. explosives, chemicals, oil, etc. shall be appropriately disposed off.

3.9 Re- deployment of work force

3.9.1 The current manpower of the project is 134 as on 1.04.2013.

3.9.2 However , at the time of final closure, after exhaustion of entire mineable reserve, following steps would be taken for effective management of available manpower at the time of closure:

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A). First, option of VRS would be given to the age group of + 50 years. Some may accept , others will be gainfully utilized in other projects.

B). After exhausting the above portion, the middle aged group workforce (between 40 – 50 years) would be transferred to the similar projects.

C). If vacancy in similar nature projects gets exhausted. The relatively young workforce would be re-trained and re-deployed in other projects.

3.10 Emancipation from the community facilities and the facilities to the PAPs

3.10.1 The project affected persons (PAPs) and also the local communities are being provided many civic facilities, such as educational facilities, health facilities, and drinking water. At the time of final closure after exhaustion of entire mineable reserve these facilities will be entrusted upon the local people and state authorities so that the same could continue even after mine closure. If needed, a lump sum amount would also be paid to the local bodies/trust of PAPs/ state bodies for proper upkeep and maintenance of various community facilities.

3.10.2 To ensure that no financial loss occurs due to the closure of mining activity to the local community engaged indirectly in the exhausting mine, following steps would be taken:

- Will be given option to shift in the new or expansion mines located in the nearby area.
- They will be given vocational training for continuance / sustenance of income level.
- It is proposed that reclaimed and afforested land may be handed over to state forest dept. for the benefit of local ecosystem as per rules in vogue. The forest wealth can also be utilized by local people or tribal in the form of fruits and fodders.

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<table>
<tr><th></th><th>Parameters</th><th>Details</th></tr>
<tr><td></td><td></td><td>proposed scheme in Phase-II & III working for internal dumping of OB. Top soil generated from Phase-II (14.0 ha land area) & Phase-III (35.204 ha) will be dumped in aforesaid internal dump of adjoining Old quarry (6A &6B). The above dumping schedule has been shown in point no.3.1.7</td></tr>
<tr><td>2.2</td><td colspan="2">EXPLORATION, GEOLOGY AND ASSESSMENT OF RESERVE</td></tr>
<tr><td>2.2.1</td><td>Regional geological set up of the area, local geology, structure, stratigraphic sequence, characteristics of the litho-logical units (coal seams/ partings /overburden).</td><td>Regional Geology :The PenchKanhan Valley Coalfields extend over a strike length of about 64Km. The Talchirs are exposed all along the southern limit of basin, while the motors with thin strips of Barakars in between, occur in the central part. In the northern part, Bijori and Panchmarhl formations overlie the lower Gondwanas. Overlying the lower gondwana sediments, the Jabalpurs are exposed in small patches in eastern part of the coalfield. While the Deccan traps covers the Gondwanasendiments over a greater parts in east. A number of Dolerite dykes have also intruded in the coal bearing formations. The archaeans occurring in the south demarcates the southern limit of basin. The regional strike of the sedimentataries is ENE-WSW with northerly dip ranging between 5 Degree and 15 Degree. The Pench Valley area is affected by a network of faults in which the strike faults are dominant. As a result of these faults of varying amounts throw, local changes in dip and strike are common. The fault zones have prominent topographical expressions in the form of linear ridges, fractured and slickenside rocks and faulted / The coal bearing Barakars show conformable relation with the overlying Moturs, but having distint unconformity with Jabalpur.
The Regional Geological sequence of the Satpura-Gondwana is given below :
<table>
<tr><td>Age</td><td>Formation</td><td></td><td>Lithology</td></tr>
<tr><td>Recent</td><td>Alluvium</td><td></td><td>Sandy & Clayey soil</td></tr>
<tr><td>Upper Creataceous to Eccocene</td><td>Deccan Traps</td><td></td><td>Basalt flow withintertrappean beds, dykes & sills of dolerite</td></tr>
<tr><td>Upper Cretaceous</td><td>Lameta</td><td></td><td>Conglomerate, Limestone & Clays</td></tr>
<tr><td colspan="2">UNCONFORMITY</td><td></td><td></td></tr>
<tr><td>Jurrasic</td><td>Jabalpur</td><td></td><td>Sandstone, Jasper bearing conglomerates with soft white clays</td></tr>
<tr><td colspan="2">UNCONFORMITY</td><td></td><td></td></tr>
<tr><td>Rhaetic</td><td>Mahadeva Group</td><td>BagraConglo-merate</td><td>Coarse, conglomerate with quartz pebbles in matrix of sandy clay</td></tr>
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	Parameters	Details			
		Triassic		Denwa clays	Thick beds of soft variegated clay interstratified with subordinate bands of white sandstone.
		Lower Triassic		Pachmarhi Sandstone	Coarse white soft sandstone with layers of white subangluar quartz pebbles
		UNCONFORMITY			
		Upper Permian	Bijori		Sandsotne, micaceous shales, carbonaceous shales with streaks of coal.
		Lower Permian	Barakar		Feldspathic sandstone shales carbonaceous shales fire clays and coal seams.
		Upper Carboniferous	Talchir		Basal boulder bed followed by alternation of graded sandstone and greenish arenaceous micaceous shales.
		UNCONFORMITY			
		Archaeans	Gneisses and granites		Porphyritic streaky biolite gneisses and granite.
2.2.2	Local geology,Structure, Stratigraphics sequence, Characteristics of the lithological units (coal seams/ partings/overburden).	**Local Geology :** In Bharat OC Patch, The northern hilly region is occupied by the darcoloured basaltic rocks of the Deccan Trap. A dyke is passing through middle of the Bharat OC Patch in E-W to SW-NE trend. The Bharat OC Patch has been proposed to work in Phases namely Phase-I, II & III from old ug working of Datla West Colliery & Bharat Colliery.The old Datla West Colliery is abandoned since 1989. The left out coal in goved& standing on pillar is being extracted in Bharat OC Patch. Phase-I OC patch has been exhausted. Phase-II & III has been proposed to work in the future			

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<table>
<tr><th></th><th>Parameters</th><th>Details</th></tr>
<tr><td></td><td></td><td>STRUCTURE :
Bharat OC Patch is affected by One no. major faults (40mtr) in direction of SE-NW at western part of the block. A few minor faults also exists.

Coal Seam details : The quality of coal is designated as G-13

Balance Extractable Coal Reserves :The Balance Mineable Reserve of Phase II & III as on 01.04.2024 is 1.730 Mt.</td></tr>
<tr><td>2.2.3</td><td>Geological Block Area " Ha"</td><td>111.489 Ha.</td></tr>
<tr><td>2.2.4</td><td>Status of Exploration of the block</td><td>Explored</td></tr>
<tr><td>2.2.5</td><td>Area covered by 'detailed' exploration within the block (sq. km)</td><td>111.489 Ha.</td></tr>
<tr><td>2.2.6</td><td>Whether entire lease area has been covered by 'Detailed' exploration.</td><td>Yes</td></tr>
<tr><td>2.2.7</td><td>No. of boreholes drilled within the block</td><td>02 Nos. Borehole (1/75 and 2/75) Drilled by CMPDI.
* The Block area of Bharat OC Patch is covered from old UG working of Bharat Colliery &Datla West Colliery, The reserve estimation is done on the basis of old Abandoned Mine Plan.</td></tr>
<tr><td>2.2.8</td><td>Whether any further exploration/study is required or suggested and time frame in which it is to be completed</td><td>No</td></tr>
<tr><td>2.2.9</td><td>Year wise future program of exploration</td><td>No</td></tr>
<tr><td>2.2.10</td><td>Overall borehole density within the block(no./ sq. km) approx.</td><td>2.91</td></tr>
<tr><td>2.2.11</td><td>No of Seams available as per GR</td><td>One No. Seam (MEC-III Top)</td></tr>
<tr><td>2.2.12</td><td>Seams not consideredfor Mining</td><td>Nil</td></tr>
<tr><td>2.2.13</td><td>Dip of the Seam</td><td>Gradient 1 in 4 to 1 in 5 Towards N 14 W</td></tr>
<tr><td>2.2.14</td><td>Seam wise thickness, depth and reserve</td><td>
<table>
<tr><th>Seam</th><th>Thickness Range</th><th>Depth</th><th>Grade</th><th>Reserve</th></tr>
<tr><td>MEC-III</td><td>3.50 m - 6.50m</td><td>10m to 90m</td><td>G-13</td><td>1.73 Mt as on 01.04.24</td></tr>
</table>
</td></tr>
</table>

Att.

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	Parameters	Details
2.2.15	Methodology of reserves estimation (also Mention if any software package been used).	AUTOCAD
2.2.16	Average GCV "KCal/kg"	G-13 – 3400 to 3700 kCal/kg
2.2.17	Gross Geological Reserve of the block "Mte"	3.908 Mt
2.2.18	Net Geological Reserve of the block "Mte"	3.908 Mt
2.2.19	Minable Reserve of the block "Mte"	2.259 Mt
2.2.20	Blocked Reserve "Mte"	1.649 Mt
2.2.21	Corresponding extractable reserve of the Block	Balance Reserves as on 01-04-2024 is 1.73 Mt
2.2.22	Percentage of Extraction	100 %
2.2.23	Reserve already depleted (till the base data of Mining Plan) "Mte"	0.529 Mt
2.2.24	Balance Reserve (as on Base Date) "Mte"	1.73 Mt (Balance reserves as on (01-04-2024)

CHAPTER- 3: MINING

	Parameters	Details
3.1	**MINING METHOD**	
3.1.1	Existing method of mining if the mine is under operation	The mine is being worked by inclined slicir method i.e. conventional benching syste with shovel dumper combination, with ma sump at the floor of the seam. The thickne of composite seam is about 3.50 – 6.50 m.
3.1.2	Proposed method of mining with justification on suitability of method of mining	There is no change in method of mining fo coal extraction.
3.1.3	Coal production capacity proposed "MTPA"	Coal – 0.470 MTPA
3.1.4	Justification for optimizing coal production capacity	There is no coal production from Bharat C patch since June , 2020.
3.1.5	Calendar year from which the production will start	Production will start in 3rd year
3.1.6	Year of Achieving rated production	Mine will achieve planned coal production 4th year.

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3.1.7 A Tentative Coal production Plan "Mt"

Total Hiring Option

The calendar program of Excavation showing year-wise coal and OB in total Hiring Option are tabulated below.

Note: Calendar Plan/Production for the entire life of the mine.

Year	Coal in Mt.	Total OB in Mm^3	Remarks
Phase-I in 19.50 ha forest land has been exhausted			
Year-1	Land Acquisition		
Year-2	Land Acquisition		
Year-3	0.392	3.329	Phase-II
Year-4	0.470	4.275	Phase-II & Phase III
Year-5	0.438	4.975	Phase-III
Year-6	0.430	3.737	Phase-III
Total	1.730	16.316	

3.1.7 B Dump Capacity

Sl.	Type of Dump	Name of Dump	Existing Status		Additional		Total Volume (Mm3)
			Ht (m)	Volume (Mm3)	Ht (m)	Volume (Mm3)	
A	External Dump	Nil					
B	Internal Dump	D1 (6A & 6B Quarry) Soft OB	GL+20	0.245		0.00	0.245
		D2 (6A & 6B Quarry) Soft OB	GL+25	0.931	GL+30	0.406	1.337
		D3 (Bharat OC) Hard OB	GL+20	0.953	GL+45	12.167	13.120
		J1 (6A & 6B Quarry) Soft OB	Below GL	0.00	25(Up to GL)	0.998	0.998
		J2 (6A & 6B Quarry) Hard OB	Below GL	0.00	25(Up to GL)	2.000	2.000
		J3 (6A & 6B Quarry) Dyke	GL+20	0.00	30 (Up to GL)	0.745	0.745
	Total			2.129		16.316	18.445

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3.1.7 C Proposed Dumping Schedule

Year	OB (Mm^3)	External Dump (Mm^3)	Internal Dump (Mm^3)					
			D1 (6 A & 6B Quarry) (Soft OB	D2 (6 A & 6B Quarry) (Soft OB)	D3 (Bharat OC Quarry) (Hard OB)	J1 (6 A & 6B Quarry) (Soft OB)	J2 (6 A & 6B Quarry) (Hard OB)	J3 (6 A & 6B Quarry) (Dyke)
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	3.329	0.000	0.000	0.400	2.929	0.000	0.000	0.000
4	4.275	0.000	0.000	0.006	1.875	0.394	2.000	0.000
5	4.975	0.000	0.000	0.000	3.830	0.400	0.000	0.745
6	3.737	0.000	0.000	0.000	3.533	0.204	0.000	0.000
Total	16.316	0.000	0.000	0.406	12.167	0.998	2.000	0.745

3.1.8	**Rated Capacity "Mtpa"**		
		- By OC	0.470 MTPA
		- By UG	Nil
		- Overall	0.470 MTPA
31.9	Life of the mine: Years"		
		- By OC	6 Years including 2 years for land acquisition
		- By UG	NA
		- Overall	6 Years including 2 years for land acquisition
3.1.10	Whether the proposed external OB dump site is coal/ lignite bearing: If so, whether coal/lignite below Waste disposal area is extractable.		No External OB Dump Site is proposed.
3.1.11	Whether negative proving for coal / lignite in the proposed site for OB dump/ infrastructure has been done.		No
3.1.12	Results of any investigation carried out for scientific mining, conservation of minerals and protection of Environment; future Proposals.		Regular monitoring of Environment parameters (Air, water, noise) a being carried out.
3.1.13	Type of Equipment HEMM proposed		Excavator, Dumper, Dozer, Drille Payloader Sprinkler etc.

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CHAPTER 4: SAFETY MANAGEMENT

<table>
<tr><th></th><th>Parameters</th><th>Details</th></tr>
<tr><td>4.1</td><td>Safety Management</td><td></td></tr>
<tr><td>4.1.1</td><td>Important safety aspects: Major Risks and uncertainties to the project viz. Proximity to river, adjacent working, geo-mining disturbances, slope stability and remedial measures suggested.

It should also include proposed overall slope of the quarry and OB dump, dump height, strata control, fire and spontaneous heating, gas monitoring, disaster management, danger from inrush of water etc.</td><td>Bharat OC Patch an Opencast Mine where the seam thickness varies from 3.50 Mtr to 6.50 Mtr. and method of working is Extraction of Old Depillared Pillars by Opencast using HEMM.

Proposed Bharat OC patch will adhere to thecoal mine act 1952 , bylaws and CMR 2017 for safety of mine working to eliminate any risk, hazards associated with uncertainties.

Inundation:
1. Precautionary measures against inundation from surface, such as cutting of garland drains, clearing of Nallah etc. is being done every year before the onset of monsoon.

2. No any river or major water body exist near the mine and only seasonal nallah is flowing through the North-West side of mine boundary which is generally active during monsoon and a strong Embankment is maintained for this purpose.

3. Precautionary measures are also taken from inrush of water/inundation from old developed galleries by maintaining another roadway with high altitude so that inrush water cannot reach there.

4. Description of Seasonal Nallah.
<table>
<tr><td colspan="2">HFL</td><td>774.131 M</td></tr>
<tr><td colspan="2">Withdrawal level</td><td>773.131 M</td></tr>
<tr><td colspan="2">Warning level</td><td>772.131 M</td></tr>
<tr><td rowspan="3">Embankment</td><td>Min. Top RL Reqd.</td><td>777.131 M</td></tr>
<tr><td>Present Min. RL</td><td>780.660 M</td></tr>
<tr><td>Min. Top width reqd.</td><td>3 M</td></tr>
</table>
5. No any adjacent mines or workings situated near the mines.
In addition to the above, all precautionary measures as laidout in CMR-2017 and DGMS Technical</td></tr>
</table>

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	Parameters	Details
		Circulars will continue to be carried out. **6. Precautions should be taken while Working by Opencast mining method over underground developed pillar** **7. Dewatering of waterlogged quarry will be done before dumping of OB in void of quarry** **Slope Stability:** 1. Scientific study will be done for pit design and OB dump design. 2. The height of individual dumps are not exceeding 30m. Wherever the dump height is exceeding 30m are benched in such a manner that no bench exceeds 30m in height and the general slope in no case exceed 1 in vertical & 1.5 Horizontal. 3. No Toe of dump near to approach any railway lines/public roads. **Dust Suppression:** 1. The dust suppression is controlled at its origin by regular water spraying through water sprinkler tanker. 2. Monitoring of dust concentration by PDS so that permissible dust concentration cannot be exceeded. 3. All Safety Equipment such as Masks Ear-plugs are provided for protection from dust. **Fire & Spontaneous Heating** 1. There is no danger of Fire & Spontaneous heating during extraction of coal from old developed pillars because all these galleries are waterlogged. 2. Also SOP has been devised for working in hot strata. 3. Proper Arrangements of firefighting pipe lines has been laid at coal stock yard. 4. Regular monitoring of all places/points in coal stock yard to prevent the spontaneous heating. In Ghorawari Colliery No.2 there is no such risk of fire and spontaneous heating, In spite of this All the provisions of CMR-2017 and DGMS Technical circulars will continue to be followed **Disaster Management** 1. The detailed Safety Management Plan, Emergency response Plan has been prepared

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	Parameters	Details
		and implemented. 2. Principal Hazards of mine has been identified and Principal Hazard Management Plan (PHMP) has been prepared and implemted. Every risk and hazards associated with it are briefly investigated, control measures implemented and monitoring procedures devised in Safety Management Plan for mine.
4.1.2	A Commitment from the Company Board that entire mining operation will be carried out as per the Statutory provision given under Mines Act 1952, Coal Mine Regulation 2017 and &wherever specific permission will be required the company will approach the Concerned authorities.	. All the statutory provision has been to be adhered for the future mining operation

CHAPTER 5: INFRASTRUCTURE FACILITIES

	Parameters	Details
5.1	Mine infrastructure required e.g. Equipment maintenance planning, Office buildings, Workshop, Power supply arrangement, Water supply etc.	Mine is in operation since 28.06.2015. All existing infrastructure like Office buildings, Workshop, sub station for power supply arrangement , railway siding at Hridagarh, Water supply will be utilsed. In this Mining Plan, no additionalinfrastructure is proposed.
5.2.	Power supply &illumination.	**POWER SUPPLY, ILLUMINATION & COMMUNICATION** The source of power supply toGhorawari OC coal mineis from 24 KV Sub Station situated near Jharna UG & 11 KV Sub Station Situated at Bharat OC are part of Ghorawari OC Patches . Both the Sub Station are connected with MPEB.
5.3	Drainage & Pumping Assessment of Volume of Water for Pumping, Pumping Capacity and Pump Selection	A major portion of the quarry is backfilled and the remaining decoaled void will act as water reservoir. It is proposed to develop a water lagoon in the dip side area of the quarry, which could not be back filled. The water lagoon will be handed over to State Authorities for conversion into a picnic spot with proper fencing and security. If necessary, the lagoon may also be used by the State Authority for supplying water to

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		local community after proper treatment of the same. The existing water supply facilities would be handed over to the State authorities for future upkeep and maintenance. If required local authorities may use the lagoon as a source of domestic water supply for the local community.
5.4	Coal Handling Arrangement: Brief detail of the CHP/Mode of Dispatch, Coal quality and Coal staking and handling arrangement	COAL HANDLING ARRANGEMENT -100mm CHP is installed at Hirdagarh Siding, Produced coal from Ghorawari OC mine is being sent to Hirdagarh Siding for crushing. After Crushing the coal,it is dispatched to various consumers.
5.5	Coal washing and the proposed hand1ing/disposal of rejects.	Not applicable.

CHAPTER 6: LAND REQUIREMENT

	Parameters	Details
6.1	**LAND REQUIREMENT**	
6.1.1	Total Land requirement for the mine in "Ha"	Bharat OC Patch is an Open Cast Coal mine under Ghorawari OC Patches. The detail of Land involved are as under :

Land Type	Area in Ha.	Remarks
Forest Land	68.704 Ha.	Quarries of exhausted Phase-I (19.5 ha) and proposed Phase - II (14.0 ha) & Phase-III (35.204 ha)
Non-Forest Land	42.785 Ha.	Located in Adjoining old quarries of 6A & 6B
Total	111.489 Ha.	

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6.1.2 **During mining Land use details:**

Activity	Area in Ha.	Remarks
Excavation	52.98 Ha.	(12.86 Ha. already excavated + 40.12 to be excavated) * Excluding the area of previous quarry
OB Dump in void of previous quarry	34.89 Ha.	(26.39 Ha. already backfilled + 8.50 Ha. to be backfilled)
Infrastructure	3.00 Ha.	
Road	1.00 Ha.	
Green belt	2.60 Ha.	
Township	Nil	
Rationalisation	17.019 Ha.	Including Blasting zone and embankment
Total	**111.489 Ha**	

6.13 **Progressive Phase Wise Land Use Plan :**

Activity	Phase-I : Existing (Within 19.50 Ha Forest Land)+ (42.785 Ha Non Forest Land	Bharat OC Extension		Total (Ha.)	Remarks
		Phase-II : (Within 14.0 Ha. Forest Land) + (42.785 Ha. Non Forest Land of Old Quarry)	Phase-III : (Within 35.204 Ha. Forest Land) + (42.785 Ha. Non Forest Land of Old Quarry)		
Excavation	12.86	11.62	28.5	52.98	(12.86 Ha. already excavated + 40.12 to be excavated) * Excluding the area of previous quarry
External Dump	0.00	0.00	0.00	0.00	
Infrastructure incl. Coal stock and Road	4.00	0.00	0.00	4.00	
Green Belt	0.75	0.75	1.10	2.60	Incl. 7.50 m safety zone against

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						Forest land
	Embankment	1.20	1.50	1.80	4.50	
	Undisturbed Area	0.69	0.13	3.804	4.624	
	Sub Total (A)	**19.50**	**14.0**	**35.204**	**68.704**	
	Already Excavated Area	35.60			35.60	
	Undisturbed Area	7.185			7.185	
	Dumping in void of old quarry within excavated Area	4.00			4.00	
	Sub Total (B)	**42.785**			**42.785**	
	Total (A+B)	**62.285**	**76.285**	**111.489**	**111.489**	

6.14	Surface features over the block area	Surface features viz. manager office, coal stockyard, internal roads for transportation etc. have been provided.
6.1.5	No. of villages/Houses to be shifted	This Mining Plan will not involve any shifting.
6.1.6	Population to be affected by the project	Not applicable
6.1.7	Proposed Rehabilitation program	R& R is not applicable since only forest land is involved in the project.
6.2	**DETAILS OF LEASE**	
6.2.1	Status of Lease	The Coal Block of Bharat OC Patch is within the MCR Lease No. 10 &11
6.2.2	Existing Lease Area "Ha"	111.489 Ha.
6.2.3	Period for which Mining Lease has been granted/is to be renewed/is to be applied for.	As per Section 3 of the Coal India, Reg of Transfer and Validation Act 2000, these leases were deemed to be fresh mining lease w.e.f. 01/11/1975 MCR 1960 and valid till year 31/03/2030
6.2.4	Date of expiry of earlier Mining Lease, if any	31/03/2030
6.2.5	Whether the lease boundary/ required boundary is same as mentioned in the allotment order.	The Coal Block Area of Bharat OC Patch is within the Mining Lease.
6.2.6	Lease Area (applied/ required) as per the Mining Plan under consideration (Ha)	Not applicable.
6.2.7	Whether the applied lease Area falls within the allotted block	Not applicable.
6.2.8	Area (Ha) of lease which falls outside the delineated Block Boundary/Existing Mining Lease	Nil
6.2.9	**Details of outside area:**	
	Whether forms part of Any other coal block	No
	Whether it contains any coal/lignite reserves	Yes

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	Purpose for which it is required, e.g. roads/ OB dumps/ service buildings/ colony/ safety zone/ others (specify)	Not required
	Whether some part(s) of the allotted block has not been applied for ruining lease.	Not applicable.
	- Total area in Ha of Such part(s).	Not applicable.
	- Total reserves in such part(s). (Mt)	Not applicable.
	- Brief reasoning for leaving such part(s)	Heavily Populated zone, coal mining is not viable at present.

Chapter 7: ENVIRONMENTAL MANAGEMENT

	Parameters	Details
7	ENVIRONMENTAL MANAGEMENT	
7.1	Commitment from the project proponent that the company will comply Environment Forest Condition stipulated in the respective clearances.	Certificate

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वेस्टर्न कोलफील्ड्स लिमिटेड
Western Coalfields Limited
(मिनीरत्न कंपनी)(A Miniratna Company)
(A Subsidiary of Coal India Limited)

उपक्षेत्रीय प्रबंधक कार्यालय, घोरावाड़ी
उपक्षेत्र
पो. घोरावाड़ी, जिला-छिन्दवाड़ा
CIN- U10100MH1975GOI018626

OFFICE OF THE SUB AREA MANAGER,
GHORAWARI SUB AREA
PO- Ghorawari, Distt. Chhindwara (MP) 480555
Ph. No. 07160-266311, email -
samgsakan@gmail.com

पंजी.कार्या.:कोल इस्टेट, सिविल लाइन्स, नागपुर - ४४०००१

Regd. Office: Coal Estate, Civil lines, Nagpur-440001

स.क्र: वेकोलि/क.क्षे./घो.उ.क्षे./उ.क्षे.प्र/2023 -

दिनांक:

CERTIFICATE

This is to certify that the Bharat OC patch of Ghorawari OC patches mine, during its operations will comply with the conditions stipulated in the Environment clearance and forest clearance.

Mine Manager
Ghorawari OC mine

Sub Area Manager
Ghorawari Sub Area

CHAPTER 8: PROGRESSIVE & FINAL MINE CLOSURE PLAN

	Parameters	Details
8.1	**Land Degradation and restoration Schedule**	

Tentative Land Degradation and Technical Reclamation (Commutative Area "Ha")

8.1.1

Year/Stage (Life of the mine plus post closure period)	Land Degraded				Technically Reclaimed Area			
	Excavated	External Dump including Embankment)	Infra/ Others	Total	Backfill	External Dump	Others (Previous Quarry)	Total
Upto 01.04.2024	12.86	4.50	4.00	21.36	5.08	-	26.39	31.47
Year-1	0.00	0	0.00	0.00	0.00	0	0	0.00
Year-2	0.00	0	0	0.00	0.00	0	0	0.00
Year-3	11.43	0	0	11.43	9.00	0	5.0	14.00
Year-4	11.43	0	0	11.43	6.00	0	1.5	7.50
Year-5	11.43	0	0	11.43	10.50	0	1.5	12.0
Year-6	5.83	0	0	5.83	10.05	0	0.5	10.55
Total	52.98	4.50	4.00	61.48	40.63	0	34.89	75.52
Post Closure								
Year-1	0	0	0	0	0	0	0	0
Year-2	0	0	0	0	0	0	0	0
Year-3	0	0	0	0	0	0	0	0

*- Considering mine life of 06 years from base year

Tentative Biological Reclamation (Cumulative in "Ha")

8.1.2

Year/Stage (Life of the mine plus post closure period)	Biologically Reclaimed Area						Total
	Agriculture	Plantation	**Water Body (Void – area)**	Public/ Company use	Total	Un Disturbed/ To be left for Public/ company use*	
Upto 01.04.2024		5.04					
Year-1	0	0.00	0	0	0		0
Year-2	0	0.00	0	0	0		0
Year-3	0	0.00	0	0	0		0
Year-4	0	5.00	0	0	5.00		5.00
Year-5	0	7.00	0	0	7.00		7.00
Year-6	0	7.00	0	0	7.00		7.00

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Ghorawari Colliery

	Total		24.04			24.04			24.04
	Post Closure								
	Year-1	0	20.00	0	0	20.0		0	20.0
	Year-2	0	20.00	0.00	0	20.00		0.0	20.0
	Year-3	0	11.48	12.35	4.00	27.83		19.619	47.449

8.2	**Post Closure**Water Quality management	Water quality of the effluent will continue to be analyzed till 3 yrs after intended closure of the mine as being done during th operation stage and all the pollution control measures presently i operation will continue to be maintained and operated.
8.3	**Post Closure** Air Quality management	Air quality of the mine and surroundings will continue to be analyze till 3 yrs. after intended closure of the mine as being done during th operation stage and all the pollution control measures presently i operation will continue to be maintained and operated.

8.4 Waste Management (Figures in mm^3) (Tentative)

Year/Stage (Life of the mine plus post closure period)	OB Removal (Absolute)			Technically Reclaimed Area		Internal Back filling (Absolute)		Embankment & top soil dump (Absolute)	
	OB	RH	Total	OB	RH	OB	RH	Top soil	OB
Upto 2023-24									
Year-1	0.000	0	0.000	0.000	0	0.000	0	0	0
Year-2	0.000	0	0.000	0.000	0	0.000	0	0	0
Year-3	2.929	0	2.929	2.929	0	2.929	0	0.400	0
Year-4	3.875	0	3.875	3.875	0	3.875	0	0.400	0
Year-5	4.570	0	4.570	4.570	0	4.570	0	0.400	0
Year-6	3.533	0	3.533	3.533	0	3.533	0	0.204	0
Post Closure									
Year-1	0	0	0	0	0	0	0	0	0
Year-2	0	0	0	0	0	0	0	0	0
Year-3	0	0	0	0	0	0	0	0	0

8.5 To Top Soil Management – (Including Action plan for Top Soil management) (Tentative) (Absolute)

Year/Stage (Life of the mine plus post closure period)	Top Soil Removal Plan (mm^3)	Top Soil Used				
		Spreading Over Embankment	Spreading over Backfill OB Dump area	Spreading over External OB Dump area	Used in Green Belt area	Total Utilized
Upto 01.04.2024	0.245		0.245			0.245
Year-1	0.000	0	0.000	0	0	0.000
Year-2	0.000	0	0.000	0	0	0.000
Year-3	0.400	0	0.400	0	0	0.400
Year-4	0.400	0	0.400	0	0	0.400
Year-5	0.400	0	0.400	0	0	0.400

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	Year-6	0.204	0	0.204	0	0	0.204
	Post Closure						
	Year-1	0	0	0	0	0	0
	Year-2	0	0	0	0	0	0
	Year-3	0	0	0	0	0	0

8.6	Management of Coal Rejects	No such coal beneficiation facility is proposed in mine.
8.7	Restoration of Land used for Infrastructure	The subject of retaining and dismantling of infrastructure depends upon the future needfulness. The same will be reassessed at the time of preparation of Final Mine Closure Plan.

S.No.	Particular	Details
1	Infrastructure to be retained	No structure will be retained.
2	Infrastructure to be dismantled	Office buildings like pit office, token office, etc.

8.8	Disposal of Mining Machinery	Departmental mining machinery will be either shifted to other mines of WCL and work or will be surveyed off.
8.9	Safety and Security	-Safety management Plan is prepared and implemented. -Barbed wire fencing is proposed for preventing any inadvertent entry in mining area. All safety practices as per mining statue will continue to be taken during the balance life of the mine as well as in post closure period.
8.10	Abandonment Cost and Financial Assurance	
8.10.1	Abandonment Cost: Cost of Activities to be taken up for closure of the mine:	

	Weightage as per MCP	Amount available in respective head (In Lakhs)
Dismantling of structures		
Service Buildings	0.3	21.11
Industrial structures like CHP, Office buildings, etc	0.5	35.18
Permanent Fencing of Mine Void and other dangerous Areas		
Random rubble masonry of height 1.2 meters including leveling up in Cement Concrete 1:6:12 in mud mortar	2.8	197.02
Grading of Highwall slopes		
Levelling and grading of highwall slopes	1.77	124.54

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8.10.1 Abandonment Cost: Cost of Activities to be taken up for closure of the mine:

	Weightage as per MCP	Amount available in respective head (In Lakhs)
OB Dump Reclamation		
Handling and dozing of OB dump into Mine Void and the preparation of internal dump for reclamation	88.66	6238.38
Technical and Bio Reclamation including plantation and post care	0.5	35.18
Landscaping		
Landscaping in open spaces in the leasehold area for improving its aesthetics and Eco-value	0.4	28.15
Plantation		
Plantation over cleared Area obtained after dismantling	0.5	35.18
Plantation around the quarry area and in the safety zone	0.3	21.11
Plantation over the external OB Dump	0.09	6.33
Post Closure Environment Monitoring/Testing of parameters for three years		
Air Quality	0.22	15.48
Water Quality	0.2	14.07
Entrepreneurship development (vocational/skill development) training for sustainable income of affected peoples	0.26	18.29
Miscellaneous and other mitigative measures	2.5	175.91
Post Closure Manpower cost of supervision	1	70.36
TOTAL	**100**	**7036.30**

8.10.2 Financial Assurance: Amount to be deposited in Escrow account as a security against the min activities to be carried out for the closure of the mine in 1296.011 ha of Ghorawari patches

The mine closure corpus deposited vis-à-vis provision made in earlier approved MCP is as below-

Year	Provision in approved MCP (Rs Lakh)	Corpus deposited in escrow account (Rs Lakh)
2012-13	392.40	
2013-14	412.02	804.42
2014-15	432.62	432.62
2015-16	454.25	454.25
2016-17	476.96	476.96

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8.10.2 Financial Assurance: Amount to be deposited in Escrow account as a security against the mine activities to be carried out for the closure of the mine in 1296.011 ha of Ghorawari patches

The mine closure corpus deposited vis-à-vis provision made in earlier approved MCP is as below-

Year	Provision in approved MCP (Rs Lakh)	Corpus deposited in escrow account (Rs Lakh)
2017-18	500.81	500.81
2018-19	525.85	525.85
2019-20	552.15	552.15
2020-21	579.75	579.75
2021-22	608.74	608.74
2022-23	639.18	639.18
2023-24	646.17	646.17
	6220.91	6220.91

S.No.	Details	Quantity	Unit
1	WPI as on April 2019	121.1	
2	WPI as on March,2024	151.4	
3	Ratio of WPI = (2)/(1)	1.25020644	
4	Total land area requirement for the project (ha)	1296.011	Ha
5	MCP already deposited(up to 2023-24) for 1296.011 Ha	6220.91	INR Lakhs
6	Mine closure cost @ Rs 9 lakhs /ha for 111.489 ha prorata	1003.401	INR Lakhs
7	Mine closure cost after indexing for Yr 2023-24 for 111.489 Ha	1254.46	INR Lakhs
8	Total Mine Closure balance corpus deposited in Escrow Account of Ghorawari OC upto 2023-24 (Proprata w.r.t. 111.489 ha)	535.15	INR Lakhs
9	Net Mine Closure balance corpus estimated for the proposed Bharat OC (part of Ghorawari OC Patches)	719.31	INR Lakhs
10	Life of mine	06	Years
11	Annual Contribution to Escrow fund for first year (2024-25)= (8)/(9)	119.88	INR Lakhs

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Sl No.	Financial Year	Amount to be deposited (INR Lakhs)
1	2024-25	119.88
2	2025-26	125.87
3	2026-27	132.16
4	2027-28	138.77
5	2028-29	145.71
6	2029-30	153.00
	Total	**815.39**

Total corpus fund = Rs 6220.91 (Upto 2023-24) + Rs 815.39
= Rs 7036.30 Lakhs

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LIST OF ABBREVIATIONS USED

ABBREVIATION USED	Explanation
CMPDIL	Central Mine Planning and Design Institute Ltd.
WCL	Western Coalfields Limited
MECL	Mineral Exploration Corporation Limited
PR	Project Report
HDPE	High Density Polymeric Ethylene
OC	Opencast
UG	Underground
CMR	Coal Mine Regulation
MTY	Million Tonne per Year
QP	Qualified Person
MPPA	Mining Plan Preparing Agency
MoEF& CC	Ministry of Environment Forest and Climate Change
EC	Environmental Clearance
FC	Forest Clearance
EIA	Environmental Impact Assessment

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ANNEXURES

वेस्टर्न कोलफील्ड्स लिमिटेड
Western Coalfields Limited
कंपनी सचिव का कार्यालय
Office of the Company Secretary
पंजी.का.: कोयला भवन, सिविस लाइन्स, नागपुर (महाराष्ट्र)-440001
Regd. Off.: Coal Estate, Civil Lines, Nagpur (MS) – 440001
CIN – U10100MH1975GOI018626 www.westerncoal.in
email.- companysecretary.wcl@coalindia.in
R/FAX: 0712 – 2511216

BOARD MATTER
CONFIDENTIAL

REF: WCL/Office of CS/BM-366/2024-25/ 388 DATE: 31.07.2024.

Reproduced below is the relevant excerpt from the minutes of 366th meeting of the Board of Directors of WCL held on 20th July, 2024:

"ITEM NO.366/C-4
SUB Proposal for Mining Plan including Mine Closure Plan of Bharat OC Patch, Kanhan Area.

i) While deliberating on the proposal as brought out in the agenda note, Shri Anil Kumar Singh, Director (Technical) P&P and OP apprised the salient features of the Mining Plan including Mine Closure Plan of Bharat OC Patch, Kanhan Area to the Board.

ii) The Board, after deliberation agreed to the proposal and accorded approval to the Mining Plan including Mine Closure Plan of Bharat OC Patches, Kanhan Area with total land area of 111.489 Ha and Coal production capacity of 0.47 MTPA without any additional requirement of land and capital investment for forestry clearance of 49.204 Ha forestry land as brought out in the agenda note.

iii) General Manager (P&P) to take necessary action in the matter."

31/07/2024
COMPANY SECRETARY

GENERAL MANAGER(P&P)

CC: DIRECTOR (TECHNICAL) P&P
DIRECTOR (PERSONNEL)
DIRECTOR (TECHNICAL)P&P
DIRECTOR (FINANCE)

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Chapter - 1
INTRODUCTION

1.1 About the Mine

Ghorawari Opencast Mine is under Kanhan Area of Western Coalfields Limited, a subsidiary of Coal India Limited. The method of mining adopted is Open Cast Mining by Shovel Dumper combination. Mine produced 0.59 MTPA during 2012-13.

The total project area is 1296.011ha. The financial provision for Mine Closure Plan of this mine at present works out to around Rs 18728.11 lakhs (Based on April 2012 WPI)

The salient features of the mine are as under:-

1.1.1 Name of mine owner/company

Mine	:	Ghorawari Opencast Mine
Area	:	Kanhan Area
Company	:	Western Coalfields Limited
Mine Owner	:	(Director.Tech.)(P&P), WCL.

1.1.2 Address for Communication and Phone Nos.

Mine	:	Ghorawari Opencast Mine
PO	:	Ghorawari Khurd (Via- Junnardeo)
District	:	Chhindwara,
State	:	Madhya Pradesh
Telephone	:	07160-266311

1.1.3 Location of mine

Mine	:	Ghorawari Opencast Mine
Area	:	Kanhan Area
Latitude	:	N 22^0 10' 53" - 22^0 11' 44"
Longitude	:	E 78^0 28' 51" - 78^0 31' 54"

1.1.4 Date of start :

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Date of start of development work :1982
Date of start of Production : 1982

1.1.5 Total Project Area of the mine: 1296.011 Ha

1.1.6 Communication

Road: The mine is well approachable from Junnardeo town which is on state highway about 60 km away from Chhindwara town.

Rail: Nearest railway station is Junnardeo which is about 10 km from the mine. Junnardeo railway station is located on Amla-Chhindwara line of Western - central railways.

Airways: The nearest airport is Nagpur which is about 180 km away from the mine.

1.1.7 Topography of the area

The project has gently undulating slope, the elevation varies from 780.00 m to 800.00 m. Drainage of the area is mainly controlled by Kanhan river lying about 6 -7 Km away from Project.

1.2 Reasons for Closure

The reason for closure of mine will be exhaustion of coal reserve from approved PR/scheme limits.

1.3 Need of Mine Closure Planning

1.3.1 Mining activities leave long lasting impacts on the landscape, ecology and on local inhabitants. These activities disturb the delicate environmental and social equilibrium that exists in its area of influence. Hence, it becomes imperative on part of the mine operator to restore the equilibrium in the mine affected area that existed in the pre-mining period. Thus, any mining venture must have adequate closure plan, aimed at rehabilitation of disturbed area, which should be acceptable to local community as well as regulatory authority.

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1.3.2 Mine closure encompasses rehabilitation process designed to restore physical, chemical and biological quality disturbed by the mining activities. Mine closure is not just something that happens at the end of a mine's life rather mine closure is an ongoing series of decisions and activities beginning in the pre-mining stage of mine and ending with a sustainable site that can be returned to the community.

1.3.3 Thus, a Mine closure plan needs to define the liabilities, responsibilities and authorities of the different agencies like the mine management, other regulatory bodies, Central and State Governments after mine closure Various objectives of the advance mine closure planning are as follows:

a. To allow productive and sustainable after-use of the site, which is acceptable to the mine owner and the regulatory authority.
b. To protect public health and safety.
c. To eliminate environmental damage and thereby encourage environmental sustainability.
d. To minimize adverse socio-economic impacts of mining activities.
e. To protect the flora and fauna of the area affected by the mining.
f. Effective use of the assets created in course of mining.

1.3.4 Primarily, the mine closure activities are planned in two stages. The initial plan identifies the activities required to be executed as the mining activities progress after the inception of the mine. These activities may undergo minor changes depending upon the actual site condition during implementation. Finally, a detailed closure plan is prepared 4-5 years before the actual closure time of the mine depending upon the existing parameters at that point of time.

1.4 Mine closure planning strategy in respect of Ghorawari OC mine based on existing set of parameters.

The life of the mine as on 1.04.2012 is 25 years and coal production Programme from 2013-14 is given below.

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S.No.	Year	Coal production(Mt)	S.No.	Year	Coal production(Mt)
1.	2013-14	0.65	13.	2025-26	0.75
2.	2014-15	0.60	14.	2026-27	0.65
3.	2015-16	0.70	15.	2027-28	0.65
4.	2016-17	0.60	16.	2028-29	0.55
5.	2017-18	0.55	17.	2029-30	0.50
6.	2018-19	0.65	18.	2030-31	0.50
7.	2019-20	0.70	19.	2031-32	0.50
8.	2020-21	0.70	20.	2032-33	0.50
9.	2021-22	0.75	21.	2033-34	0.55
10.	2022-23	0.65	22.	2034-35	0.55
11.	2023-24	0.65	23.	2035-36	0.65
12.	2024-25	0.70	24.	2036-37	0.697
				Total	14.947

Following activities are envisaged towards mine closure programme i respect of Ghorawari Open cast Mine.

Progressive mine closure activities will continue as envisaged in th approved Project Report/Scheme and as enumerated in the variou approvals, permits, consents etc for which adequate financial provision available.

1.5 Statutory Obligations

The statutory obligations on part of the mine operator have been enumerate in various approvals, permits, consents etc. such as lease deed, approve Mining Plan, approval obtained from MoEF , approval/consent from Sta Pollution Control Board and the other relevant statutes .The copies environment clearance and consent to operate obtained from State Govt. a enclosed.

All the applicable obligations are being strictly complied with and regul reports, wherever required is being sent to respective authorities.

Some obligations relating to the mine management companies arise follows:

a) **Health and safety:** Regulation Nos. 6, 61,106,112 of coal min regulations, 1957 and its related DGMS circulars.

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b) **Environment:**

i) Water (prevention and control of pollution act 1974)

ii) Air (prevention and control of pollution act 1981) environmental protection act , 1980 and environmental protection act 1986 and environmental protection (amendment) 2000 and DGMS directives on noise and ground vibrations :

c) **Forest:** Forest conservation Act , 1980 – not applicable

d) **Rehabilitation:** CIL'S R & R policy.

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Chapter - 2
MINE DESCRIPTION/MINING PARAMETERS

2.0 Geology in brief:-

A. Part of lease 29, Lease Nos. 9,10,11 & 13:

In Ghorawari Area the sediments encountered in the drilled boreholes are represented by Moturs, Barakars, & Talchir. Northern peripheral parts are covered by flows of basalts and underneath which the sediment occurs.
In the West, the hilly region is occupied by basaltic rock of Deccan trap. Besides this few prominent Dolerite dykes traverse through the area having EW to NE-SW trend. Few boreholes drilled by MECL have encountered the dykes.

B. Part of lease 26 & west of lease 26 :-

Based on the sediments encountered in the drilled boreholes in the area. It is observed that they represent Moturs below solid cover followed by Barakar & Talchir. A small outcrop of Barakar sandstone is noted in the North Eastern part of the block. The eastern part is covered by Deccan trap.

C. Lease 5,6,7,8,14,15 & 16 :-

Based on the data of drilled boreholes, it reveals that soil is mostly followed by coal bearing Barakars which is followed by Talchir, however few boreholes encountered Moturs above Barakars.

AGE	FORMATION	LITHOLOGY
Sub Recent to Recent	Soli/ Detrtal Mantle	Sandy clays & Black cotton soil
----------UNCONFORMITY----------		
MIDDLE PERMIAN	Muturs	Greenish purplish, & Variegated clays intercalated with cgd.sst.
LOWER PERMIAN	Barakar	White to grayish mgd to cgd sst. Shale, car, shale and Coal
----------UNCONFORMITY----------		

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UPPER CORBONIFEROUS	TAICHIR	Greenish to blackish splintery shale, sst. & bounder beds	
----------UNCONFORMITY----------			
ARCHEANS	METAMORPHICS	Schist & gneisses	

Structure of the area

A. Part of lease 29, Lease Nos. 9,10,11 & 13:

Strike (on the basis of drawn floor contours) is almost EW with minor swings while at places it is NE- SW & ESE- WNW with Northerly dip varying from 6^0 to 7^0.

B. Part of lease 26 west of lease 26 :-

Strike is almost EW to N 70^0 E – S 70^0 W. at places it is NE-SW. dip is northerly which varies from 5^0 to 13^0.

C. Lease 5,6,7,8,14,15 & 16 :-

Strike is almost EW to NE-SW. Dip is Northerly with varying from 8^0 to 9^0 (Gradient 1 in 6 to 1 in 7.8)

2.1 Brief description of mining system:

The mine is being worked by inclined slicing method i.e. conventional benching system with shovel dumper combination, with main sump at the floor of the seam. The thickness of composite seam is about 5 – 8 m.

2.2 Seam-wise Mine Details

Prospecting for the area under consideration for this project was done by MECL, IBM & NCDC and as per reports it has been correlated that the workable coal seams from top to bottom as Seam I, II & III. In the area two of these seams viz. seam –I & II occur in splits sections and are designated as I A, I B, II B (split of seam II) etc, but due to thickness are declared unworkable seams. As such only Seam –III has been considered for extraction by opencast method. The quality of coal is designated as Grade – D.

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Details about the MEC III (TOP) which is being worked with production figures and has been shown in the following tables:

Table-1

Seam	Thicknes s Range	Depth (m)	Gr.	Balance Mineable Reserves as on 1.04.2013
MEC III (TOP)	5 - 8 M	10 m to 90 m	D	14.947 Mt

Table-2 Performance for last 5 years

Particulars	Unit	Year				
		2008-09	2009-10	2010-11	2011-12	2012-13
Production	Mt	0.5441	0.3900	0.4386	0.534	0.591
OMS	t	16.81	12.01	17.44	22.75	17.04
CPT	Rs/t	526.11	768.63	747.82	675.46	1176.04
SPT	Rs/t	914.76	975.85	1082.54	862.82	1083.00
Profit	Rs/t	388.65	207.22	334.72	187.36	-93.04
Total Profit	Rs Lakhs	2114.64	808.15	1468.08	1000.58	-549.87

2.3 Mine boundary details

North : Forest
South : Residential Area
East : Junnardeo Town
West : Damua Town

2.4 Surface water bodies and their status

Kanhan River which flows southwesterly at a distance of 6-7 Km from lease boundary, controls the master drainage of the area.

2.5 OB dumps and their status

External Dump			
S.N0.	Dump Area(ha)	Dump Height(m)	Volume(Mm3)
1.	24.02	20-30	13.95

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Internal Dump			
S.NO.	Dump Area(ha)	Dump Height(m)	Volume(Mm3)
1.	76.75	20-30	55.80

2.6 Maximum depth of the OCM workings

The maximum depth of workings is 90m

2.7 Coal processing/beneficiation operation

A Coal Handling Plant at Hirdagarh is under construction for Ghorawari OC.

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Chapter - 3
Closure Plan and Related Activities

3.1 Mined out Land & proposed final land use

3.1.1 Management of mined out area

a. Total Mined out area (ha)–Present:59.50ha Proposed-690.86ha Total-750.360ha.

b. Backfilled area (ha) - present : 47.60ha. Proposed : 504.48ha. Total-552.48ha

c. Balance mined out area (ha) which will not be backfilled – 198.28ha.

d. Land use of balanced mine out area:

A part of the land will be backfilled and remaining decoaled void will be developed into a water lagoon. The water lagoon will be handed over to State Authorities for conversion into a picnic spot with proper fencing and security. If necessary the lagoon may also be used by the State authority for supplying water to local community after proper treatment of the same.

e. Details of past subsidence – Not applicable because it is an open cast mine.

3.2 Water Regime Management

3.2.1 Drainage pattern of the area (pre and post closure)

Existing drainage pattern:

Kanhan river which flows southeasterly at a distance of 6-7 Km from lease boundary, controls the master drainage of the area.

Some part of the mine water is discharged through settling pond into seasonal nalas which leads ultimately to the Kanhan River.

Post Closure drainage pattern

In course of mining throughout the life, the general drainage pattern would not be disturbed. As regards the drainage from the mined out area and the OB Dumps,

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Garland drain of appropriate cross section would be provided around the quarry edge and toe of external OB dump of the project. This drain would be connected to the above natural seasonal nalas, which would carry the run-off water to the Kanhan River.

3.2.2 Mine water discharge details.

Existing mine water discharge details

a. Water required for Industrial use is provided from the mine water discharge.

b. Excess pumped out mine water is allowed to flow into the surface drainage system after passing through a settling pond constructed in a suitable place.

Post closure Mine water discharge

A major portion of the quarry will be backfilled and the remaining decoaled void will act as water reservoir. It is proposed to develop a water lagoon in the dip side area of the quarry, which could not be back filled. The water lagoon will be handed over to State Authorities for conversion into a picnic spot with proper fencing and security. If necessary, the lagoon may also be used by the State Authority for supplying water to local community after proper treatment of the same. The existing water supply facilities would be handed over to the State authorities for future upkeep and maintenance. If required local authorities may use the lagoon as a source of domestic water supply for the local community.

3.2.3 Water Quality Monitoring

Present Practice

Fortnightly samples of mine water as well as Quarterly samples of drinking water are collected and the samples are analyzed at Environmental Laboratory, CMPDI, Nagpur and the results are compared with MoEF standard.

Present status of water quality.

Test results of the samples collected from the surface water bodies have shown that the water quality of surface water bodies is matching with the standards prescribed by MoEF.

Results of various quality checks have been furnished below in tabular format.

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Drinking water quality report

DRINKING WATER QUALITY MONITORING DATA

NAME OF THE COMPANY : WCL
NAME OF THE AREA : KANHAN
NAME OF THE PROJECT : GHORAWARI OC

YEAR : 2012
Q.E. : JUN.
DATE : 23.05.12

Name of the Location : Drinking water from Manager office

Sl. No.	Parameter	Analysis Result	Standard (IS 10500 : 1991)	
			Desirable limit	*Permissible limit in the absence of alternate source*
1.	Colour (Hazen)	3	5	*25*
2.	Odour	Unobject.	Unobject.	*-*
3.	Taste	Agreeable	Agreeable	*-*
4.	Turbidity (NTU)	4	5	*10*
5.	pH value	7.57	6.5 to 8.5	*No relaxation*
6.	Total Hardness(as $CaCO_3$) (mg/l)	324	300	*600*
7.	Iron (mg/l)	BDL	0.3	*1.0*
8.	Chlorides (mg/l)	22	250	*1000*
9.	Residual, Free Chlorine (mg/l)	BDL	0.2	*-*
10.	Dissolved Solids (mg/l)	430	500	*2000*
11.	Calcium (mg/l)	81	75	*200*
12.	Copper (mg/l)	BDL	0.05	*1.5*
13.	Manganese (mg/l)	0.02	0.1	*0.3*
14.	Sulphate (mg/l)	78	200	*400*
15.	Nitrate (mg/l)	3.52	45	*100*
16.	Fluoride (mg/l)	0.57	1.0	*1.5*
17.	Selenium (mg/l)	BDL	0.01	*No relaxation*
18.	Arsenic (mg/l)	BDL	0.05	*No relaxation*
19.	Cadmium (mg/l)	BDL	0.01	*No relaxation*
20.	Lead (mg/l)	BDL	0.05	*No relaxation*
21.	Zinc (mg/l)	0.02	5	*15*
22.	Chromium (Cr^{6+}) (mg/l)	BDL	0.05	*No relaxation*
23.	Alkalinity (mg/l)	148	200	*600*
24.	Aluminium (mg/l)	BDL	0.03	*0.2*
25.	Boron (mg/l)	BDL	1	*5*
26.	Phenolic Compounds (mg/l)	BDL	0.001	*0.002*
27.	Coliform (MPN / 100 ml)	NIL	Shall be absent	-

(BDL – Below Detectable Limit)

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Mine water quality report

EFFLUENT WATER QUALITY MONITORING DATA

NAME OF THE COMPANY : WCL
NAME OF THE AREA : KANHAN
NAME OF THE PROJECT : GHORAWARI OC

YEAR : 2012
Q.E. : JUN.

Name of the Location : Mine water discharge - KGOW-1

Month	Date of Sample collection	Analysis Results			
		pH	TSS (mg/l)	COD (mg/l)	O & G (mg/l)
APR. 2012	08.04.12	7.25	58	120	BDL
MAY. 2012	23.05.12	7.56	36	60	BDL
JUN. 2012	24.06.12	7.54	60	120	BDL
TLV as per Env.(Protection) Amendment rule 2000		**5.5 - 9.0**	**100**	**250**	**10**

(BDL - Below Detectable Level- Value < 1.0 mg/l)

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EFFLUENT WATER QUALITY MONITORING DATA

NAME OF THE COMPANY : WCL
NAME OF THE AREA : KANHAN
NAME OF THE PROJECT : GHORAWARI OC

YEAR : 2012
DATE : 08.01.12

1. Name of the Location : Mine water discharge

Sl. No.	Parameters	Analysis Results	Standards for discharge Part A, Schedule VI
1	pH	7.52	5.5 – 9.0
2	Temperature (^{0}C)	17.4	Te<Ts+5^{0}C
3	Colour (Hz)	1	*
4	Odour	UNOBJECT	Unobjectionable
5	Turbidity (NTU)	1	*
6	Conductivity (µs/cm)	889	*
7	Total Suspended Solids (mg/l)	26	100
8	Oil & Grease (mg/l)	BDL	10
9	Dissolved Oxygen (mg/l)	6.07	*
10	C.O.D. (mg/l)	40	250
11	B.O.D. 3 days at 27^{0}C (mg/l)	2	30
12	Total Residual Chorine (mg/l)	BDL	1 (Max.)
13	Ammonical Nitrogen (mg/l)	0.26	50
14	Total kjeldahl Nitrogen (mg/l)	2.1	100
15	Free Ammonia (mg/l)	BDL	5.0
16	Arsenic (mg/l)	BDL	0.2
17	Lead (mg/l)	BDL	0.1
18	Hexavalent Chromium (mg/l)	BDL	0.1
19	Total Chromium (mg/l)	BDL	2
20	Copper (mg/l)	BDL	3
21	Zinc (mg/l)	BDL	5
22	Selenium (mg/l)	BDL	0.05
23	Nickel (mg/l)	BDL	3
24	Cadmium (mg/l)	BDL	2
25	Dissolved Phosphate (mg/l)	0.23	5
26	Sulphide (mg/l)	BDL	2
27	Iron (mg/l)	BDL	3
28	Manganese (mg/l)	BDL	2
29	Nitrate Nitrogen (mg/l)	1.9	10
30	Phenolics Compounds (mg/l)	BDL	1

1. BDL - Below Detectable Level, 2. * - Limit not specified.

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Well Water Level monitoring report

TABLE V-A: Groundwater monitoring data of dugwells in buffer zone of Ghorawari OC mine,Kanhan Area

Well No.	Name of village	Well location	Owner	Utility	Well dia (m)	Height of measuring point (m agl)	Well depth (m bmp)	WATER TABLE(m-bmp)				Formation Tapped
								May' 11	Aug' 11	Nov' 11	Jan' 12	
K												
1	DUGARIA (3.5)	In the compound of Mr. B.S. Rajput South of Road	G.P.	Domestic	4.20	0.75	6.55	Dry	1.30	1.80	4.60	M/B sand stone
2	KOLIYA (Nishtari talab)	Back side of H/O ASHARUNARE Near small Dam	G.P.	Domestic	4.60	0.70	12.00	7.25	0.35	1.25	0.55	M/B sand stone
3	NIMDHANA	North of junction of Damua & Nayagaon Road (Hirdagarh Rly. Siding)	G.P.	Domestic	3.40	0.85	8.55	5.45	0.05	1.30	1.75	M/B sand stone
4	BICHHUA	In the openfield of Mr Budhu Near G.P. office	Private	Domestic	3.45	0.40	4.55	2.80	0.00	0.50	0.90	Talchir
5	HIRDAGARH CHOWK	Near chowk in the compound of Mr. Binod kumar Vayas	Private	Irrigation	7.20	0.40	8.05	5.85	1.20	2.40	3.00	Talchir

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6	CHINDIKAMAT (Road)	About 200 m North of Kanhan bridge centre of small village	Mr.Shewak Ram	Domestic	6.50	0.65	12.55	11.15	6.25	7.65	8.65	Talchir
8	GHORAWARI (CGWB)	In the openfield near School side of road Jamai KM/11	GP	Domestic	4.00	0.80	6.50	2.40	0.50	0.70	0.70	MB Sand stone
9	GHORAWARI BAZAR	Opposite CHANIPAN PALACE	Rakesh Suryabansi	Domestic	8.25	0.60	11.45	5.55	0.35	0.70	3.40	M/B sand stone
11	DAMUA (UPKARCHOWKI)	About 100 m North of Khan Niwas	G.P.	Domestic	2.90	0.90	17.55	10.80	1.40	5.25	7.40	M/B sand stone
12	DONGARIA (BHARTAGARH)	Near G.P. office	G.P.	Domestic	4.25	0.70	6.55	Dry	1.35	1.80	Dry	Taalchir
13	MANDAI	Back side of House of Shaktilal Partik	Shaktilal Partik	Domestic	4.25	G.L	12.20	11.70	7.40	8.95	9.50	Talchir
14	BIRAJPURA	In the openfield Near Road Junction opp. Chamanlal house	Chhanulal	Irrigation	2.80	G.L	10.85	14.05	NA	NA	13.55	Talchir with Doleriite dyke
15	HARYAGARH	Near L.P school & big talab	Rameshh Yadubansi	Domestic	4.80	G.L	10.75	Dry	NA	NA	10.50	Talchir
19	MARKADHANA	On Road to Rakhikol in the openfield	Private	Irrigation	6.05	0.95	7.57	1.75	0.60	1.05	1.20	Talchir
20	RAKHIKOL	Opposite manager s office	WCL	Domestic	3.35	0.85	7.10	3.35	1.35	2.95	3.45	M/B sand stone

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21	CHIKA TWARI	Extreme North of village about 100 m west of Eklama Road In the field	Rojgar Yojna	Domes tic	5.40	0.60	9.00	Dry	Dry	Dry	4.70	
23	BHAK RA	In the house of Dilip Behari	Private	Domes tic	3.90	0.45	12.00	10.75	2.85	3.95	9.35	M/B sand stone
24	BHAR DE	In the house of Munibal	Shymla l	Domes tic	3.90	0.45	9.05	6.80	3.60	4.40	5.85	M/B sand stone
25	JUNAR DEV	Side of Tambia Road near Mandir outer limit of muncipali ty	Deep chan Pawar	Domes tic	4.75	0.85	12.20	10.45	2.65	3.80	8.25	M/B sand stone
26	GARA DEI	Near Mandir on junction of Tambia & Umrai Road	G.P.	Domes tic	2.65	0.75	7.65	4.05	0.55	1.05	1.25	M/B sand stone
27	UMRAI	In the compoun d of Ramesh	G.P.	Domes tic	4.35	0.75	10.50	5.85	1.30	4.65	5.05	M/B sand stone
28	BIJORI	Centre of village in the field of Montilal	G.P.	Domes tic	3.90	0.70	8.90	6.10	1.25	1.90	3.05	Weat here d Basal t
32	MOARI	Back side of Budhanla l & near BHUDA MANSA	G.P.	Domes tic	3.60	0.75	5.95	4.75	0.80	1.35	4.05	Basal t
44	HANO TIYA	In the compoun d of school Near Hospital	G.P.	Domes tic	6.70	0.75	4.45	1.70	1.00	1.05	1.15	Talch ir

Pench area

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P												
10	SUKRI	Back side of Kherapati Mandir	Mandir Trust		D	4.00	0.45	16.45	3.65	0.15	0.60	1.00	Motu r

Note: m.bmp-meter below measuring point,m agl-meter above ground level,m.bgl-meter below ground level , D-Domestic, I-Irrigation, GP-Gram Panchayat, DCB-Dug cum borewell,TW-Tube well

Practice after the closure

The above practice of monitoring of quality of water would be continued for a period of 3 years. If required, corrective action/steps would be taken to mitigate any adverse effect on local water regime. The responsibility of maintaining the quality of drinking water will be entrusted on the State Authorities after 3 years of mine closure.

3.3 Air quality management :

3.3.1 Present practice :

a. At present air borne dust is suppressed by:

- Sprinkling water on the main haul roads and other roads of the mine where vehicles ply.
- Wet drilling and provision of dust collect in drilling machine
- Water sprinkling at the various points of the CHP, where coal is handled.
- Sufficient numbers of dust extractors have been provided in CHP.
- Avoiding overcharging of shot holes.
- Proper maintenance of I.C. engines.

b. Further, the quality of air is also monitored on regular basis by drawing Samples from the various residential and non-residential areas of the project. The test results are compared with the standards prescribed by the MoEF. The test results of recent sampling are as under:

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AIR QUALITY MONITORING DATA

NAME OF THE COMPANY : WCL YEAR : 2012
NAME OF THE AREA : KANHAN Q.E. : JUN.
NAME OF THE PROJECT : GHORAWARI OC

1. Manager Office - Ghorawadi OC : KGOA-1

(24 hourly values in µg/m³)

Month	Dates of Sampling From - To	Parameters SPM	PM-10	NOx	SO2
MAY. 2012	11.05.12 - 12.05.12	120	61	2	1
JUN. 2012	25.06.12 - 26.06.12	115	63	3	1
TLV as per Env.(Protection) Amendment Rule 2000		**600**	**300**	**120**	**120**

2. SAM Office - Ghorawadi : KGOA-2

(24 hourly values in µg/m³)

Month	Dates of Sampling From - To	Parameters SPM	PM-10	NOx	SO2
MAY. 2012	11.05.12 - 12.05.12	445	213	5	3
JUN. 2012	24.06.12 - 25.06.12	111	56	3	2
TLV as per Env.(Protection) Amendment Rule 2000		**600**	**300**	**120**	**120**

3. Colony : KGOA-3

(24 hourly values in µg/m³)

Month	Dates of Sampling From - To	Parameters SPM	PM-10	NOx	SO2
APR. 2012	08.04.12 - 09.04.12	186	81	3	2
APR. 2012	23.04.12 - 24.04.12	144	52	3	1
MAY. 2012	11.05.12 - 12.05.12	110	40	2	1
MAY. 2012	24.05.12 - 25.05.12	155	43	3	1
JUN. 2012	06.06.12 - 07.06.12	173	76	4	2
JUN. 2012	24.06.12 - 25.06.12	183	88	3	2
PERMISSIBLE LIMIT		**200**	**100**	**80**	**80**

4. Panara Village : KGOA-4

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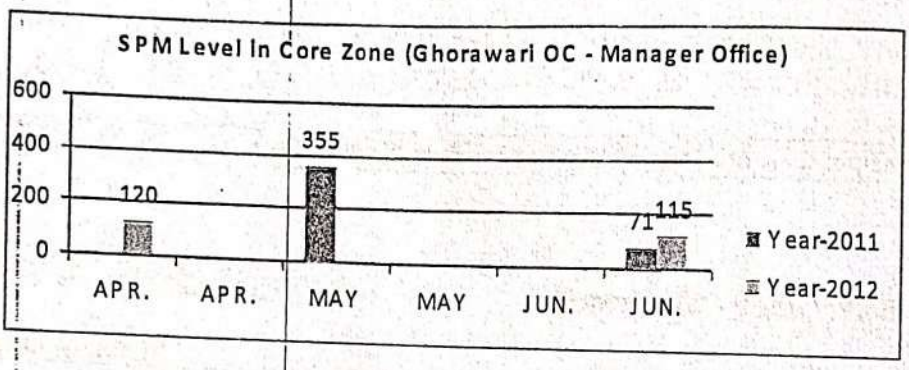
(24 hourly values in $\mu g/m^3$)

Month	Dates of Sampling From	-	To	Parameters SPM	PM-10	NOx	SO_2
APR. 2012	08.04.12	-	09.04.12	77	21	2	1
APR. 2012	24.04.12	-	25.04.12	66	25	2	1
MAY. 2012	11.05.12	-	12.05.12	67	22	2	2
MAY. 2012	24.05.12	-	25.05.12	153	41	3	2
JUN. 2012	11.06.12	-	12.06.12	54	17	2	1
JUN. 2012	25.06.12	-	26.06.12	55	24	2	1
PERMISSIBLE LIMIT				**200**	**100**	**80**	**80**



FUGITIVE DUST MONITORING DATA

1. PALACHURI SIDING

Month	Dates of Sampling From	-	To	Parameters SPM	PM-10
MAY. 2012	12.05.12	-	13.05.12	260	48

NOISE LEVEL DATA

NAME OF THE COMPANY : WCL
NAME OF THE AREA : KANHAN
NAME OF THE PROJECT : GHORAWADI OC

YEAR : 2012
Q.E. : JUN.

Name of the Location : Manager Office - KGON-1

Month	Date of Data collection	Noise Level in dB(A) Day Time	Night Time	Remarks

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APR. 2012 APR. 2012	08.04.12 23.04.12	57.2 59.2	46.7 47.5		
MAY. 2012 MAY. 2012	09.05.12 22.05.12	52.3 60.1	46.9 55.3		
JUN. 2012 JUN. 2012	11.06.12 22.06.12	52.4 56.2	48.1 46.2		
Noise Level Standard as per Env. (Protection) Amendment rule 2000		**75**	**70**		

Name of the Location : Colony - KGON-2

Month	Date of Data collection	Noise Level in dB(A)		Remarks
		Day Time	Night Time	
APR. 2012 APR. 2012	08.04.12 24.04.12	49.1 51.5	40.9 42.8	
MAY. 2012 MAY. 2012	09.05.12 22.05.12	50.6 52.3	41.7 43.8	
JUN. 2012 JUN. 2012	11.06.12 22.06.12	49.3 51.3	40.0 41.7	
Permissible Limit		**55**	**45**	

3.3.2 Practice after the closure of the mine.

a. As the sources of dust and fume generation would no longer be present, the present practice of arresting the air pollution, as enumerated above at the Para-3.3.1 would no longer be required after the closure of the mine. However, water sprinkling would be done on the roads, which remain in use after the mine closure.

b. Quality of air would be monitored for a period of 3 years after the cessation of mining activities. Efforts would be made to bring the air quality to the pre-mining standard.

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3.4 Dump Reclamation

External dump

It is estimated that around 217.86 ha of land shall be occupied by the external dump. The external OB dump shall be formed in suitable lifts of appropriate height keeping an overall slope not exceeding 28^0 from the horizontal. In course of mining and after the completion of the final lift, the external OB dump shall biologically be reclaimed. The dumps shall be afforested by selecting proper plant species in consultation with state Forest Department.

Internal Dumps:

Backfilling has already started in the OCP and the final level of reclaimed backfill will be matched with the levels of surrounding ground level leaving a final residual decoaled void which will also serve as a lagoon which may be utilized as water reservoir for the locality. Most of the back filled area shall be afforested by selecting proper plant species in consultation with state Forest Department.

3.5 Disposal of Buildings, Plants & Machineries

3.5.1 Infrastructural details

Presently, the Project has following infrastructure and it is most likely that these infrastructures will remain till the completion of the Project.

a. **CHP-Coal handling arrangement at surface with capacity of surface Bunkers.**

There is no CHP in the project area.

b. **Workshop-Size with major equipment & P&M items**

There is no workshop. Work is contractually operated.

c. **Railway Sidings**

There is no railway siding in the Project. The coal is transported Railway siding of Hirdagarh, which is about 10 Km, by tippers.

d. **Colony (number and type of quarters)**

There are 800 company quarters and 1700 private quarters in the project area.

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e. **Water supply arrangements arrangements (source & facilities available like treatment plant and its capacity).**

There is one water treatment plant of 1.35 MLD and one sewage treatment plant, which is under construction in the project.

f. **Details of non-residential building-Office building, sub-station and any other building.**

Area Workshop-01
Area Store-01
Sub Station-02
Dispensary-02
Shool-04
Filter Plant-01
Overhead Water tank-02

3.5.2 Post closer disposal / re-use of the buildings , plants and machineries

a) **Disposal or reuse of existing HEMM , CHP , workshop and railway sidling for OC mines.:**

At the time of closure of the mine, it is expected that most of the equipments would complete its rated life and would be surveyed off as per the company's guidelines., The surveyed off equipments would be auctioned.
However, if some of the equipments would not have covered their rated life, they would be diverted to the neighboring projects for gainful utilization.
There are neither CHP nor railway siding in the project area hence these provisions are not applicable in this case.

b) **Disposal or reuse of transmission lines and sub-station.**

As per the electricity demand of the existing neighboring projects, an analysis would be made as to whether the existing sub-station and transmission lines could be gainful used or not. If the scope of gainful utilization is not found, they will be dismantled and the usable items / spares / conductors etc. would be

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dispatched to needy areas / projects.

c) Disposal or reuse of residential and non-residential buildings

At the time of closure, a list of surface buildings would be prepared in detail. Thereafter following steps would be taken in chorological order in respect of the available buildings:

- An assessment would be made to find that whether the available buildings can be used by the existing neighboring projects or any new project that might have come up in the vicinity .
- Thereafter the state agencies/ local agencies may be asked to take possession of the building, if required by them.
- When there are no takers, the buildings would be demolished and usable items would be recovered for future use.

3.6 Safety and security arrangement

3.6.1 Details of fencing around abandoned quarry.

As explained earlier a major portion of the quarry will be backfilled and the remaining void will act as water reservoir. It is proposed to develop a water lagoon in the dip side area of the quarry, which could not be back filled. The water lagoon will be handed over to state authorities for conversion into picnic spot.

The remaining void of the quarry would be properly fenced to avoid inadvertent entry of animals or human beings. Sufficient boards and danger signs shall be placed all around.

Later on, the responsibility of keeping the fencing secured would be entrusted on the state authorities. The entry into the mine is the haul road; it will remain for entry

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into the picnic spot. Both side of this haul road will be afforested.

3.6.2 Slope stability arrangement for high wall and back filled dumps

During operation of the mine, overall slope will be maintained at an angle not exceeding 25-28 degrees. Vegetation cover will also be provided along the slopes to arrest any failure.

As regards stability of back-filled dumps, the final level of reclaimed backfill will be matched with the levels of surrounding ground level leaving a final residual void. For the stability of the back-filled dump the slope of the dump will be maintained at the stable angle of 25-28 degrees. Vegetation cover will also be provided along slopes to arrest any failure.

3.7 Survey records of workings

All the mine workings including quarry, roads, ponds, tanks, etc shall be resurveyed and records shall be updated. Copy of such records shall also be submitted to the appropriate competent authorities, such as DGMS and state authorities.

3.8 Disposal management of hazardous material

At the time of closure, assessment would be made as to find whether there is any hazardous material that could cause problem. Such hazardous material e.g. explosives, chemicals, oil, etc. shall be appropriately disposed off.

3.9 Re- deployment of work force

3.9.1 The current manpower of the project is 134 as on 1.04.2013.

3.9.2 However , at the time of final closure, after exhaustion of entire mineable reserve, following steps would be taken for effective management of available manpower at the time of closure:

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A). First, option of VRS would be given to the age group of + 50 years. Some may accept , others will be gainfully utilized in other projects.

B). After exhausting the above portion, the middle aged group workforce (between 40 – 50 years) would be transferred to the similar projects.

C). If vacancy in similar nature projects gets exhausted. The relatively young workforce would be re-trained and re-deployed in other projects.

3.10 Emancipation from the community facilities and the facilities to the PAPs

3.10.1 The project affected persons (PAPs) and also the local communities are being provided many civic facilities, such as educational facilities, health facilities, and drinking water. At the time of final closure after exhaustion of entire mineable reserve these facilities will be entrusted upon the local people and state authorities so that the same could continue even after mine closure. If needed, a lump sum amount would also be paid to the local bodies/trust of PAPs/ state bodies for proper upkeep and maintenance of various community facilities.

3.10.2 To ensure that no financial loss occurs due to the closure of mining activity to the local community engaged indirectly in the exhausting mine, following steps would be taken:

- Will be given option to shift in the new or expansion mines located in the nearby area.
- They will be given vocational training for continuance / sustenance of income level.
- It is proposed that reclaimed and afforested land may be handed over to state forest dept. for the benefit of local ecosystem as per rules in vogue. The forest wealth can also be utilized by local people or tribal in the form of fruits and fodders.

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- The proposed picnic spot would be handed over to society of local people for commercial use of picnic spot by them.

3.11 Plantation Details of Last Five Years

Sr.No	Year	No. of Plants
1	2007-08	50,000
2	2008-09	Nil
3	2009-10	20,000
4	2010-11	20,000
5	2011-12	40,000
Total		1,30,000

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Chapter - 4
ECONOMIC REPURCUSSION OF CLOSURE OF MINE

4.1. Manpower of the project: -The current manpower of the mine is 134 as on 1.04.2013.

4.2. Assessment of income scenario of local resident employee: -

(a) Local employees will be redeployed in other projects of the company

(b) People engaged in indirect employment / ancillary activities will find no financial loss due to the mine closure as their activities will be shifted in the new or expansion mines located in the coalfield area. As such the direct and indirect manpower will not be affected due to mine closure.

(c) Resettlement / Redeployment of (a) & (b)

- Compensation for loosing employment or income.
- Vocational training for continuance / sustenance of income level.

Note: After the closure of the mine, the reclaimed leasehold area and any structure thereon, which is not to be utilized by the mine owner, shall be surrendered to the state Govt. Concerned following a laid down procedure as in vogue at that point of time.

The forest wealth can also be utilized by local people or tribal in the form of fruits and fodders.

The water reservoir in the mine voids will be utilized for pisciculture, irrigation, domestic drinking water or stabilizing the ground water regime. Landscaping during closure of mine will make the spot for tourist attraction.

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CHAPTER – V
TIME SCHEDULING FOR ABANDONMENT

IMPLEMENTATION SCHEDULE FOR MINE CLOSURE (LIFE OF THE MINE: 24 YEARS FROM 1.04.2013)

Sl. NO.	ACTIVITY	TIME FRAME	1st Phase					2nd Phase					3rd Phase					4th Phase					FINAL PHASE					Post Closure Programme		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PC1	PC2	PC3
A	Dismantling of Structures																													
	Service Buildings	2 years																												
	Residential Buildings	2 & ½ years																												
	Industrial structures like CHP, Workshop, Field Sub-Station, etc.	2 & ½ years																												
B	Permanent Fencing of mine void and other dangerous area																													
	Random rubble masonry of height 1.2 metre including levelling up in cement concrete 1:6:12 in mud mortar	2 years																												
C	Grading of Highwall slopes																													
	Levelling and grading of highwall slopes	2 years																												
D	OB Dump Reclamation																													
	Handling/Dozing of OB Dump into mine void and preparation of internal dump for reclamation.	Throughout the life of mine including 3 years after cessation of mine operation																												
	Technical and Bio-reclamation including plantation and post care	Throughout the life of mine including 3 years after cessation of mine operation																												
E	Landscaping																													
	Landscaping of the open space in the leasehold area for improving its esthetics and eco value	Throughout the life of mine including 3 years after cessation of mine operation																												
F	Plantation																													
	Plantation over cleared area obtaining after dismantling	2 years																												
	Plantation around the quarry area and in safety zone	Throughout the life of mine including 3 years after cessation of mine operation																												
	Plantation over the external OB Dump	Throughout the life of the mine																												
G	Post Closure Env. Monitoring / testing of parameters for three years																													
	Air Quality	3 years																												
	Water Quality	3 years																												
H	Entrepreneurship Development (Vocational / skill development training for sustainable income of affected people	Throughout the life of the mine																												
I	Miscellaneous and other mitigative measures	Throughout the life of mine including 3 years after cessation of mine operation																												
J	Post Closure Manpower cost for supervision	3 years																												

PC1: Post Closure Year 1, PC2: Post Closure Year 2, PC3: Post Closure Year 3

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Chapter-6
MINE CLOSURE COST

6.1 The mine closure cost will cover the following activities for which a corpus fund will be created by opening an escrow account with the coal controller organization in nationalised bank. In case of occurrence of acid mine drainage, post closure acid mine drainage management cost shall also be included in the total closure cost. An amount @ Rs 6.00 lakhs per Ha of the project area will be deposited in this account for final mine closure. Progressive mine closure will be done with the fund provided in approved report.

6.2 The balance life of the project is 25 years and mine closure fund has been assessed based on project life. However the mine is likely to be extended and the project under reference will get dovetailed into the future /extension project. As such the progressive closure under the extension will continue and final mine closure plan will be prepared 5 years before the cessation of mining activity.

6.3 The above rate has been taken from Circular No. 55011-01-2009-CPAM, Government of India, Ministry of Coal, Dated 27 August 2009 duly updated on 7th Januaryl 2013.

6.4 Type of Mine : Open Cast. Life of Mine(as on 1.04.2012) 25 years
Total project area of the mine: 1296.011ha
The financial provision for closure of Ghorawari OC Mine comes to around Rs. 18728.11 lakhs (based on April 2012 WPI at the @ Rs 6 lakh/ Ha.

6.5 Mine closure cost break – up for Ghorawari OC mine is hereunder;-

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Sl. No.	Activity	% of Total Mine closure Cost	Amount (Rs.in Lakhs)
A	**Dismantling of structures**		
	Service Building	0.2	37.46
	Residential Building	2.67	500.04
	Industrial Structures like, Workshop, Field substation, etc.	0.3	56.18
B	**Permanent Fencing of mine void and other dangerous area**		
	Random rubble masonry of height 1.2 meter including leveling up in cement concrete 1:6:12 in mud mortar	1.5	280.92
C	**Grading of highwall slopes**		
	Levelling and grading of highwall slopes	1.77	331.49
D	**OB Dump Reclamation**		
	Handling/Dozing of OB Dump into mine void and preparation of Internal dump for reclamation.	88.66	16604.34
	Technical and Bio-reclamation including plantation and post care.	0.4	74.91
E	**Landscaping**		
	Landscaping of the open space in leasehold area for improving its aesthetic and eco value.	0.3	56.18
F	**Plantation**		
	Plantation over cleared area obtained after dismantling.	0.5	93.64
	Plantation around the quarry area and in safety zone.	0.2	37.46
	Plantation over the external OB Dump.	0.02	3.746
G	**Post Closure Env Monitoring/Testing of Parameters for three years.**		
	Air Quality	0.22	41.20
	Water Quality	0.2	37.46
H	**Entrepreneurship development (vocational/ skill development) Training for sustainable income of affected people.**	0.26	48.69
I	**Miscellaneous and other mitigative measures.**	2	374.56
J	**Post Closure Man power cost for supervision**	0.8	149.82
	TOTAL	**100%**	**18728.11**

1. Mining is to be carried out in a phased manner initiating afforestation/ reclamation

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work in the minedout area of first phase while commencing mining in the 2nd phase.

2. Upto 80% of the total deposited amount including interest accrued in the ECSROW account may be released after every 5 years. The amount released should be equal to expenditure incurred on Progressive Mine closure in past 5 years or 80% whichever is less.
3. The above cost/expenditure will be met from the corpus fund deposited in the escrow account by the mine operator. However, the additional amount beyond the escrow account will be provided by the mine operator after estimating the final mine closure cost (as per the mine closure guideline).
4. The amount indicated separately under each head is indicative only and based on actual expenditure the amount may change.

6.6 Estimate of proposed escrow fund.

The total project area is 1296.011 Ha. So the corpus based on August, 2009 rate is 7776.06 Lakhs @ Rs 6.0 Lakh /ha of project Area. The wholesale price Index in August, 2009 is 129.6 and the WPI, for the month of April 2012 available in the website of Office of Economic Adviser, Ministry of Commerce, Government of India is 163.5. So the current value of corpus is Rs. 7776.06 *163.5/129.6 Lakhs, which comes to Rs. 9810.07 lakhs. This corpus is to be divided by the life of mine i.e. 25 years. So dividing by 25 years, the annual corpus comes to Rs 392.40 lakhs. This amount is to be deposited in escrow account every year with 5% escalation.

S.NO.	FINANCIAL YEAR	AMOUNTS IN LAKHS
1	2012-13	392.40
2	2013-14	412.02
3	2014-15	432.62
4	2015-16	454.25
5	2016-17	476.96
6	2017-18	500.81
7	2018-19	525.85
8	2019-20	552.15
9	2020-21	579.75
10	2021-22	608.74
11	2022-23	639.18
12	2023-24	671.14
13	2024-25	704.69
14	2025-26	739.93

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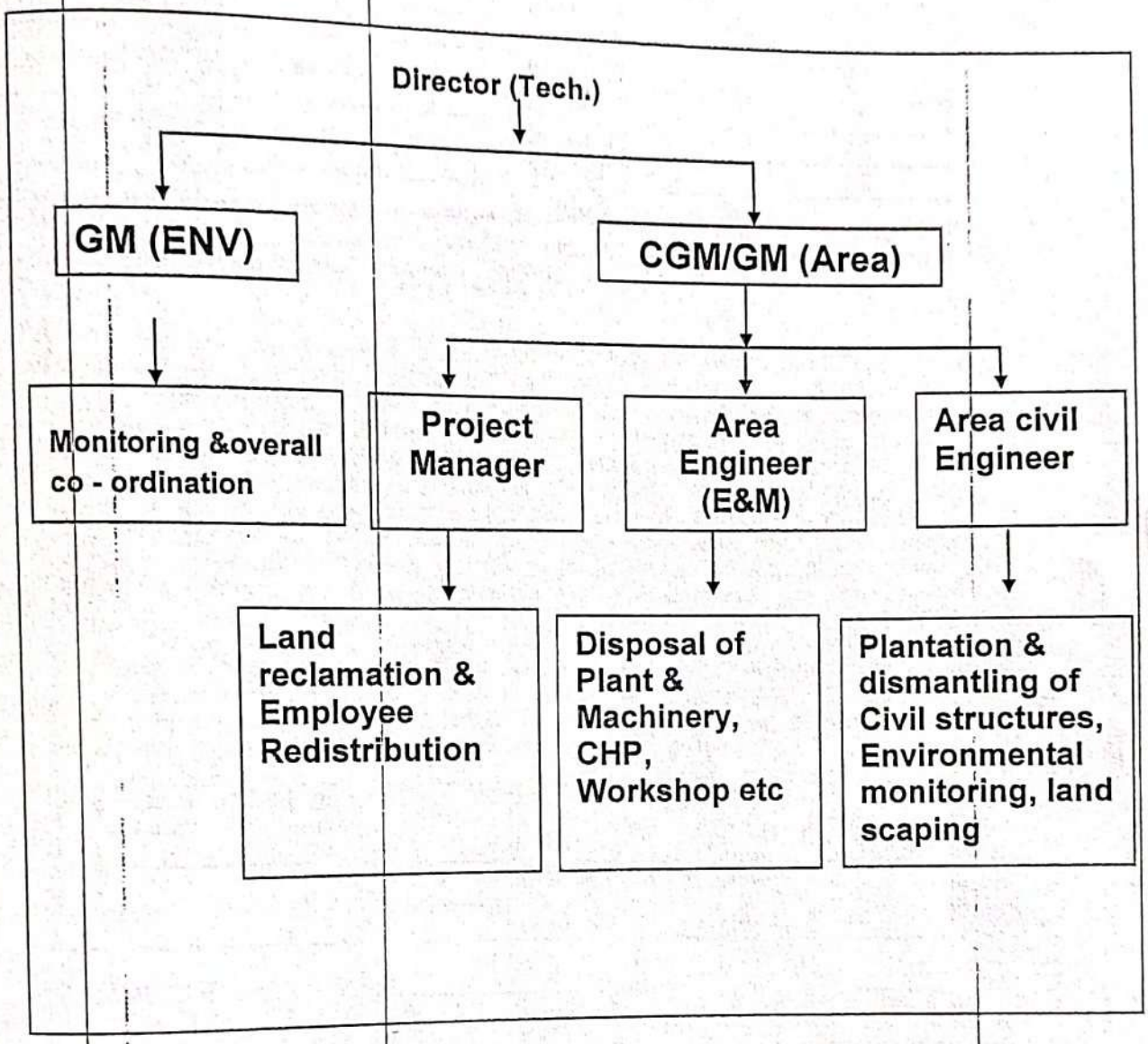
Chapter-7
IMPLIMENTATION PROTOCOL

For implementing the mine closure activities, the following organizational structure has been proposed:



Environmental monitoring for three years after closure of mine will be carried out to evaluate the environmental quality of the area. If need be, proper mitigative measures will be taken up after evaluating the environmental quality. The funds for this have been provided in the cost estimate. Before closure of the mine, Area GM will prepare survey and disposal report and the same will be submitted to DGMS for acceptance.

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15	2026-27	776.93
16	2027-28	815.77
17	2028-29	856.56
18	2029-30	899.39
19	2030-31	944.36
20	2031-32	991.58
21	2032-33	1041.15
22	2033-34	1093.21
23	2034-35	1147.87
24	2035-36	1205.27
25	2036-37	1265.53
	Total	18728.11

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No.J-11015/367/2008-IA.II(M)
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan,
C.G.O.Complex,
New Delhi -110510.

Dated: 26th December 2008

To
Director (Tech.)
M/s Western Coalfields Ltd.,
Coal Estate, Civil Lines,
Nagpur- 440001.

Sub: Ghorawari Opencast Coal Mine Project (from 0.45 MTPA to 1.50 MTPA) of M/s Western Coalfields Ltd. (WCL), located in village Ghorwari Khurd, Tehsil Junnardeo, District Chindwara, Madhya Pradesh - Environmental clearance – reg.

Sir,

This has reference to letter No. 43011/65/2008-CPAM dated 30.07.2008 forwarding the application and letters dated 18.11.2008 and 18.11.2008 on the above-mentioned subject. The Ministry of Environment & Forests has considered the application. It has been noted that the project proposal is to mine coal from patches of old UG workings by opencast operations **and expansion in production of coal from 0.45 MTPA to 1.50 million tonnes per annum(MTPA).** EC was granted for 0.45 MTPA capacity project on 19.02.2008. The total lease area is 1296.011 ha of which 178.10 ha is agricultural land, 593 ha is forestland, 192 ha is grazing land, and 332.911 ha is Govt. land. Forestry clearance has been applied for for renewal of lease. There area no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 10 km buffer zone. River Kanhan flows at a distance of 6-7km from the ML. It is not proposed to modify the existing natural drainage.

There is no change in the geo-mining characteristics of the working of the various patches within the ML. Of the total lease area, area for excavation is 750.36 ha, area for OB dumps 217.86 ha, infrastructure is 12.34 ha, roads is 2.65 ha, area for green belt is 497.049 ha, area for township is 140 ha, and area for rationalisation is 172.80 ha. The proposal is to mine coal from patches of old UG workings by opencast operations as given below:

S.N.	Name of OC Patch	Quarry Area (ha)	TOTAL		Quarry Depth (m)		Final Backfilled Area (ha)	Final Void (ha)
			Balance Coal in LTPA	Balance OB in Lakh M3	Present	Max.		
A. Present Working Patches								
1.	No. 16/17	17	Nil	Nil	45	50	9.50	7.50
2.	No. 6A & 6B	20	0.89	17.45	30	52	18	2
	TOTAL =	**37**	**0.89**	**17.45**			**27.50**	**9.50**
B. Proposed upto 2015-16								
1.	No. 16 & 17 B. Ph.III	40.50	8.57	60.75	--	54	40.50	Nil
2.	Ghogra OC Patch	8.0	2.99	13.13	--	53	6	2
3.	Kathldeo OC Patch	12.50	5.12	17.83	--	34	10	2.50
	TOTAL =	61	16.68	91.71			56.50	4.50

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C. Proposed beyond 2015-16 upto 2025-26								
1.	Ghorawari Kalan OC Patch	15	4.50	28.45	--	30	10.44	4.56
2.	Dunganiya OC Patch	39	10.60	109.50	--	50	27.13	11.87
3.	Panara OC Patch	12.50	4.25	39.75	--	54	8.70	3.0
4.	Bharat Colliery OC Patch	79.20	24.0	198.0	--	48	55.10	24.10
5.	Chikalam AU OC Patch	21.25	6.55	61.58	--	67	14.61	6.39
6.	South Panara OC Patch	21.25	7.69	81.29	--	62	14.778	6.472
	TOTAL =	**187.95**	**55.84**	**518.48**			**130.758**	**57.192**
D. Proposed beyond 2015-16 upto 2025-26								
1.	Vegin Patch	168	Individual Schemes will be firmed up after 2014-15					
2.	Datla East	139.994						
	TOTAL =	424.594						
E. Abandoned Patches								
1.	No. 16 & 17 OC Patch Phase-I	12.50	Not Applicable				12.50	Nil
2.	No. 6 & 7 OC Patch Ph I & II	7.50					7.50	Nil
3.	Gh-2 OC Patch	6.0					6.0	Nil
4.	Gh-3 OC Pat	4.50					4.50	Nil
5.	Kolhiya OC Patch	4					4	Nil
6.	DQ-3 OC Patch	5.316					5.316	Nil
	TOTAL =	39.816					39.816	Nil
GRAND TOTAL (A+B+C+D+E)		**750.36**	**82.90**	**679.11**			**254.574 =552.074**	**71.192 = 198.288**

Mineral transportation of **1100 TPD** of coal is by road to railway siding covering a distance of 12 km and the balance 270 TPD is by road. Ultimate working depth of the mine is 45m below ground level (bgl). Present working depth is 40m bgl. Water table is in the range of 4.05m-17.20 m bgl during pre-monsoon season and 0.05-8m bgl during post-monsoon. Mining has intersected water table. Peak water requirement is 440 m3/d, which will be met from mine pit water. Presently a total of 11.82 Mm3 of OB has been generated of which 11 Mm3 has been used for backfilling and 0.82 Mm3 has been dumped in ext. OB dump. An estimated 64.64 Mm3 of OB would be generated in the balance life of mine, which be backfilled simultaneously.

Of the total quarry area of 750.36 ha, of which 552.07 ha would be backfilled and plantation developed thereon as per table below:

S.N.	Area (ha)	Existing	Status upto 2015-16	Status upto 2025-26	Status beyond 2025-26	Status at the end of mine life
1.	Excavation	83.36	81.00	187.95	424.594	750.36
2.	Backfilled	59.316	64.50	130.758	297.500	552.074

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Balance life of the mine at the rated capacity is 12 years. A void of 198.286 ha with a max. depth of 10-15m would be left at the end of mine life which would be converted into a reservoir. Public Hearing was held on 22.11.2005. The project was approved by M/s WCL on 05.11.2008. The capital cost of the project is **Rs. 1.37 crores.**

2. The Ministry of Environment & forests hereby accords environmental clearance for the above-mentioned **Ghorawari Opencast Coal Mine Project** of **M/s WCL for production of coal at 1.50 MTPA rated capacity** under section 7.2 of the Environmental Impact Assessment Notification, 2006 and subsequent amendments thereto subject to the compliance of the terms and conditions mentioned below:

A. Specific Conditions

(i) No mining operations shall be undertaken in the forestland until clearance for renewal has been obtained under the provisions of FC Act, 1980.

(ii) The environmental clearance is only for the specific patches consisting of details submitted to the Committee and summarised in the table.

(iii) OC mining should be carried out at a safe distance for old UG workings.

(iv) Prior permission of DGMS shall be obtained before start of the working based on the Environmental Clearance.

(v) Safe distance shall be maintained for working adjacent to agricultural fields.

(vi) The entire OB being generated in the balance life of mine shall be backfilled.

(vii) No OB generated in the balance life of the mine shall be dumped in the external OB dumps. Reclamation, monitoring and management of the existing external OB dumpsite should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional office located at Bhopal on yearly basis.

(viii) Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected should be utilised for watering the mine area, roads, green belt development, etc. The drains should be regularly desilted and maintained properly.

Garland drains (size, gradient and length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provided adequate retention period to allow proper settling of silt material.

(ix) Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.

(x) Mining shall be carried out as per statuette at a safe distance from the Pench River flowing adjacent to the lease boundary.

(xi) The road for coal transport shall be black topped and avenue trees developed on both sides.

(xii) Drills should be wet operated or with dust extractors.

(xiv) Controlled blasting should be practiced with use of delay detonators. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders should be implemented.

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(xv) Area brought under afforestation shall be not less than 769.93 ha and includes area external OB dump (217.86 ha), backfilled area (552.074 ha), along ML boundary, infrastructure along roads and safety zone located within and outside the lease by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.

(xvi) A Progressive Mine Closure Plan shall be implemented by reclamation of decoaled quarry area of 750.36 ha of which 552.074 ha shall be concurrently backfilled with 67.778 Mm3 of OB generated in the balance life of mine and reclaimed with plantation using native plant species in consultation with the local DFO/Agriculture Department. The number of the trees should be around 2500 plants per ha. The balance 198.286 ha of decoaled void would be converted into a water reservoir of a maximum depth of 15m, the upper benches of which shall be gently sloped and stabilised with plantation and a peripheral fencing erected all around the reservoir.

(xvii) Regular monitoring of groundwater level and quality should be carried out by establishing a network of exiting wells and construction of new peizometers. The monitoring for quantity should be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to the Ministry of Environment & Forests and tot eh Central Pollution Control Board quarterly within one month of monitoring.

(xviii) Besides carrying out regular periodic health check up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check up for occupational diseases and hearing impairment, if any, through an agency such as NIOH, Ahmedabad within a period of one year and the results reported to this Ministry and to DGMS.

(xix) For monitoring land use pattern and for post mining land use, a time series of landuse maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhopal.

(xx) Digital processing of the entire lease area using remote sensing technique should be done regularly once in 3 years for monitoring land use pattern and report submitted to MOEF and its Regional office at Bhopal.

(xxi) The detailed Final Mine Closure Plan along with details of Corpus Fund should be submitted within six months to the Ministry of Environment & Forests Regional Office, Bhopal.

B. General Conditions

(i) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment and Forests.

(ii) No change in the calendar plan including excavation, quantum of mineral coal and waste should be made.

(iii) Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for monitoring SPM, RPM, SO2 and NOx and heavy metals such as Hg, As, Pb, etc. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.

(iv) Fugitive dust emissions (SPM and RPM and heavy metals such as Hg, As, Pb, etc) from all the sources should be controlled regularly monitored and data recorded properly. Water

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spraying arrangement on haul roads, wagon loading, dump trucks (loading and unloading) points should be provided and properly maintained.

(v) Data on ambient air quality (SPM, RPM, SO2, NOx and heavy metals such as Hg, As, Pb, etc) should be regularly submitted to the Ministry including its Regional Office at Bhopal and to the State Pollution Control Board and the Central Pollution Control Board once in six months.

(vi) Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc should be provided with ear plugs/muffs.

(vii) Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time before discharge. Oil and grease trap should be installed before discharge of workshop effluents.

(viii) Vehicular emissions should be kept under control and regularly monitored. Vehicles used for transporting the mineral should be covered with tarpaulins and optimally loaded.

(ix) Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.

(x) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

Occupational health surveillance programme of the workers should be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.

(xi) A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive, who will report directly to the Head of the company.

(xii) The funds earmarked for environmental protection measures should e kept in separate account and should not be diverted for other purpose. Year-wise expenditure should be reported to this Ministry and its Regional Office at Bhopal.

(xiii) The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.

(xiv) A copy of the will be marked to concerned Panchayat/ local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.

(xv) State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.

(xvi) The Project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter, informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution control Board and may also be seen at the website of the ministry of Environment & Forests at http://envfor.nic.in. The compliance status shall also be uploaded by the project authorities in their website so as to bring the same in the public domain.

3. The Ministry or any other competent authority may stipulate any further condition for environmental protection.

4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.

Add.

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5. The above conditions will be enforced *inter-alia*, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rules. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.

(Dr.T.Chandini)
Director

Copy to:

1. Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. Secretary, Department of Environment & Forests, Government of Madhya Pradesh, Secretariat, Bhopal.
3. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, E-2/240 Arear Colony, Bhopal – 462016.
4. Chairman, Madhya Pradesh State Pollution Control Board, Paryavaran Parisar, E-5, Arera Colony, Bhopal – 462016.
5. Chairman, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, New Delhi-110032.
6. Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
7. Shri M.K. Shukla, CGM, Coal India Limited, SCOPE Minar, Core-I, 4t Floor, Vikas Marg, Laxminagar, New Delhi.
8. District Collector, Chindwara, Government of Madhya Pradesh, New Delhi.
9. Monitoring File 10. Guard File 11. Record File

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Survey Dept. GM'O

MINING PLAN

OF

GHORAWARI OC PATCHES

&

JHARNA UNDERGROUND COLLIERY

FOR

RENEWAL OF COAL MINING LEASE

(MCR LEASES NO - 5,6,7,8,9,10, 11,12,13,14,15,16,26,29,35&36) OF KANHAN AREA

UNDER RULE 22 (3) OF MINERAL CONCESSION RULES 1960

DISTRICT – CHINDWARA, MADHYAPRADESH

KANHAN AREA

WESTERN COALFIELDS LIMITED

(A Subsidiary of Coal India Limited)

Coal Estate, Civil Lines,

Nagpur – 440001

V. K. MACHHARIAL

B.Sc. (Mining), AIGM (Mining), FCCM

Mining Consultant / RQP

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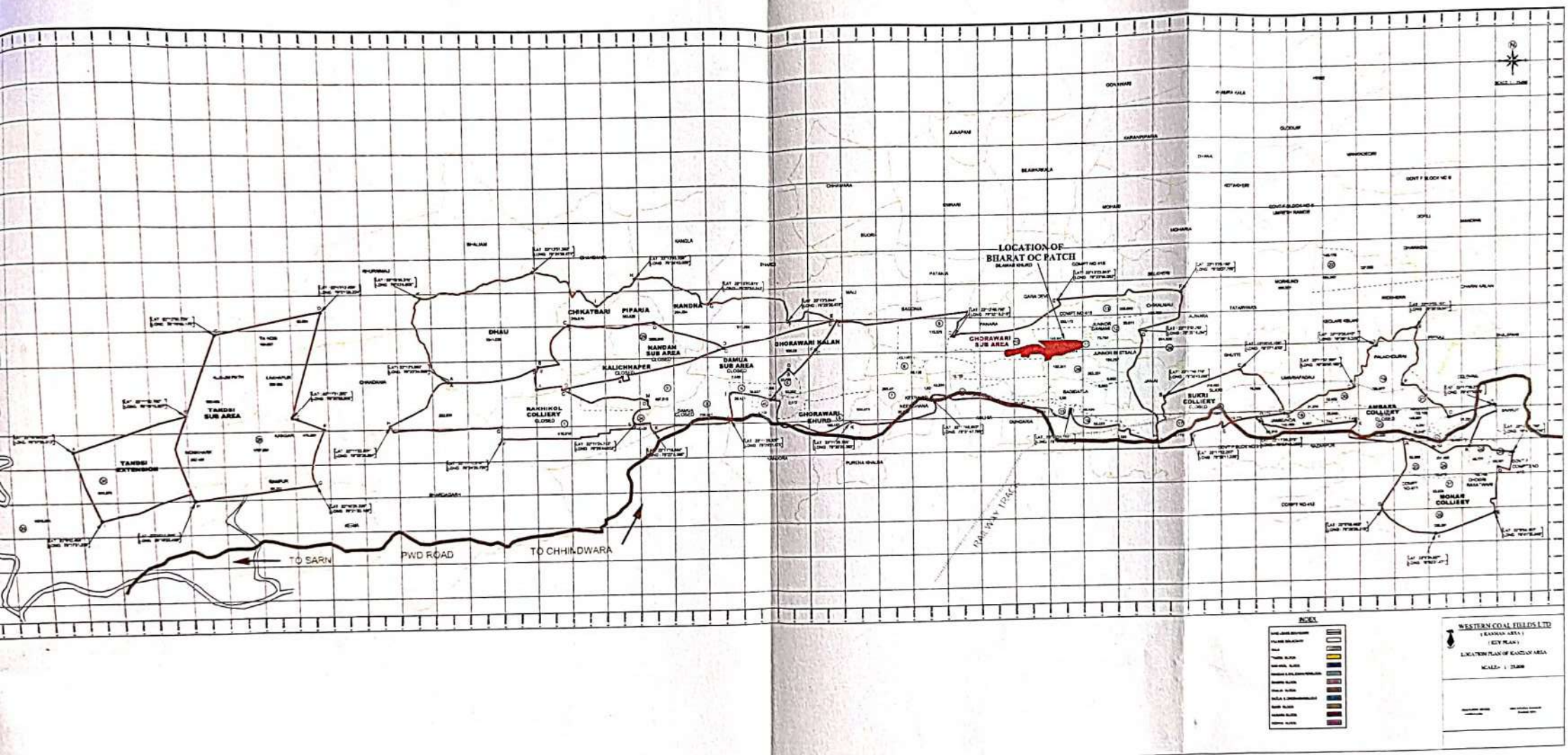
Ghorawari Colliery No. 3

PLANS



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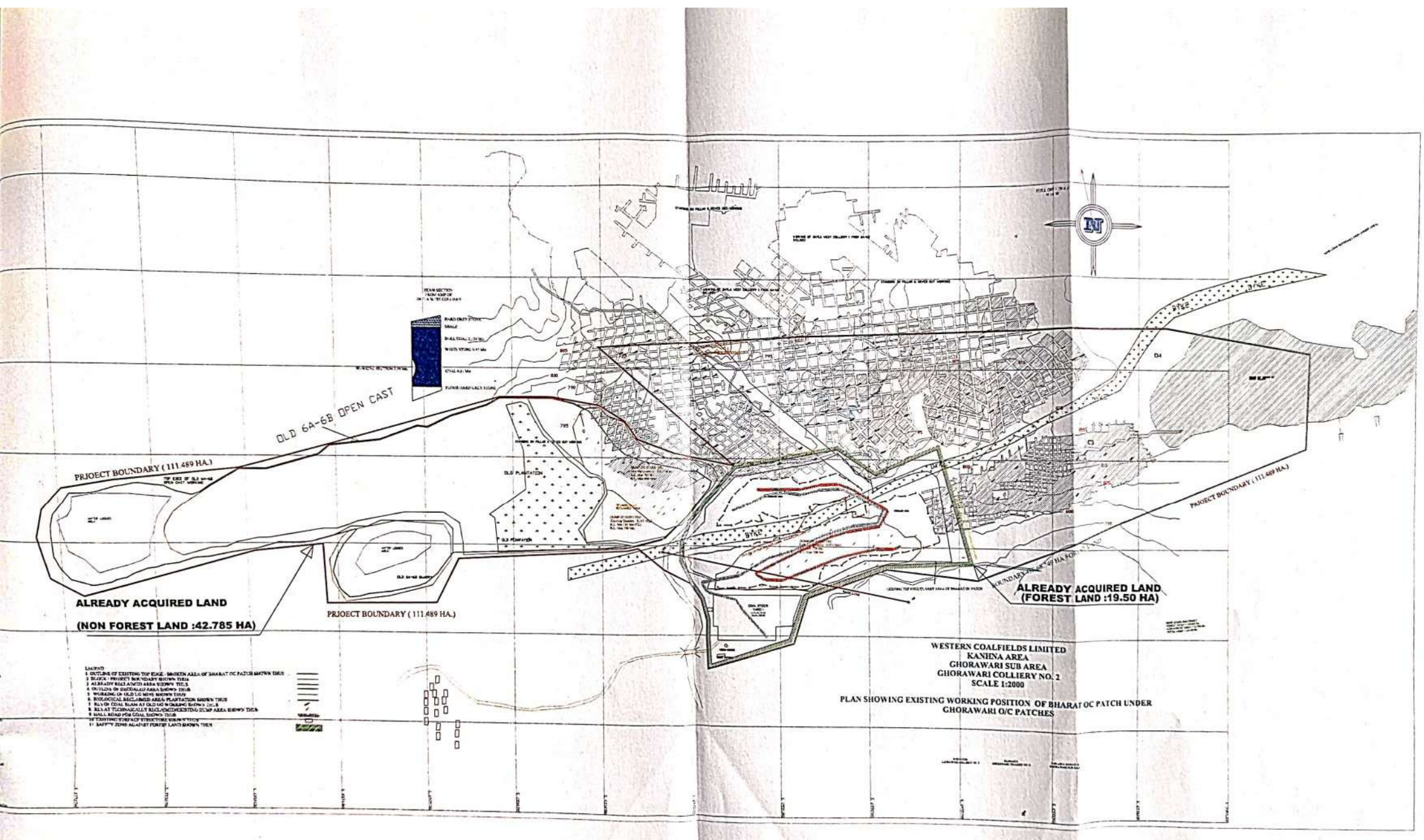

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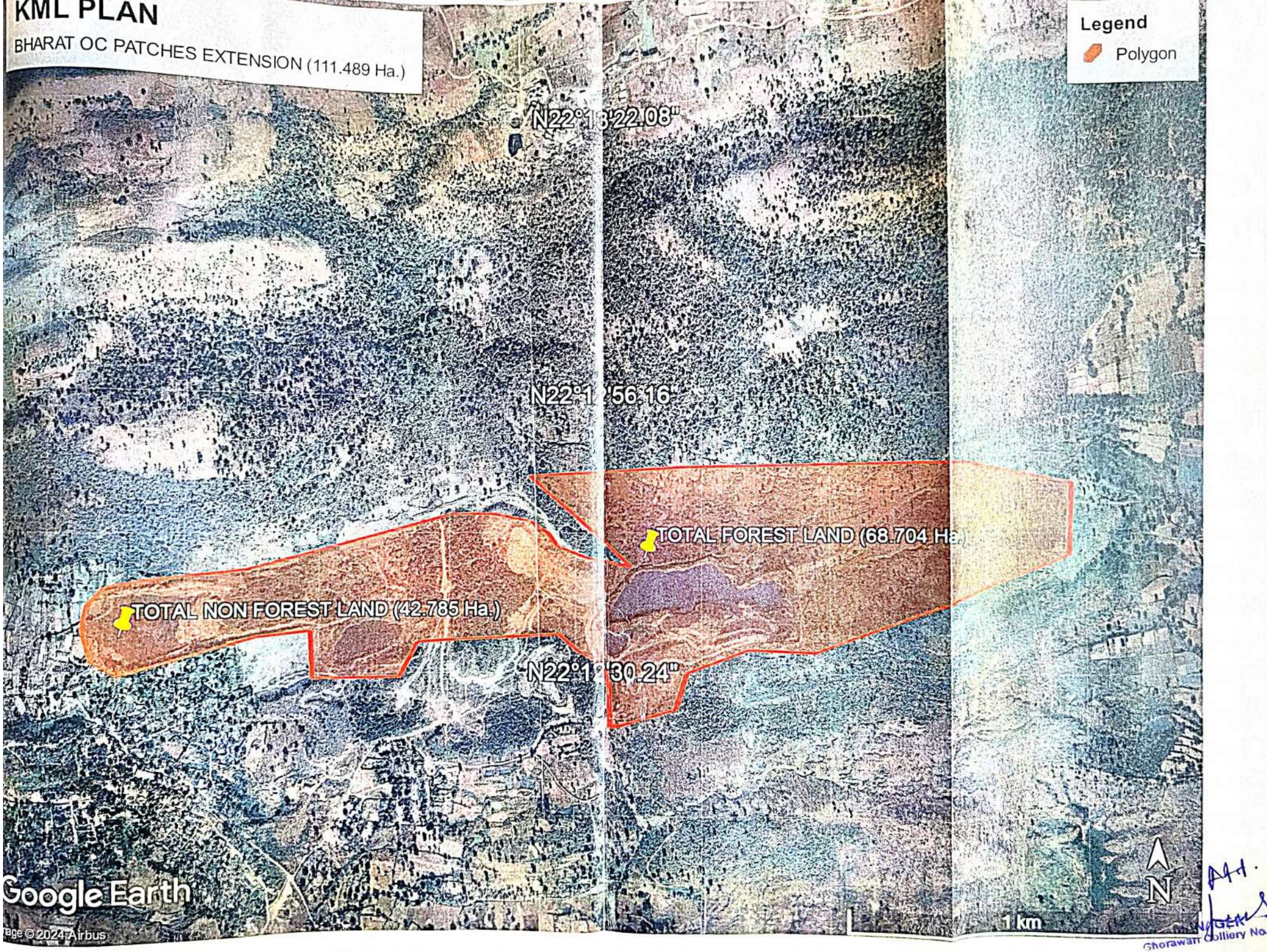
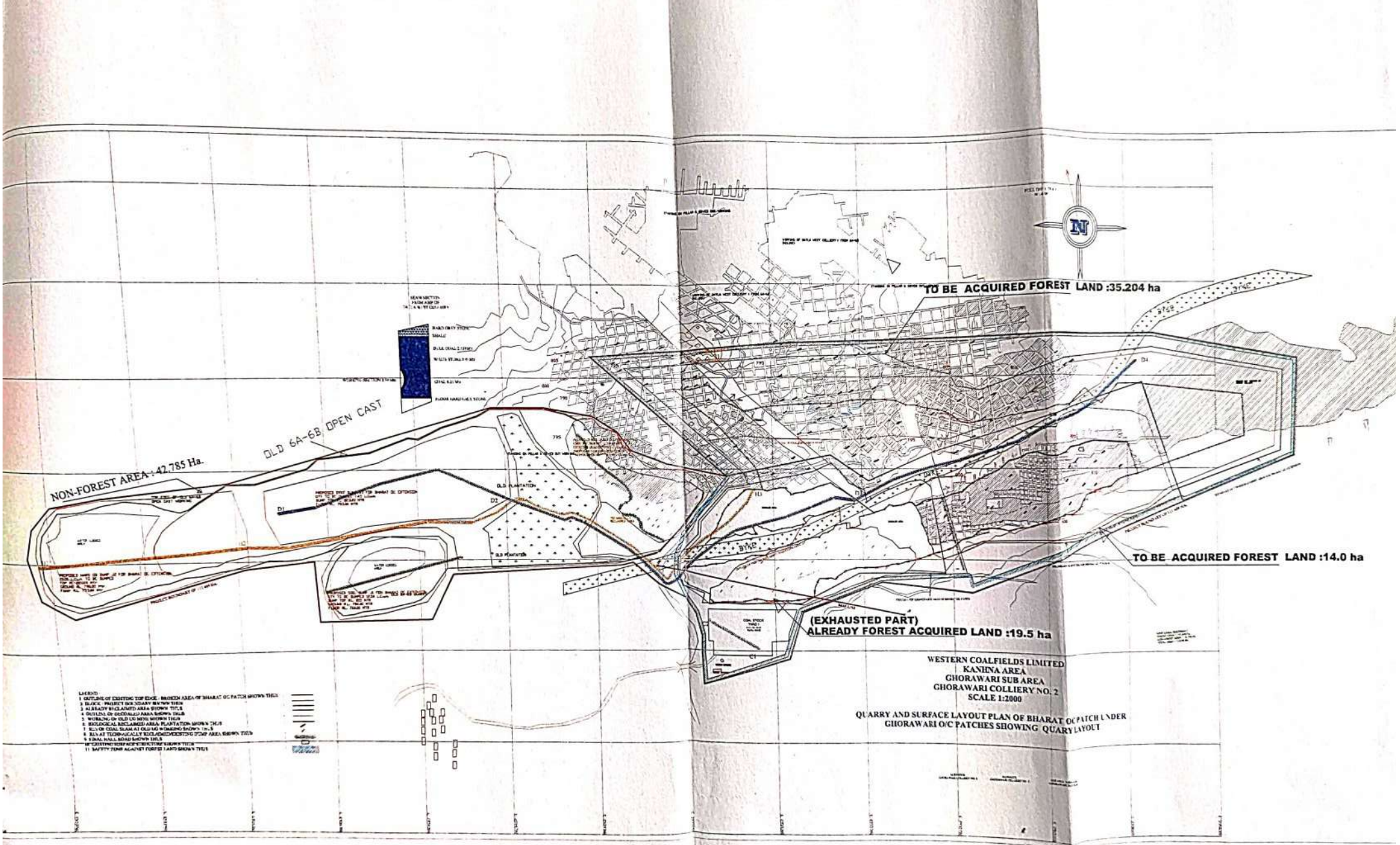

KML PLAN
BHARAT OC PATCHES EXTENSION (111.489 Ha.)
Legend
Polygon
N22°1 3'22.08"
N22°1 2'56.16"
TOTAL FOREST LAND (68.704 Ha.)
TOTAL NON FOREST LAND (42.785 Ha.)
N22°1 '30.24"
Google Earth
1 km
N



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