



Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), JHARKHAND)

To,

The Cheif Manager Mining
 CENTRAL COALFIELDS LIMITED
 Project Officer Jarandih Colliery -829113

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/JH/CMIN/411426/2022 dated 07 Oct 2023. The particulars of the environmental clearance granted to the project are as below.

1. EC Identification No.	EC23B001JH142828
2. File No.	EC/SEIAA/2023-24/2992/2023
3. Project Type	Expansion
4. Category	B
5. Project/Activity including Schedule No.	1(a) Mining of minerals
6. Name of Project	Expansion of Jarandih Opencast Coal Mine
7. Name of Company/Organization	CENTRAL COALFIELDS LIMITED
8. Location of Project	JHARKHAND
9. TOR Date	N/A

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 30/11/2023

(e-signed)
 Ashok Kumar, IFS
 Member Secretary
 SEIAA - (JHARKHAND)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH. Please quote identification number in all future correspondence.

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State Level Environment Impact Assessment Authority, Jharkhand

Nursery Complex, Near Dhurwa Bus Stand, P.O+P.S-Dhurwa, Ranchi, Jharkhand-834004

E-mail: msseiaa.jhk@gmail.com/chr-seiaajhr@gov.in

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Letter No : EC/SEIAA/2022-23/2992/2022/

Ranchi, Date :

To: Shri Raj Kumar
HoD (Env.),
M/s Central Coalfields Limited (CCL),
Darbhangra House, P.O. - Ranchi,
District - Ranchi, Pin Code - 834001.

Sub: Environmental Clearance for the project “Expansion of Jarangdih Opencast Coal Mine (1.5 MTPA) of M/s Central Coalfields Limited (CCL) at Village : Jarangdih and Borea, Tehsil : Bermo, Distt. : Bokaro, Jharkhand (207.26 Ha)”, (Proposal No. : SIA/JH/CMIN/411426 /2023) - regarding.

Ref: Your application no.- PO/JRD/2023/1776, dated – 07.10.2023.

Sir,

It is in reference to the project “Expansion of Jarangdih Opencast Coal Mine (1.5 MTPA) of M/s Central Coalfields Limited (CCL) at Village : Jarangdih and Borea, Tehsil : Bermo, Distt. : Bokaro, Jharkhand (207.26 Ha)” submitted by you for seeking prior Environmental Clearances (EC).

This is an expansion project which has been taken for appraisal on 12.10.2023.

Project Category : B1 - 1 (a) Mining of Minerals (Coal)

TOR for the project was issued by MoEF&CC, Govt. of India vide letter no. F.no. J-11015/502/2008-IA-II(M), dated 19.08.2021. The final EIA / EMP submitted by PP to SEIAA on 07.10.2023 and which was forwarded to SEAC on 08.10.2023.

- **Expansion of Jarangdih Opencast Coal Mine Project of M/s Central Coalfields Limited, Village : Jarangdih, Bodiya Tehsil : Bermo, Distt. : Bokaro, Jharkhand (207.26 Ha). (Proposal No. : SIA/JH/CMIN/411426/2022)**
- **Name of the consultant: CMPDI, Kanke Road, Ranchi**
- Jarangdih colliery is the oldest mine in East Bokaro Coalfield. It was started in 1922 to work in Kargali and Jarangdih Seams, by M/s Anderson Wright and company. Transferred to NCDC in 1956 and then to CIL through nationalization in 1973.

- MoEF&CC has prescribed Terms of Reference (ToR) for conducting EIA/EMP studies for obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006 vide letter no: J-11015/502/2008-IA-II(M) Dt. 19.08.2021.
- Public Hearing in respect of Expansion of Jarangdih OCP (1.50 MTPA/223.15 Ha) was conducted on 18.10.2022.
- The mineable reserve of Jarangdih OCP is estimated as 15.62 MT (Million Tonnes) with corresponding volume of OB estimated as 28.84 Mm³ with an average stripping ratio of 1.85 cum/t. The life of proposed project is 11 years.

Summarised Data:

Sl	Particulars	Unit	Value
A	GENERAL		
1	Name of Project		Jarangdih Expansion OCP
2	Name of Area / Company		Central Coalfield Ltd.
3	Nearest Railway Station from project	Name	Jarangdih Railway station
		km	1
4	Nearest National / State Highway / Approach road	Name	Jarangdih Road
		km	0.15

Water requirement:

Max Industrial water	Max Domestic water	Max Mine Seepage
313 m ³ /day	1025 m ³ /day	3620 m ³ /day

CO-ORDINATES

1	Latitude	From 23°45'53.49"	To 23°46'54.60"N
2	Longitude	From 85°53'36.49"E	To 85°55'10.53"E.

Geological and Mining Characteristics of Jarangdih OCP

Stratigraphic Sequence	Thickness Range (m)	Net Geological Reserves (Mte)	Remarks		
XI	1.40-4.63	1.557	Considered in both quarry	Considered in western quarry	Considered in eastern quarry
X	12.32-16.25	8.879			
VIII	29.47-41.56	30.140			
VII	1.48-3.92	2.907			Not considered
VI	7.68-13.36	14.144			
VA	0.55-3.02	1.827	Not considered for mining in		
V	0.40-2.16				

III	0.58-1.60	1.332	the present proposal		
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Land use details of Jarangdih OCP:

SN	Component	Total Area (in Ha)
1	Quarry	86.35
2	Infrastructure	11.16
3	External OB Dump	37.96
4	Existing OB Dump	16.36
5	Proposed Embankment	4.20
6	Top Soil Storage Area	7.66
7	Safety Zone & Green Belt	43.57
Total		207.26 Ha

Production report of Jarangdih OCP:

Year	Opencast	
	Coal (te)	OB (m ³)
1993-94	762880	902189
1994-95	615629	1073211
1995-96	648393	1114430
1996-97	572052	1239944
1997-98	603816	967985
1998-99	608056	972142
1999-2000	438071	710505
2000-01	450333	693843
2001-02	435539	744573
2002-03	454000	766896
2003-04	517857	1293458
2004-05	562299	1276876
2005-06	600051	1064248
2006-07	880200	1079738
2007-08	883127	1536288
2008-09	488508	1245610
2009-10	576123	1268310
2010-11	547931	1273140
2011-12	588822	1031865
2012-13	642138	900013
2013-14	655012	837963
2014-15	810722	2518014
2015-16	742009	1915374
2016-17	829534	1247632
2017-18	830922	1316230
2018-19	844250	945044
2019-20	879384	977867
2020-21	774542	348304

2021-22	371628	249948
2022-23	872006	1283878

LAND DETAILS :

Mauza: Borea, Thana: 115

Khata No.								
1	2	4	5	6	8	9	11	12
13	15	17	18	19	20	21	22	24
25	26	27	31	32	33	35	36	39
40								
Plot No.								
30(P)	222(P)	223	224	225	227	228	229(P)	230
231	232(P)	233(P)	236(P)	252(P)	253(P)	254	255	256(P)
257(P)	268(P)	391(P)	392(P)	406(P)	407	408	409	410
411	412	413	414	415	416(P)	417(P)	420(P)	421
422	423	424	425	426	427	428	429	430
431	432	433	434(P)	435	436(P)	437	438	439
440	441	442	443	444	445	446	447	448
449	450	451	452	453	455	456	457	458
459	460	461	462	463	464	465	466	467
468	469	470	471	472	473	474	475	476
477	478	479	480	481	482	483	484	485
486	487	488	489	490	491	492	493	494
495	496	497	498	499	500	501	502	503
504	505	506	507	508	509(P)	510	511	512
513	514	515	516	517	518	519	520	521
522(P)	523(P)	527(P)	528(P)	531(P)	532	533	534	535
536	537	538	539	540	541	542	543	544
545	546	547	548	549	550	551	552	553
554(P)	555	556	557	558	559	560	861(P)	862
863	864	865	866	867	868	869(P)		

Mauza: Jarangdih, Thana No:116

Khata No.								
1	2	3	4	5	7	8	10	11
12	13	14	15	16	19	21	22	25
26	33	35	36	37	38	39	41	42
43	44	50	52	54	56	58	59	60
63	64	65	68					
Plot No.								
2	3	4	5	6	7	8	9	11
12	13(P)	14(P)	15(P)	17(P)	18(P)	30(P)	33(P)	34
35	37(P)	46(P)	47	48(P)	73(P)	74(P)	83(P)	84
85	86	87	88(P)	89	90	91	92	93
94(P)	95	96	97	98	99	100	101	102
103	104	105	106	107	108	109	110	111

113	114	115	116	117	118	119	120	121
122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139
140	141	142	143	144	145	146	147	148
149	150	151	152	153(P)	154	155	156	157
158	159	160	161	162	163	164	165	166
167	168	169	170	171	172	173	174	175(P)
176	177	178(P)	188(P)	189(P)	191(P)	192	223(P)	227
228	229	230	231(P)	232	233	234	235	236
237(P)	238	239	240	496(P)	497(P)	503(P)	557	558
559	560	561	562	563	564	565	566	567
568	569	570	571	572	573	574	575	576
577	578	579	580	581	582	583	584	585
586	587	588	589	590	591	592	593	594(P)
595	596	597	598	599	600	601	602	603
604	605	606	607	608	609	610	611	612
613	614	615	616	617	618	619	620	621
622	623	624	625	626	627	628	629	630
631	632	633	634	635	636	637	638	639
640	641	642	643	644	645	646	647	648
649	650	651	652	714(P)	715(P)	716(P)	717(P)	719
813(P)	815	816	822(P)	823	824	826	827	828
829	830	831	832	833	834	835	836	837
838	839	840	841	842	843	844	845	846
847	848	849(P)	850(P)	851(P)	852	853	854	855
856	857	858	859	860	861	862	863	864
865	866	867	868	869	870	871	872	873
874	875	876	877	878	879	880	882(P)	959(P)
989(P)	990	991	992(P)	995	1032(P)	1047(P)	1048(P)	1049(P)

STATUTORY CLEARANCES:

1	LOI/Lease docs	:	Land has been acquired under LA Act 1894 vide declaration no. 10126 dt 12.12.1922
2	CO	:	The CO, Bermo (Bokaro) vide letter no. 109, dated 17.02.2023 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatiyani & Register II.
3	DFO Wild Life	:	DFO Wildlife, Hazaribagh vide letter no. 1707, dated 05.08.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
4	DFO Forest Distance	:	DFO, Bokaro Forest Division vide letter no. 1515, dated 04.07.2023

			certified that the distance of notified forest is forest is 160 metre from project site.
5	Consent to Establish (CTE) & Consnet ot Operate (CTO)	:	i. CTE issued by JSPCB vide Ref. no. JSPCB /HO/RNC/CTE-1737404/2018/988, dated 22.09.2018. ii. CTO issued by JSPCB vide Ref. no. JSPCB /HO/RNC/CTO-13992210/2022/1865, dated 30.12.2022.
6	Public Hearing	:	Public Hearing conducted by JSPCB on 18.10.2022.
7	Inspection Report / Monitoring Report	:	Monitoring report issued by MoEF&CC, Regional Office, Ranchi vide F.no. 103-367/12/EPE/1451, dated 26.09.2023.
8	Approved Mine Plan	:	Mine plan approved by Central Coalfields Ltd, Darbhanga House, Ranchi vide Ref. No. C.S/B.M./525/2023/39, dated 17.03.2023.
9	Terms of Reference (ToR)	:	Terms of Reference (ToR) granted by MoEF&CC, Govt. of India vide letter no: J-11015/502/2008-IA-II(M) Dt. 19.08.2021
10	Previous Environmental Clearance (Ec)	:	Previous EC granted by MoEF, Govt. of India vide letter no. J-11015/502/2008-IA.II(M), dated 01.03.2012.

Total proposed project area as per the ToR obtained was 223.15 Ha, which involves 9.78 Ha. of forest land (GMK JJ) which would have required Forest Clearance.

Accordingly, to expedite the proposal of environment clearance of the project, a mine plan of Jarangdih Expansion OCP (Project Area-207.26 Ha, Capacity-1.50 MTY) has been approved by CCL Board to exclude 15.89 Ha land (9.78 Ha of GM JJ land + contiguous 6.11 Ha non-forest land) and re-handling of external OB dump. Summary is given in the table below:

Particulars	As per ToR	Modification as per revised Mining Plan	Remarks
Project Area	223.15 Ha	207.26 Ha.	Exclusion of un-diverted forest land.
Dumping Plan	No Re-handling of External Dump	Re-handling of proposed external dump into mine void and further reduction of mine void to 4.50 ha	In compliance with the Specific ToR Condition VI.
Life of Mine	13 Years	11 Years	Due to change in mineable reserves from 18.48 Mte to 15.62 Mte

Modification in the Landuse

Landuse As per the ToR (Area in Ha.)					Revised landuse (Area in Ha.)				
Sl. No.	Particulars	Forest	Non-Forest	Total Area	Sl. No.	Particulars	Forest Land	Non-Forest Land	Total Area
1	Quarry	1.20	92.38	93.58	1	Quarry	0	86.35	86.35
2	Infrastructure (W/S, office, conveyor)	1.19	11.20	12.39	2	Infrastructure (W/S, office, conveyor)	0	11.16	11.16
3	Proposed External OB dump	4.29	41.10	45.39	3	External OB Dump	0	37.96	37.96
4	Existing OB Dump	0	16.36	16.36	4	Existing OB Dump	0	16.36	16.36
5	Embankment/ green belt	0	4.20	4.20	5	Proposed Embankment	0	4.20	4.20
6	Top soil storage area	0	7.66	7.66	6	Top soil storage area	0	7.66	7.66
7	Safety zone	0.95	0	0.95	7	Safety zone and green belt	0	43.57	43.57
8	Green zone	2.15	40.47	42.62					
	Total area in Ha	9.78	213.37	223.15		Total area in Ha	0	207.26	207.26

Safety Measures and Pollution Control Measures for Konar River:

- No streams/surface water bodies shall be diverted in the present proposal
- The Konar nadi flows towards south-east and meet master drainage Damodar river in the south-east of the project and Bokaro nadi flows from west to east and meet Konar nadi in the west of the project.
- Konar River forms the Northern boundary of the project and safe distance of 85 m is being maintained b/w mine working and Konar River.
- HFL of Konar Nadi is +221.64 m and the adjacent surface boundary RL is +240 m.
- There would be a slight decline in the surface run-off into Konar river due to change in the surface topography.
- However, at the peak of mine operation, apprx. 2 MLD of mine water will be fed into Konar River after proper treatment.

A) Existing Water Pollution Control Measures for Konar River:

- 100 KLD ETP with Advanced treatment system along with Zero Liquid Discharge (Primary and Secondary Siltation with Lamella settler, Oil and Grease Skimmer, Sand and Carbon Filter, Chemical Dosing etc.) has been constructed
- Mine Sumps and siltation pond at discharge point have been provided for collection and treatment of Mine Seepage water.
- Filter plant has been installed to provide treated drinking water to different colonies in Kathara area.
- Around 225 m of toe wall and 725 m garland drain have been provided all around the mine periphery to treat surface run-off and prevent soil erosion.
- Rain water harvesting system has been provided at P.O. Office Jarangdih OCP
- A Piezometer has been installed at Filter plant to check the level of ground water.

B) Proposed Water Pollution Control Measures for Konar River:

Activity	Details	Cost in Rs. lakhs
Catch Drains, Toe Wall and Garland Drains	<ul style="list-style-type: none"> Toe walls of length 4 km all along the existing and proposed dumps Garland drains/catch drains of length of 8 kms with settling ponds 	275
Settling pond for mine water	Capacity enhancement of Existing settling ponds	100
Sewage treatment Plant (STP)	STP with SBR System to be provided at Colony and office premises (0.12 MLD)	200
Rooftop Rainwater Harvesting System	Rooftop rain-water harvesting system proposed at Workshop, Filter plant and other service buildings	50
Strengthening of Embankment along konar River	Strengthening of Embankment of length 1500 m all along Konar river	150
Total in Rs. Lakh		775

Provision of CHP, Pipe Conveyor and Rapid Loading System (RLS) :

1. A pit-head CHP is proposed and Crushed coal from CHP to Jarangdih siding by pipe conveyor of length 750m.
2. However, commissioning of above said infrastructure would take around 3 years from the date of start of operation of mine.
3. Therefore, for initial 3 years of mine operation, coal will be dispatched by road through tipping trucks to Jarangdih railway siding situated at 1000 m from mine.

Summary of coal transportation is given in the table below:

RoM coal From Pit to Surface/CHP	Handling	Crushed Coal from Bunker to Siding	Loading at Siding
Rear loading dumpers on Haul road of approx. length 800 m	Pit Head CHP to crush ROM coal down to (-) 100 mm size.	Closed pipe conveying system (780 m)	Rapid Loading System (RLS)

Wildlife Management Plan and Budgetary Provision:

- During the site visit avifaunal species Peafowl has observed in core zone as well as buffer zone.
- As per the data obtained from Forest Dept., Python & Monitor lizard belong to Schedule-I of Wildlife Protection Act 1972.
- Wildlife Management Plan with below mentioned budgetary provision has been submitted to DFO Bokaro on 23.12.2022 and PCCF(HoFF) Jharkhand on 19.01.2023 for competent approval.

Description	Amount in Lakhs (Rs)
A) Capital cost	
Afforestation program	Covered in EIA & EMP report
Artificial nests, feeding and watering arrangement for birds	10.00
Construction of water holes & check dams etc.	10.00
Sub Total amount	20.00
B) Revenue expenditure / Year	

On the basis of recommendation of SEAC and decision of SEIAA to grant of EC, Environmental Clearance is hereby issued to the **“Expansion of Jarangdih Opencast Coal Mine (1.5 MTPA) of M/s Central Coalfields Limited (CCL) at Village : Jarangdih and Borea, Tehsil : Bermo, Distt. : Bokaro, Jharkhand (207.26 Ha)”** alongwith the following specific conditions as recommended by SEAC:-

I. Specific Conditions:

- i. This Environmental Clearance is valid subject to the following condition below –
That this project has-
 - a. Obtained all legal rights to operate at concerned place.
 - b. Complied with all existing concerned laws of the land and
 - c. Complied with the decisions of SEIAA on the issue of Environmental Clearance till date.
- ii. Embankment proposed along face of River Konar should be of sufficient strength such that mine effluent water does not merge with the river water. Stability study for same to done by institute of repute located in area first as mines is made operational and thereafter every 3rd year.
- iii. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only. Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.
- iv. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.
- v. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.
- vi. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.
- vii. No mining/activity shall be undertaken in the forest land or deemed forest without obtaining requisite prior forestry clearance.
- viii. This Environmental Clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT, MoEF & CC and any other Court of Law, if any, as may be applicable to this project.
- ix. Environmental clearance is subject to obtaining prior clearance from forestry and Wildlife angle including clearance from standing committee of NBWL, as may be applicable to this project (in case any fauna occurs / is found in the Project area or if the area involves forest land or Wildlife habitat i.e. core zone of elephant/tiger reserve etc. and or located with in 10 km. of protected area).

Afforestation program	Covered in EIA & EMP report
Food facility for animals (Grass land development)	2.00
Drinking water arrangement by tanker	2.00
Protection arrangements for animals (Fencing, along with operation and maintenances)	2.00
Training program for villagers	2.00
Awareness program, Sign boards, cultural program to create awareness for flora & fauna	2.00
Rescue center for animals	2.00
Man Power for protection (4 persons)	2.00
Financial assistance for wild animals health care	2.00
Artificial nests, feeding & watering arrangement(Pots) for birds	2.00
Habitat for grazing animals will be developed at suitable location in consultant with Panchayat	2.00
Sub Total amount	20.00
Grand total	40.00

Provision of LNG/CNG based Mining Machinery:

- Mine machinery and trucks proposed in this project are majorly of electric/ HSD fuel based.
- Presently use of LNG/ CNG in HEMM in coal sector has been taken up as a pilot/ experimental scale. Further scale up will depend on outcome of the pilot study.

Energy Conservation:

- 3MW solar plant is proposed on OB Dump, thus generating 54 Lakh Kwh annually.
- Electric vehicles will be used for commutation of employees.
- Energy Audit is being carried out to assess the specific Energy consumption and planning of Y-o-Y reduction targets
- Proposed Pit-head CHP with closed pipe conveyor system will control dust emissions and CO2 emissions due to truck transportation.

In the power distribution network, care has been taken to select suitable size of conductors and cables to minimise losses and voltage drop. It is suggested that the conductor sizes recommended in the P.R are drawn at the construction stage of the project itself to avoid duplication of work later. The size should not be changed either with higher or lower size of the conductor.

State Level Environment Level Impact Assessment Authority (SEIAA), Jharkhand in its 110th meeting held on 27th, 28th & 29th October, 2023 discussed the project proposal along with recommendations made by SEAC in its 109th meeting held on 09th, 10th, 11th, 12th and 13th October, 2023 and decided to grant EC to the project.





- x. The project proponent may apply simultaneously for forest and NBWL clearance, in order to complete the formalities without undue delay, which till process on their respective merits, no rights will vest in or accrue to them unless all clearance are obtained.

II. Statutory compliance:

- i. The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
- ii. The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- iii. The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (incase of the presence of schedule-I species in the study area).
- iv. In the writ petition (Civil) no. 202/1995, T.N. Godaverman Thirumulpad vs union of India and ors. the Hon'ble Supreme Court passed an order dated 03.06.2022 " National Park or Wildlife Sanctuary must have an ESZ of minimum 01 km in which the activities prescribed and prescribed in the guidelines of 09th February, 2011 shall be strictly adhered to".
- v. The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
- vi. The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.
- vii. Solid waste/hazardous waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules, 2016 / Hazardous & Other Waste Management Rules, 2016 as amended from time to time.
- viii. It shall be mandatory for the project management to submit six (06) monthly compliance report in respect of the stipulated prior environmental clearance terms and conditions in hard copies and soft copies to the regulatory authority concerned Regional Office of MoEF & CC at Ranchi and Jharkhand State Pollution Control Board (J.S.P.C.B.), Ranchi/SEIAA/CPCB.
- ix. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this

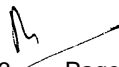
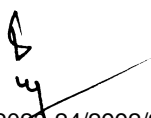


clearance and attract action under the provisions of Environment (Protection) Act, 1986.

- x. The SEIAA, Jharkhand or any other competent Authority may alter modify the above conditions or stipulate any further condition in the interest of Environment Protection.

III. Air quality monitoring and preservation:

- i. Continuous ambient air quality monitoring stations as prescribed in the statute be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM10, PM2.5, SO2 and NOx. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Online ambient air quality monitoring stations may also be installed in addition to the regular monitoring stations as per the requirement and/or in consultation with the SPCB. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc to be carried out at least once in six months.
- ii. The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the Coal Industry Standards notified vide GSR 742 (E) dated 25.9.2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.
- iii. Transportation of coal, to the extent permitted by road, shall be carried out by covered trucks/conveyors. Effective control measures such as regular water / mist sprinkling / rain gun etc shall be carried out in critical areas prone to air pollution (with higher values of PM10/PM2.5) such as haul road, loading/unloading and transfer points. Fugitive dust emissions from all sources shall be controlled regularly. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central/State Pollution Control Board.
- iv. The transportation of coal shall be carried out as per the provisions and route envisaged in the approved Mining Plan or environment monitoring plan. Transportation of the coal through the existing road passing through any village shall be avoided. In case, it is proposed to construct a 'bypass' road, it should be so constructed so that the impact of sound, dust and accidents could be appropriately mitigated.
- v. Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centres.
- vi. Coal stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt-conveyors shall be fully covered to avoid



air borne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.

- vii. Coal handling plant shall be operated with effective control measures w.r.t. various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.

IV. Water quality monitoring and preservation:

- i. The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25.9.2000 and as amended from time to time by the Central Pollution Control Board.
- ii. The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No. J-20012/1/2006-1A.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.
- iii. Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.
- iv. Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change / Regional Office.
- v. Ground water, excluding mine water, shall not be used for mining operations. Rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.
- vi. Catch and or garland drains and siltation ponds in adequate numbers and appropriate size shall be constructed around the mine working, coal heaps & OB dumps to prevent run off of water and flow of sediments directly into the river and water bodies. Further, dump material shall be properly consolidated/ compacted and accumulation of water over dumps shall be avoided by providing adequate channels for flow of silt into the drains. The drains/ ponds so constructed shall be regularly de-silted particularly before onset of monsoon and maintained properly. Sump capacity should provide adequate retention period to allow proper settling of silt material. The water so collected in the sump shall be utilised for dust suppression and green belt development and other industrial use. Dimension of the retaining wall constructed, if any, at the toe of the OB dumps within the mine to check run-off and siltation should be based on the rainfall data. The plantation of native



species to be made between toe of the dump and adjacent field/habitation/water bodies.

- vii. Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby village(s) after due treatment conforming to the specific requirement (standards).
- viii. Industrial waste water generated from CHP, workshop and other waste water, shall be properly collected and treated so as to conform to the standards prescribed under the standards prescribed under Water Act 1974 and Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time. Adequate ETP / STP needs to be provided.
- ix. The water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.
- x. The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations, considering the presence of river/rivulet/pond/lake etc, shall be prepared and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the approved Mining Plan/EIA/EMP report and with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved Mining Plan and as per the permission of DGMS or any other authority as prescribed by the law.
- xi. The project proponent shall take all precautionary measures to ensure reverian/ riparian ecosystem in and around the coal mine upto a distance of 5 km. A reverian /riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.

V. Noise and Vibration monitoring and prevention

- i. Adequate measures shall be taken for control of noise levels as per Noise Pollution Rules, 2016 in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs / muffs in conformity with the prescribed norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.
- ii. Controlled blasting techniques shall be practiced in order to mitigate ground vibrations, fly rocks, noise and air blast etc., as per the guidelines prescribed by the DGMS.
- iii. The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.

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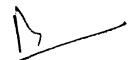
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VI. Mining Plan:

- i. Mining shall be carried out under strict adherence to provisions of the Mines Act 1952 and subordinate legislations made there-under as applicable.
- ii. Mining shall be carried out as per the approved mining plan(including Mine Closure Plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General Mines Safety (DGMS).
- iii. No mining shall be carried out in forest land without obtaining Forestry Clearance as per Forest (Conservation) Act, 1980
- iv. Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.

VII. Land Reclamation:

- i. Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MOEF&CC) from time to time shall be submitted to MOEFCC/Regional Office (RO).
- ii. The final mine void depth should preferably be as per the approved Mine Closure Plan, and in case it exceeds 40 m, adequate engineering interventions shall be provided for sustenance of aquatic life therein. The remaining area shall be backfilled and covered with thick and alive top soil. Post-mining land be rendered usable for agricultural /forestry purposes and shall be diverted. Further action will be treated as specified in the guidelines for Preparation of Mine Closure Plan issued by the Ministry of Coal dated 27th August, 2009 and subsequent amendments.
- iii. The entire excavated area, backfilling, external OB dumping (including top soil) and afforestation plan shall be in conformity with the "during mining" / "post mining" land-use pattern, which is an integral part of the approved Mining Plan and the EIA/EMP submitted to this Ministry. Progressive compliance status vis-a-vis the post mining land use pattern shall be submitted to the MOEFCC/RO.
- iv. Fly ash shall be used for external dump of overburden, backfilling or stowing of mine as per provisions contained in clause (i) and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 (E) dated 3rd November, 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from Flue Gas Desulfurization (FGD), if any, along with fly ash for external dump of overburden, backfilling of mines. Compliance report shall be submitted to Regional Office of MoEF&CC, CPCB and SPCB.
- v. Further, it may be ensured that as per the time schedule specified in mine closure plan it should remain live till the point of utilization. The topsoil shall temporarily be stored at earmarked site(s) only and shall not be kept unutilized. The top soil shall be used for land reclamation and plantation purposes.



Active OB dumps shall be stabilised with native grass species to prevent erosion and surface run off. The other overburden dumps shall be vegetated with native flora species. The excavated area shall be backfilled and afforested in line with the approved Mine Closure Plan. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change/ Regional Office.

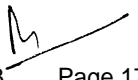
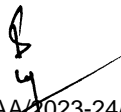
- vi. The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.

VIII. Green Belt:

- i. The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered/endemic flora/fauna, if any, spotted/reported in the study area. The Action plan in this regard, if any, shall be prepared and implemented in consultation with the State Forest and Wildlife Department.
- ii. Greenbelt consisting of 3-tier plantation of width not less than 7.5 m shall be developed all along the mine lease area as soon as possible. The green belt comprising a mix of native species (endemic species should be given priority) shall be developed all along the major approach/ coal transportation roads..

IX. Public hearing and Human health issues:

- i. Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored weekly. The report on the same shall be submitted to this ministry & its RO on six- monthly basis.
- ii. The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, as amended time to time.
- iii. Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
- iv. Implementation of the action plan on the issues raised during the public hearing shall be ensured. The project proponent shall undertake all the tasks/measures as per the action plan submitted with budgetary provisions during the public hearing.



Land oustees shall be compensated as per the norms laid down in the R&R policy of the company/State Government/Central Government, as applicable.

- v. The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area.

X. Corporate Environment Responsibility:

- i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.
- ii. The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
- iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
- iv. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry / Regional Office along with the Six Monthly Compliance Report.
- v. Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
- vi. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the plants shall be implemented.
- vii. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

XI. Miscellaneous:

- i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in



addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall monitor the criteria pollutants level namely; PM₁₀, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- v. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- vi. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- vii. The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
- viii. The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
- ix. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- x. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- xi. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
- xii. Concealing factual data or submission of false / fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xiii. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- xiv. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- xv. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer

(s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

- xvi. The above conditions shall 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, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
- xvii. Any appeal against this Environmental Clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
- xviii. The Prescribed EC is valid as per Notification no. S.O. 1807(E) dated 12.04.2022 of MoEF & CC, Govt. of India.

Sd/-

Member Secretary
State Level Environment Impact
Assessment Authority, Jharkhand.

Memo No : EC/SEIAA/2022-23/2992/2022/ 326

Ranchi, Date : 02/11/2023

Copy to:

1. Additional Chief Secretary, Department of Forests, Environment & Climate Change, Govt. of Jharkhand.
2. Deputy Commissioner, District - Bokaro, Jharkhand.
3. Divisional Forest Officer, Bokaro Forest Division, Bokaro, Jharkhand.
4. Divisional Forest Officer, Wildlife Division, Hazaribagh, Jharkhand.
5. Director IA Division, Monitoring Cell, MoEF and Climate Change, Indira Paryavaran Bhavan, Jorbag Road, Aliganj, New Delhi – 110003.
6. Integrated Regional Office, Ranchi, Ministry of Environment, Forest and Climate Change, 2nd Floor, Jharkhand State Housing Board (HQ), Harmu Chowk, Ranchi, Jharkhand – 834002.
7. Member Secretary, Jharkhand State Pollution Control Board, Ranchi.
8. Secretary, Jharkhand State Expert Appraisal Committee, Ranchi.
9. Website.
10. Guard file.

Member Secretary

State Level Environment Impact
Assessment Authority, Jharkhand.