BHARAT COKING COAL LIMITED
(A Subsidiary of Coal India Limited)

FORM- I of CLUSTER-VIII OF BCCL MINES

S.No.	Name of the Mine	Lease Area (Ha)	Proposed Production Capacity Normative (MTY)	Peak Production Capacity (MTY)	Mine Life (Years)
1	Bastacolla Colliery (UG)	239.45	0.24	0.24	21
	Bastacolla Colliery (OC)		0.10	0.13	15
2	Bera Colliery (OC)	209.56	0.15	0.20	10
3	Dobari Colliery (OC)	146.90	3.00	3.86	6
4	Kuya Colliery (OC)	340.50	2.00	2.60	15
5	Ghanoodih Colliery (OC)	73.00	0.45	0.60	5
6	Kujama Colliery (OC)	191.00	0.60	0.78	7
Total		1200.41			

September, 2017

Prepared by CMPDI, Regional Institute-II
Koyla Bhawan, Dhanbad.

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FORM - 1

(I) Basic Information

1	Name of the project	Cluster No. VIII of M/s Bharat Coking Coal Limited
2	Sl. No. in the schedule	1 (a)
3	Proposed capacity / area / length / tonnage to be handled / command area / lease area / number of wells to be drilled	Total No. of Mines : 6 (Six: One Mixed & Five OC) Coal Production Capacity : 5.603 MTY (Peak) Cluster Area (Mine Leasehold) : 1200.41 Ha
4	New / Expansion / Modernization	This is an amendment proposal to the earlier granted EC vide letter no. J-11015/298/2010-I(A).II(M) Dated 15.02.2013 Need for EC Amendment In view of the dealing with Fire and subsidence as per Jharia Master Plan'2008 and also as per 1 BT program of CIL by 2020, a re-assessment of mine capacities has been carried out for the cluster while keeping the overall cluster capacity and area unchanged. This re-assessment / rationalization has been done based on present condition and capability of the mines for achieving optimum production levels. The changes with reference to the approved EC have been shown in the following table –

Sl. No.	As per Existing EC					Amendment sought as per Revised Mine Plan		
	Name of the Mine	Lease Area (Ha)	Normative Production Capacity (MTY)	Peak Production Capacity (MTY)	Mine Life (Years)	Proposed Amendment / New Proposal	Peak Production Capacity (MTY)	Mine Life (Years)
1	Bastacolla UG	239.45	0.33	0.429	18	-	0.24	21
	Bastacolla OCP		0.10	0.130	3	-	0.13	15
2	Bera OCP	209.56	0.15	0.195	3	-	0.20	10
	Bera UG		0.19	0.247	13	-	0.00	--
3	Dobari Colliery (UG)	146.90	0.24	0.312	20	Excavation of unstable area identified under Master Plan	3.86	6
4	Kuya UG	340.50	0.10	0.130	20	Composite OC as Kuya Colliery	2.60	15
	Kuya OCP		0.60	0.780	5			
	Goluckdih (NC) OCP		1.20	1.560	25			
5	Ghanoodih	73.00	1.40	1.820	5	-	0.60	5
6	Kujama Colliery (OCP)	191.00	0.60	0.780	5	-	0.78	7
	Total	**1200.41**	**4.31**	**5.603**		**No change in Overall Mine Leasehold area and Capacity**		

5	Existing Capacity/Area etc.	Existing EC capacity is 5.603 MTY and Cluster area is 1200.41 Ha. Approved vide EC letter no. J-11015/298/2010-I(A).II(M) dated 15.02.2013.
6	Category of Project. i.e., 'A' or 'B'	A
7	Does it attract the general condition? If yes, Please	No

	specify	
8	Does it attract the specific condition? If yes, Please specify	Yes
9	Location	

Plot / Survey / Khasra No

Mauza Name	Mauza No.	Mauza Name	Mauza No.	Mauza Name	Mauza No.
Dhanbad	51	Bera	45	Chandkuya	139
Manaitand	50	Jharna	44	Golukdih	146
Bastacolla	140	Kuya	145	Fatehpur	130
Pathrakulhi	46	Ghanuadih	144	Jhari Khas	131
Bherakata	141	Kujama	127	Pande Bera	128
Amtal	43	Naya Kanali	143	Durgapur	129
Bhagarampur	150	Tisra	147	Alakdiha	148

Village

Name of Mine	Name of Villages
Bastacolla	Bastacolla, Dhausar
Bera	Bera, Bherakata, Dhanbad, Jharna, Manaitand, Patrakulhi
Dobari	Bera, Bherakata, Dobari, Ghanuadihi, Naya Kanali
Ghanoodih	Ghanuadihi
Kuya	Alakdiha, Aamtal, Bera, Bhagarampur, Chandkuya, Ghanuadihi, Golukdih, Kuya, Tisra
Kujama	Kujama, Durgapur, Jharia Khas, Pande Bera, Fatehpur

	Tehsil	Jharia
	District	Dhanbad
	State	Jharkhand
10	Nearest railway station / airport along with distance in kms.	Nearest Railway Station : Dhanbad Nearest Airport : Ranchi
11	Nearest Town, city, District Headquarters along with distance in kms.	Dhanbad at a distance of 6 kms
12	Village Panchayats Zilla Parishad Municipal Corporation, Local body (complete postal Addresses with telephone nos. to be given)	Dhanbad Zila Parishad, Hatia More, Dhanbad-826001 Tel. No. : 0326-223178
13	Name of the applicant	P. K Dubey
14	Registered Address	Office of the Area General Manager, Vikas Bhawan, Jharia, Dhanbad-828111
15	Address for correspondence:	
	Name	P. K Dubey
	Designation (Owner / Partner / CEO)	General Manager (Mining)
	Address	Office of the Area General Manager, Vikas Bhawan, Jharia, Dhanbad.

	Pin Code	828111
	E-mail	gmbastacolla.bccl@coalindia.in
	Telephone No.	---
	Fax No.	---
16	Details of Alternative Sites examined, if any. Location of these sites should be shown on a toposheet	Not required as the mines are in operation
17	Interlinked Projects	None
18	Whether separate application of interlinked Project has been submitted	Not Applicable
19	If yes, date of submission	Not Applicable
20	If no, reason	Not Applicable
21	Whether proposal involves approval / clearance under 1. The Forest (Conservation) Act, 1980 2. The Wildlife (Protection) Act, 1972 3. The CRZ Notification, 1991	 Yes No No
22	Whether there is any Government Order/ Policy relevant/relating to the site	Jharia Master Plan
23	Forest land involved(hectares)	245.25 Ha. (234.08 Ha. diverted for mining & diversion of remaining 11.17 Ha. is under process)
24	Whether there is any litigation pending against the project and/or land in which the project is proposed to be set up?	No litigation is pending

(II) Activity

1. Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)

<table>
<tr><th>S.No.</th><th>Information/Checklist confirmation</th><th>Yes/No</th><th>Details thereof (with approximate quantities /rates, wherever possible) with source of information data</th></tr>
<tr><td>1.1</td><td>Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)</td><td>Yes</td><td>Details are given below-
<table>
<tr><th>Sl.No.</th><th>Type of land use</th><th>Present mining land use (In Ha)</th><th>Post-mining land use (In Ha)</th></tr>
<tr><td rowspan="3">1</td><td>Running Quarry</td><td></td><td></td></tr>
<tr><td>-Backfilled</td><td>65.01</td><td>232.58</td></tr>
<tr><td>-Not Backfilled</td><td>214.71</td><td>0.00</td></tr>
<tr><td rowspan="3">2</td><td>Abandoned Quarry</td><td></td><td></td></tr>
<tr><td>- Backfilled</td><td>1.50</td><td>0.00</td></tr>
<tr><td>- Not Backfilled</td><td>54.00</td><td>0.00</td></tr>
<tr><td>3</td><td>External O.B Dump</td><td>128.55</td><td>0.00</td></tr>
<tr><td>4</td><td>Service building/ Mine Infrastructure</td><td>9.50</td><td>0.00</td></tr>
</table></td></tr>
</table>

<table>
<tr><td>S.No.</td><td>Information/Checklist confirmation</td><td>Yes/No</td><td>Details thereof (with approximate quantities /rates, wherever possible) with source of information data</td></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>5</td><td>Coal dump</td><td>8.65</td><td>0.00</td></tr>
<tr><td>6</td><td>Homestead Land</td><td>133.32</td><td>78.32</td></tr>
<tr><td>7</td><td>Agricultural Land</td><td>24.71</td><td>83.71</td></tr>
<tr><td>8</td><td>Forest Land</td><td>50.27</td><td>245.25</td></tr>
<tr><td>9</td><td>Plantation</td><td>47.10</td><td>277.64</td></tr>
<tr><td>10</td><td>Water Body</td><td>35.04</td><td>50.07</td></tr>
<tr><td>11</td><td>Barren Land</td><td>387.63</td><td>192.42</td></tr>
<tr><td>12</td><td>Roads & Railways</td><td>40.42</td><td>40.42</td></tr>
<tr><td></td><td>Total</td><td>1200.41</td><td>1200.41</td></tr>
</table>
</td></tr>
<tr><td>1.2</td><td>Clearance of existing land, vegetation and buildings?</td><td>Yes</td><td>All the mines in the cluster are running mines. No additional land is required for continuing the mining operation. Dismantling of Residential Buildings and Mine Infrastructure falling in Fire affected areas and project area will be required.</td></tr>
<tr><td>1.3</td><td>Creation of new land uses?</td><td>Yes</td><td>New land-uses will be created due to opencast mining and areas subjected to subsidence due to underground mining by caving method. The new land uses will generally be in the form of plantations over mined-out / subsided areas.</td></tr>
<tr><td>1.4</td><td>Pre-construction investigations e.g. bore houses, soil testing?</td><td>Yes</td><td>The details of pre-construction investigations are as under :
<table>
<tr><th>Name of Mine</th><th>No. of Boreholes</th></tr>
<tr><td>Bastacolla Colliery (Mixed) (UG & OCP)</td><td>12</td></tr>
<tr><td>Bera Colliery (OCP)</td><td>12</td></tr>
<tr><td>Dobari Colliery (OCP)</td><td>9</td></tr>
<tr><td>Kuya Colliery (OCP)</td><td>8</td></tr>
<tr><td>Ghanudih Colliery (OCP)</td><td>8</td></tr>
<tr><td>Kujama Colliery (OCP)</td><td>6</td></tr>
<tr><td>TOTAL</td><td>55</td></tr>
</table>
</td></tr>
<tr><td>1.5</td><td>Construction works?</td><td>Yes</td><td>Minor construction works such as Ventilation stoppings, isolation stoppings, sectionalisation stoppings, haulage foundations, pump foundations etc will be undertaken for carrying out routine operations in the mines/collieries.</td></tr>
<tr><td>1.6</td><td>Demolition works?</td><td>Yes</td><td>Demolition of residential buildings and mine infrastructure falling in fire affected and project area may be required for mining.</td></tr>
<tr><td>1.7</td><td>Temporary sites used for construction works or housing of construction workers?</td><td>Yes</td><td>Temporary Camp Offices may be constructed for smooth running of mines.</td></tr>
<tr><td>1.8</td><td>Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations</td><td>Yes</td><td>Excavation works due to opencast mining.</td></tr>
<tr><td>1.9</td><td>Underground works including mining or</td><td>Yes</td><td>Manual/SDL development with conventional Bord & Pillar. Depillaring with caving in all the underground mines of the cluster.</td></tr>
</table>

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
	tunneling?		
1.10	Reclamation works?	Yes	Technical as well as biological reclamation is being carried out in the cluster.
1.11	Dredging?	No	Not applicable.
1.12	Offshore structures?	No	Not applicable.
1.13	Production and manufacturing processes?	Yes	Coal is being produced through opencast/underground mining with shovel and dumper combination in opencast mines and development and depillaring (Semi-Mechanized Method) in underground mines. Coal will be transported from face to surface using dumpers in OC mines and underground tugger haulage and belt conveyor in UG mines. Extraction of coal will be done by drilling and blasting.
1.14	Facilities for storage of goods or materials?	Yes	(a) Existing regional store and colliery store will be utilized for material storage. (b) Explosives are stored in the magazine provided for the purpose in accordance with the Indian Explosives Act & DGMS guidelines. (c) Coal is stored in the coal dump provided. (d) Facilities for storage of fuel at the projects.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	No solid waste is generated in UG mines. The OB material generated from OC mines are disposed at external designated sites or in mine pits. Physical and biological reclamation of the OB dumps is carried out. Suitable treatment of mine water/workshop effluent is being carried out. The treated water is reused and excess treated water is discharged.
1.16	Facilities for long term housing of operational workers?	Yes	Housing facility has already been provided to the operational workers in all the operating projects in accordance with the company norms.
1.17	New road, rail or sea traffic during construction or operation?	No	Not Required
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	No	Not Required
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	Not Required
1.20	New or diverted transmission lines or	No	Not Required

<table>
<tr><th>S.No.</th><th>Information/Checklist confirmation</th><th>Yes/No</th><th>Details thereof (with approximate quantities /rates, wherever possible) with source of information data</th></tr>
<tr><td></td><td>pipelines?</td><td></td><td></td></tr>
<tr><td>1.21</td><td>Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?</td><td>No</td><td>Not Required</td></tr>
<tr><td>1.22</td><td>Stream crossings?</td><td>No</td><td>Not Required</td></tr>
<tr><td>1.23</td><td>Abstraction or transfers of water from ground or surface waters?</td><td>Yes</td><td>Water accumulating in the mines is continuously pumped out. The quantity of pumping varies from mine to mine which is given below:
<table>
<tr><th>Name of Mine</th><th>Mine water discharge (KLD)</th><th>Water Consumption (KLD)</th><th>Additional Water Requirement</th></tr>
<tr><td>Bastacolla Colliery (Mixed) (UG & OCP)</td><td>1080</td><td>1080</td><td>Nil</td></tr>
<tr><td>Bera Colliery (OCP)</td><td>263</td><td>263</td><td>Nil</td></tr>
<tr><td>Dobari Colliery (OCP)</td><td>120</td><td>120</td><td>Nil</td></tr>
<tr><td>Kuya Colliery (OCP)</td><td>1851</td><td>2020</td><td>Nil</td></tr>
<tr><td>Ghanudih Colliery (OCP)</td><td>282</td><td>1028</td><td>Nil</td></tr>
<tr><td>Kujama Colliery (OCP) #</td><td>0</td><td>231</td><td>Nil</td></tr>
<tr><td>Total</td><td>3596</td><td>3198</td><td>Nil</td></tr>
</table>
Kujama OCP receives water from nearby units.
Water is being supplied by MADA for domestic consumption.</td></tr>
<tr><td>1.24</td><td>Changes in water bodies or the land surface affecting drainage or run-off?</td><td>No</td><td>--</td></tr>
<tr><td>1.25</td><td>Transport of personnel or materials for construction, operation or decommissioning?</td><td>Yes</td><td>Transport of materials is being done through tippers, trucks, jeep etc. Personnel are transported by the public / personal conveyance or conveyance provided by the Company.</td></tr>
<tr><td>1.26</td><td>Long-term dismantling or decommissioning or restoration works?</td><td>Yes</td><td>A Progressive Mines closure Plan & Final Mines Closure Plan will be prepared for each of Project for the purpose long-term dismantling and/or decommissioning.</td></tr>
<tr><td>1.27</td><td>Ongoing activity during decommissioning which could have an impact on the environment?</td><td>Yes</td><td>The decommissioning activities will not have any adverse environmental effect.</td></tr>
<tr><td>1.28</td><td>Influx of people to an area in either temporarily</td><td>Yes</td><td>Coal mining is going on for more than 100 Years in the Jharia coal fields. The existing population is largely depending on the mining</td></tr>
</table>

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
	or permanently?		activities in the area. Hence, no more influx of people is expected apart from the manpower required for the projects in the cluster.
1.29	Introduction of alien species?	No	---
1.30	Loss of native species or genetic diversity?	No	---
1.31	Any other actions?	No	---

2. Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):

<table>
<tr><th>S.No.</th><th>Information/checklist confirmation</th><th>Yes/No</th><th>Details thereof (with approximate quantities /rates, wherever possible) with source of information data</th></tr>
<tr><td>2.1</td><td>Land especially undeveloped or agricultural land (ha)</td><td>Yes</td><td>
<table>
<tr><th rowspan="2">Name of the Mine</th><th colspan="2">Land involved in Ha</th></tr>
<tr><th>Barren Land</th><th>Agriculture Land</th></tr>
<tr><td>Bastacolla Colliery (Mixed) (UG & OCP)</td><td>118.18</td><td>17.03</td></tr>
<tr><td>Bera Colliery (OCP)</td><td>85.16</td><td>2.82</td></tr>
<tr><td>Dobari Colliery (OCP)</td><td>50.49</td><td>0.00</td></tr>
<tr><td>Kuya Colliery (OCP)</td><td>60.14</td><td>4.86</td></tr>
<tr><td>Ghanudih Colliery (OCP)</td><td>11.56</td><td>0.00</td></tr>
<tr><td>Kujama Colliery (OCP)</td><td>62.10</td><td>0.00</td></tr>
<tr><td>Total</td><td>387.63</td><td>24.71</td></tr>
</table>
</td></tr>
<tr><td>2.2</td><td>Water (expected source & competing users) unit: KLD</td><td>Yes</td><td>
<table>
<tr><th>Name of the Mine</th><th>Water Consumption in KLD with source</th><th>Additional Water requirement in future</th></tr>
<tr><td>Bastacolla Colliery (Mixed) (UG & OCP)</td><td>-Industrial – 100 KLD
-Domestic – 980 KLD</td><td>Nil</td></tr>
<tr><td>Bera Colliery (Mixed) (UG & OCP)</td><td>-Industrial – 63 KLD
-Domestic – 200 KLD</td><td>Nil</td></tr>
<tr><td>Dobari Colliery (OCP)</td><td>-Domestic – 40 KLD
-Industrial – 80 KLD</td><td>Nil</td></tr>
<tr><td>Kuya Colliery (Mixed) (UG & OCP)</td><td>-Industrial –158 KLD
-Domestic -1862 KLD</td><td>Nil</td></tr>
<tr><td>Ghanudih Colliery (OCP)</td><td>-Industrial –222 KLD
-Domestic – 806 KLD</td><td>Nil</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>S.No.</th><th>Information/checklist confirmation</th><th>Yes/No</th><th>Details thereof (with approximate quantities /rates, wherever possible) with source of information data</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>Kujama Colliery (OCP)</td><td>-Industrial –110 KLD
-Domestic –123 KLD</td><td>Nil</td></tr>
</table>
</td></tr>
<tr><td>2.3</td><td>Minerals (MT)</td><td>Yes</td><td>
<table>
<tr><th>Name of Mine</th><th>Mineable Reserve # (MT)</th></tr>
<tr><td>Bastacolla Colliery (OCP)</td><td>2.40</td></tr>
<tr><td>Bastacolla Colliery (UG)</td><td>8.327</td></tr>
<tr><td>Bera Colliery (OCP)</td><td>3.113</td></tr>
<tr><td>Dobari Colliery (OCP)</td><td>14.82</td></tr>
<tr><td>Kuya Colliery (OCP)</td><td>9.338</td></tr>
<tr><td>Ghanudih Colliery (OCP)</td><td>19.043</td></tr>
<tr><td>Kujama Colliery (OCP)</td><td>92.212</td></tr>
<tr><td>Total</td><td>149.253</td></tr>
</table>
#Considering present geomining conditions.
</td></tr>
<tr><td>2.4</td><td>Construction material , stone, aggregates and soil (expected source – MT)</td><td>Yes</td><td>---</td></tr>
<tr><td>2.5</td><td>Forests and timber
(source – MT)</td><td>Yes</td><td>Quantity of Timber used per year:-
▪ Prop : 388 Nos. per annum
▪ Cogging Sleeper: - 4584 Nos. per annum</td></tr>
<tr><td>2.6</td><td>Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)</td><td>Yes</td><td>
<table>
<tr><th>Name of the mine</th><th>Energy Consumption (MKWh)/ annum #</th><th>Fuel Consumption (diesel) (KL) / annum #</th></tr>
<tr><td>Bastacolla Colliery (UG & OCP)</td><td>6.660</td><td>23.823</td></tr>
<tr><td>Bera Colliery (OCP)</td><td>3.690</td><td>410.754</td></tr>
<tr><td>Dobari Colliery (OCP)</td><td>0.04162</td><td>7773.479</td></tr>
<tr><td>Kuya Colliery (OCP)</td><td>6.360</td><td>3765.875</td></tr>
<tr><td>Ghanudih Colliery (OCP)</td><td>4.705</td><td>1190.955</td></tr>
<tr><td>Kujama Colliery (OCP)</td><td>2.538</td><td>640.500</td></tr>
</table>
Figures are of FY 2016-17
</td></tr>
<tr><td>2.7</td><td>Any other natural resources (use appropriate standard units)</td><td>No</td><td>---</td></tr>
</table>

3. Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.

Sl. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)	No	Not Applicable
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	Not Applicable
3.3	Affect the welfare of people e.g. by changing living conditions?	No	The projects in this cluster have positive impact on the welfare of people and resulted into overall development of the area in and around the cluster.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,	No	Not Applicable
3.5	Any other causes	No	Not Applicable

4. Production of solid wastes during construction or operation or decommissioning (MT/month):

Sl. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes	Yes	OB is being generated from opencast mining and placed in mine voids and OB dumps. Total OB to be handled in next five years: Kujama OCP = 14.00 Mm^3 Bastacolla OCP = 2.50 Mm^3 Bera OCP = 2.518 Mm^3 Ghanoodih OCP= 5.425 Mm^3 Kuya OCP= 55.66 Mm^3
4.2	Municipal waste (domestic and or commercial wastes)	Yes	Municipal waste is being disposed off as per provisions of municipal solid waste management & handling rules. Domestic Waste in colony is treated in septic tank-cum-soak pit. No commercial waste is generated.
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	Yes	Spent / burnt oil and oil soaked filters, old batteries. The aforesaid are being taken care of as per Hazardous Waste (Management & Handling) Rules, 1989 and 2003 and sent to stores for disposal through authorized agents.
4.4	Other industrial process wastes	No	---
4.5	Surplus product	No	---
4.6	Sewage sludge or other sludge from effluent treatment	Yes	Domestic Effluent is being treated in septic tank-cum-soak pit.

4.7	Construction or demolition wastes	Yes	Solid waste generated from demolition of residential quarters, service buildings and infrastructure during the course of mining is being used for filling low lying areas or old quarry voids.
4.8	Redundant machinery or equipment	Yes	The redundant machineries or equipments are transferred to other collieries where required. If they have outlived their working life, they will be surveyed off and disposed as per Company's Rule.
4.9	Contaminated soils or other materials	No	---
4.10	Agricultural wastes	No	---
4.11	Other solid wastes	No	---

5. Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/hr)

Sl. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources	Yes	Diesel is used as fuel for coal transportation and operation of HEMM which releases SO_2 and NO_x.
5.2	Emissions from production processes	Yes	Dust is produced in OC patches during drilling and blasting and during movement of HEMM and loaded trucks. Wet drilling is being practised in the OC operations. In underground mines, dust produced in the production process does not affect the ambient air quality above ground significantly as it settles in the underground. The emissions at surface are from CHP and coal transportation. Suspended Particulate Matter (SPM) is being taken care of with water sprinkling to keep the level within permissible limit. As per the records of existing mines, the level of pollutants is well within limit of prescribed for Jharia Coalfield.
5.3	Emissions from materials handling including storage or transport	Yes	Suspended Particulate Matter (SPM) & Respiratory Particulate Matter (RPM) get generated from coal transportation. They are being taken care of by water sprinkling on the transport routes.
5.4	Emissions from construction activities including plant and equipment	No	---
5.5	Dust or odours from handling of materials including construction materials, sewage and waste	No	Dust gets generated during transportation, loading, unloading etc. Water sprinkling is done to prevent the dust from becoming air borne.
5.6	Emissions from incineration of waste	No	---
5.7	Emissions from burning of waste in open air (e.g. slash materials,	No	---

Sl. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
	construction debris)		
5.8	Emissions from any other sources	No	---

6. Generation of Noise and Vibration, and Emissions of Light and Heat:

Sl. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers	Yes	Generation of noise / vibration from HEMM, tippers, ventilation fan, haulages, SDL etc. are within the permissible limit.
6.2	From industrial or similar processes	Yes	Movement of HEMM. But within the permissible limit of Jharia Coalfields.
6.3	From construction or demolition	Yes	Generations of noise & vibration are instantaneous in opencast mines. However, generation of noise & vibration is there from drilling. In UG mines, drilling and blasting do generate noise and vibration but precautions are taken to maintain the level within prescribed standards.
6.4	From blasting or piling	Yes	Noise, vibration & heat are generated in course of operation of HEMMs and other coal handling and transportation equipments. These are maintained within acceptable limits.
6.5	From construction or operational traffic	Yes	Noise will be generated from coal transportation.
6.6	From lighting or cooling systems	No	Not applicable
6.7	From any other sources	No	Not applicable

7. Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:

Sl. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials	Yes	Hazardous materials like spent oil soaked filters, old batteries are disposed off as per the existing Rules & Guidelines of Hazardous Waste (Management & Handling) Rules, 2003 and sent to stores for disposal through authorized agents.
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	Yes	Total Suspended Solid (TSS) in the mine water is being taken care in settling ponds and in mine sumps. The workshop effluent is also treated and treated effluent reutilized.
7.3	By deposition of pollutants emitted to air into the land or into water	No	Release of pollutants mainly dust is kept within permissible limit.

7.4	From any other sources	No	
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	

8. Risk of accidents during construction or operation of the Project, which could affect human health or the environment:

Sl. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances	Yes	Storage, transportation & handling of explosive and POL may lead to explosions, spillages, fires etc. Safety measures stipulated by DGMS are followed.
8.2	From any other causes	Yes	Open Cast Projects 1. Slope failure in OB dump. 2. Slope failure in mine pit. 3. Blasting operations. 4. Explosives Handling. 5. Fire dealing UG Projects 1) Inundation 2) Mine fire 3) Mine Explosion 4) Strata Control Precautions are taken as per CMR, 1957 and guidelines and circulars issued by DGMS from time to time.
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?	Yes	The cluster is falling within the seismically active Zone-III.

9. Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality:

Sl. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
9.1	Lead to development of supporting facilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: • Supporting infrastructure (roads, power supply, waste or waste water treatment,	Yes	Economic growth associated with coal mining activity leads to semi urban like development. This supports development of ancillary and supporting industries and other related activities. Housing, roads, power supply, water supply & other community facility improved. Housing facility with market and basic amenities

	etc.) • housing development • extractive industries • supply industries • other		is existing. Ancillary & supply industries have developed which in turn generated employment indirectly and lead to growth in income generation.
9.2	Lead to after-use of the site, which could have an impact on the environment	Yes	Some of the activity enumerated in 9.1 above could assume permanent residency with appropriate facilities. Community development like health care facilities, educations facilities & Self Employment Scheme will improve the quality of life. Beyond this, physically and biologically reclaimed land would undergo transformation over time which would have positive impact on environment.
9.3	Set a precedent for later developments	Yes	Activities at 9.1 & 9.2 above do culminate in conjunction with local set up and in a number of cases has set precedence of economic development leading to overall socio-economic growth of the area.
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	Yes	Coal occurs in layers continuously for long distances. Associated mining activity with numerous such closely located centers as indicated at 9.1, 9.2 and 9.3 along with other activities could have cumulative impact.

(III) Environmental Sensitivity

Sl. No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Yes	▪ Brindawanpur, Reserve forest is 14.5 Kms away. ▪ Myrakuli, Reserve forest is 12.5 Kms away. ▪ Topchachi Reserve Forest is 9.0 Kms away. ▪ Dangi Reserve Forest : 8.5 Km. away ▪ Bhuski Protected Forest – 11.5 Km. away (Source Topo sheet no: 73 I/2, 73 I/6)
2	Areas which are important or sensitive for ecological reasons -Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Yes	River Damodar: 7.0 km. Kari jore passes through the Cluster-VIII. (Source Topo sheet no: 73 I/2, 73 I/6)

3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	No	---
4	Inland, coastal, marine or underground waters	No	---
5	State, National boundaries	No	---
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	Yes	NH-02 – 9.0 km NH-32 – 1.5 km. (Source Topo sheet no: 73 I/2, 73 I/6)
7	Defense installations	No	
8	Densely populated or built-up area	Yes	Katrasgarh – 12.5 km. Dhanbad – 1 km. Jharia – 0.5 km. Saharpura – 7 km. (Source Topo sheet no: 73 I/2, 73 I/6, 73 I/10)
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Yes	Hospitals, Schools, Places of warship, Community facilities exist in general in the above towns.
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	No	---
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	No	---
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	No	---

Date: 13.09.2017
Place: Dhanbad

13/9/17

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