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**FORM-I
&
SUMMARISED DATA OF REVISED FEASIBILITY REPORT
For
ARGADA OCP**

Project	Capacity (MTPA)		Lease Area (Ha)
	Normative	Peak	
Argada OCP	1.70	1.70 + 30%	308.23

**(Argada Area)
Central Coalfields Limited
(April, 2012)**

**Prepared at
Regional Institute – III
Central Mine Planning & Design Institute Ltd.
(A Subsidiary of Coal India Ltd.)
Gondwana Place, Kanke Road
Ranchi-834008, Jharkhand**

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For
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Argada OCP	1.70	2.20	308.23

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Form-1 for Argada OCP (1.70/2.20 MTPA)
Argada Area, Central Coalfields Limited

FORM-I

(I) Basic Information

1	Name of the project	Argada OCP (1.70 MTPA normative capacity & 2.20 MTPA peak capacity, Argada Area, Central Coalfields Limited. The Revised Feasibility Report has been approved in principal for Departmental option of coal production & OB generation.
	Salient Features	<p>Argada Block lies on the south eastern corner of South Karanpura Coalfield. The area of the block is about 4.6 Sq. Kms. It is found in Survey of India Toposheet Map 73E/6. The co-ordinates and adjoining blocks are :</p> <p>Co-ordinates: Latitude – 23°38'00" : 23°45'00"(N) Longitude – 85°27'00" : 85°29'00"(E)</p> <p>Adjoining blocks: West - Maurya South West - Sirka North, South & East – Metamorphics</p> <p>Out of 4.6 Sq. Km, only 1.17 Sq. Km is opencastable.</p> <p>Argada geological block has revealed 19 seams. These seams are Argada 'B', Argada 'C', Argada 'D', Argada 'E', Argada 'F', Argada 'G', Argada 'H', Argada 'I', Argada 'J', Argada 'K', Argada 'L', Argada 'M', Argada 'N', Argada 'O', Argada 'P', Argada 'Q', Argada 'R', Argada 'S', and Argada 'T'. Besides these seams there are a few more seams which are locally developed and mostly carbonaceous shale in nature. The Argada 'A' seam had already been quarried even before exploration by NDCDC. Some of the seams viz. seams B,I,J,K,M,N and S are being/have been mined by underground method.</p> <p>Lay and disposition of coal seams, surface constraints etc. indicate that the entire net geological reserves of the block are not readily available for mining by opencast method at this point of time. To start with, opencast mining has been planned in the virgin area of Argada Block in the east of the property, thus avoiding interference with existing/abandoned underground workings. A net geological reserves of 30.85 Mt has been envisaged to be extracted by opencast from the Argada block.</p> <p>The project will sustain a mine life for a period of 21 years of mining operations. Including construction</p>

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		period of 2 years the life of the mine is 23 years. Source of data:- Revised Feasibility Report & Information collected from CCL.
2	S. 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	Proposed Capacity – 1.70 MTPA normative capacity & 2.20 MTPA peak capacity for mine. Land Requirement – 308.23 Ha. (Tenancy land – 131.53 Ha. Forest land – 176.70 Ha.). This includes 130.00 Ha for external OB dumping. Out of the proposed 308.23 Ha of land required for the project, 181.53 Ha. of land lies within Argada Block area (562.24 Ha) and remaining 126.70 Ha of land required for external dump lies outside Argada Block area. Refer Plate - III Mineable Reserves – 30.85 MT (from seam E to seam S). Seams Argada B, C & D do not occur within the quarry area. Reserves of seam Argada G amounting 0.01 Mt has not been considered as its thickness is very less. Total no. of Bore holes – 125 Source of data:- Revised Feasibility Report & Information collected from CCL.
4	New / Expansion / Modernization	New
5	Existing Capacity/Area etc	Nil
6	Category of Project. i.e 'A' or 'B'	A
7	Does it attract the general condition? If yes, Please specify	No
8	Does it attract the specific condition? If yes, Please specify	No
9	Location	Refer Plate – I(a) & I(b).
	Plot / Survey / Khasra No	Name of Mouza : Argada
	Village	Argada
	Tehsil	Ramgarh
	District	Ramgarh
	State	Jharkhand
10	Nearest railway station / airport along with distance in kms.	Argada Railway Station at a distance of 0.8 km from the Project. Ranchi Airport 55 Km. Source of data:- Revised Feasibility Report & Information collected from CCL.

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11	Nearest Town, city, District Headquarters along with distance in kms.	Nearest Town - Ramgarh Nearest City - Ramgarh District Headquarters - Ramgarh
12	Village Panchayats Zilla Parishad Municipal Corporation, Local body (complete postal Addresses with telephone nos. to be given)	Village Panchayat- Argada CD Block- Ramgarh District- Ramgarh, Jharkhand.
13	Name of the applicant	General Manager (Mining)/ Project Officer, Argada OCP, Central Coalfields Limited.
14	Registered Address	Argada Area, Central Coalfields Limited, PO- Sirka, Dist- Ramgarh, Jharkhand. PIN- 829101 Phone- 06553-266244
15	Address for correspondence:	
	Name	PK Sinha
	Designation (Owner / Partner / CEO)	General Manager (Env & Forest),
	Address	Central Coalfields Limited, Darbhanga House, PO- Ranchi, Dist- Ranchi, Jharkhand.
	Pin Code	834001
	E-mail	hodenf@ccl.gov.in
	Telephone No.	0651-2360184
	Fax No.	0651-2360010
16	Details of Alternative Sites examined, if any. Location of these sites should be shown on a toposheet	Not Applicable. Coal mining project is site specific depending on favourable geo-mining conditions. Reserve proving operations have been completed and Revised Feasibility report of Argada OCP has been prepared. No alternative site has been considered for mine.
17	Interlinked Projects	Nil
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	

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	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	No
23	Forest land involved (hectares)	176.70 Ha.
24	Whether there is any litigation pending against the project and/or land in which the project is proposed to be set up? (a) Name of the Court (b) Case No. (c) Orders / directions of the Court, if any, and its relevance with the proposed project	No

(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.)

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.1	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)	Yes	Change in the land use due to mining operation & infrastructure development.

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1.2	Clearance of existing land, vegetation and buildings?	Yes	In view of setting up of proposed mine, adjoining infrastructure, clearance of existing land, vegetation and buildings is expected.
1.3	Creation of new land uses?	Yes	Proposed mining activity and infrastructure development will create new land uses.
1.4	Pre-construction investigations e.g. bore houses, soil testing?	Yes	Soil testing will be done at the time of detailed design.
1.5	Construction works?	Yes	Construction of Coal Handling Plant, field workshop, Sub-station, statutory buildings, etc is proposed. Provision for 7.5 km. long approach road to project has been made. Provision for haul road of length 6.0 km has been made for 60 T dumpers with 5 m dozer track. Source of data:- Revised Feasibility Report & Information collected from CCL.
1.6	Demolition works?	Yes	Clearance of existing land, vegetation and buildings is expected.
1.7	Temporary sites used for construction works or housing of construction workers?	No	The existing infrastructure is sufficient for this purpose. Source of data:- Revised Feasibility Report & Information collected from CCL.
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations	Yes	Construction of Coal Handling Plant, field workshops, Sub-station, statutory buildings, roads etc is proposed. Excavation will be done during mining activities. Source of data:- Revised Feasibility Report & Information collected from CCL.
1.9	Underground works including mining or tunneling?	No	Not applicable
1.10	Reclamation works?	Yes	Land reclamation of external dumping followed by biological reclamation.
1.11	Dredging?	No	Not applicable.
1.12	Offshore structures?	No	Not applicable.
1.13	Production and manufacturing processes?	Yes	Coal production by opencast method using shovel-dumper combination.
1.14	Facilities for storage of goods or materials?	Yes	Storage facility of total 1000 te capacity (5x200) in over head hoppers has been provided. Facility of ground stock for crushed coal has also been envisaged in case the hoppers are filled. A small store is provided for storing the spares and consumables required for repair and maintenance of HEMM

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			and other mining equipment. Source of data:- Revised Feasibility Report & Information collected from CCL.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	<p>Solid wastes that will be generated in course of coal mining are overburden material consisting of fragments of sandstone/shale of assorted size. They have not been found to generate acid mine drainage or leach high quantity of heavy metals.</p> <p>Total volume of OB to be generated is 57.73 Mcum which has been proposed to be dumped externally. Refer Plate-II for final stage dump plan.</p> <p>The mine water is proposed to be treated in sedimentation pond and workshop effluent is proposed to be treated in O&G trap.</p> <p>Garland drains are proposed around mine pit and external dump. The water from garland drains will be routed through sedimentation pond.</p> <p>Source of data:- Revised Feasibility Report & Information collected from CCL.</p>
1.16	Facilities for long term housing of operational workers?	Yes	The existing infrastructure is sufficient for this purpose.
1.17	New road, rail or sea traffic during construction or operation?	Yes	<p>Provision for 7.5 km. long approach road to project has been made. Provision for haul road of length 6.0 km has been made for 60 T dumpers with 5 m dozer track.</p> <p>Source of data:- Revised Feasibility Report & Information collected from CCL.</p>
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	Yes	As above.
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	Not Applicable

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1.20	New or diverted transmission lines or pipelines?	No	Not Applicable
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No	Not Applicable
1.22	Stream crossings?	No	Not Applicable
1.23	Abstraction or transfers of water from ground or surface waters?	Yes	<p>In the opencast mine, the different aquifers overlying the working coal seam would be contributing ground water to the mine by gravity drainage since they are exposed/removed at the mine. As such due to this pumping/gravity drainage, cone of depression would be formed.</p> <p>Mine induced effect would be distinctly noticed within a distance of 300-400 m from the mine edge in the down-dip side and becomes milder/insignificant thereafter.</p> <p>Source of data:- Revised Feasibility Report & Information collected from CCL.</p>
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	Yes	<p>A local change in ground topography will be created due to mining operation such as open pit, dumps of overburden and coal etc. As a result, there would be change in the drainage and surface run-off.</p> <p>Within the core zone, cracks and loosening of soils would be resulted due to mining and associated activities thereby physical/textural changes would occur in soil/formation. This mine induced process increases the rate of infiltration and recharge. The back-filled area may be a good media for high groundwater recharge due to high permeability. Further, the final void would store substantial quantity of rainwater, which can be utilised for domestic and agriculture use and also for recharging the groundwater source. It may be appropriate to highlight the fact that temporary groundwater loss/deficit created during active mining stage would be</p>

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			compensated by these different means in the post mining stage so that the initial groundwater levels are regained to normalcy at the earliest for utilization of the local population.
1.25	Transport of personnel or materials for construction, operation or decommissioning?	Yes	There will be movement of mining workers and other personnel. Total manpower strength at the targeted output will be 574. Personnel will be commuting between colony and the mine by different modes of road transport in the shifts. The total production of Argada OCP has been proposed as 1.70 MTY. The Coal Handling Plant has been designed to handle total coal production of the mine. Crushed coal from hoppers will be loaded into the trucks for onward transportation to existing Gidi Washery. Source of data:- Revised Feasibility Report & Information collected from CCL.
1.26	Long-term dismantling or decommissioning or restoration works?	Yes	The closure activities form an integral part of mine. The residential quarters along with dispensary, sub-stations, pump house, filtration plant for providing basic amenities to workers will be maintained till the employees are required to stay. Service buildings namely, coal handling arrangement, workshop, store, office building etc will be demolished, if redundant, after mine closure and all useable items will be shifted to area store. When a residential building is vacated, the same will be demolished to prevent any unauthorized occupation.
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	Yes	Solid waste generated during demolition of service and residential buildings after cessation of industrial activity will have an impact on the environment. Care will be taken to dump the solid waste in mine voids.
1.28	Influx of people to an area in either temporarily or permanently?	Yes	Influx of people will take place due to direct and indirect employment opportunities. This will continue throughout the life of the mine.
1.29	Introduction of alien species?	No	Not applicable.
1.30	Loss of native species or genetic diversity?	No	Not applicable.

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1.31	Any other actions?	No	Not applicable.
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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):

S.No.	Information/checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
2.1	Land especially undeveloped or agricultural land (ha)	Yes	Total land requirement for Argada OCP has been estimated as 308.23 Ha. Requirement of forest land is 176.70 Ha. Source of data:- Revised Feasibility Report & Information collected from CCL.
2.2	Water (expected source & competing users) unit: KLD	Yes	The existing raw water drawal arrangement from mine as well as WTP shall be used for the proposed OCP. Source of data:- Revised Feasibility Report & Information collected from CCL.
2.3	Minerals (MT)	No	Not Applicable
2.4	Construction material, stone, aggregates and soil (expected source – MT)	Yes	Construction material for roads, culverts and service buildings is required.
2.5	Forests and timber (source – MT)	No	Not Applicable
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)	Yes	132/33 kV, Naisarai substation of DVC is the source of power for the mines in the area. Two numbers 33 kV OHTL feeders originating from Naisarai substation feeds power to Giddi substation of CCL. Sirka 33/11 kV substation of CCL received power from both the above mentioned 33 kV overhead line feeders. Sirka substation of CCL is located adjacent to Argada GM office and around 4 km away from the project under consideration. Further, it is proposed to construct a 11/3.3 kV substation near the proposed workshop to meet the power requirement of proposed Argada OCP. This proposed substation will receive power at 11 kV from Sirka 33/11 kV

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			substation through one no 11 kV overhead line. Source of data:- Revised Feasibility Report & Information collected from CCL.
2.7	Any other natural resources (use appropriate standard units)	No	Not Applicable

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.

S.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	Not Applicable.
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):

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
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4.1	Spoil, overburden or mine wastes	Yes	<p>Solid wastes that will be generated in course of coal mining are overburden material consisting of fragments of sandstone/shale of assorted size. They have not been found to generate acid mine drainage or leach high quantity of heavy metals.</p> <p>Total volume of OB to be generated is 57.73 Mcum which has been proposed to be dumped externally.</p> <p>The total production of Argada OCP has been proposed as 1.70 MTY. The Coal Handling Plant has been designed to handle total coal production of the mine. Crushed coal from hoppers will be loaded into the trucks for onward transportation to Gidi Washery. Source of data:- Revised Feasibility Report & Information collected from CCL.</p>
4.2	Municipal waste (domestic and or commercial wastes)	Yes	<p>Industrial wastes from workshop and other industrial establishments would be led through oil & grease traps. The effluent coming out of the industrial premises is proposed to be treated and led to the settling tank and to be recycled for various industrial uses for this project. The domestic sewage generated in industrial premise has been considered to be dealt through sewerage disposal system. Source of data:- Revised Feasibility Report & Information collected from CCL.</p>
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	Yes	<p>Old batteries and used engine oil will be generated. These shall be recycled through authorized recycling agents.</p>
4.4	Other industrial process wastes	No	Not applicable
4.5	Surplus product	No	Not applicable
4.6	Sewage sludge or other sludge from effluent treatment	Yes	<p>An insignificant quantity of clayey sludge from effluent settling may be produced which will be backfilled.</p>
4.7	Construction or demolition wastes	Yes	<p>Solid waste will be generated from demolition of residential quarters and redundant infrastructure at the time of final mine closure. The waste so generated will be backfilled in the de-coaled areas.</p>

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4.8	Redundant machinery or equipment	Yes	Old equipment and machinery will become redundant after the end of useful life and will be surveyed off and sold as scrap.
4.9	Contaminated soils or other materials	No	Not applicable
4.10	Agricultural wastes	No	Not applicable
4.11	Other solid wastes	No	Not applicable

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

S.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	No	Not applicable
5.2	Emissions from production processes	Yes	Dust emissions from drilling, blasting, loading, unloading and transportation of coal and OB (to be quantified in the EIA as per TOR).
5.3	Emissions from materials handling including storage or transport	Yes	Dust emissions from coal storage, handling and transportation upto Gidi Washery will take place. Adequate measures shall be taken for dust suppression to mitigate the impacts.
5.4	Emissions from construction activities including plant and equipment	Yes	Adequate measures shall be taken to mitigate the impacts due to dust emission during construction activity of project infrastructure.
5.5	Dust or odours from handling of materials including construction materials, sewage and waste	Yes	Dust will be generated from handling of materials including construction materials and solid waste.
5.6	Emissions from incineration of waste	No	Not applicable
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	Not applicable

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5.8	Emissions from any other sources	No	Not applicable
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6. Generation of Noise and Vibration, and Emissions of Light and Heat:

S.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	Noise will be generated during operation of HEMM, CHP. Suitable measures of noise control will be adopted. Ambient noise level outside the lease area is not likely to exceed the permissible limit of 55 dBA during day-time and 45 dBA during night-time. (Source- CMPDI)
6.2	From industrial or similar processes	Yes	Noise will be produced during drilling and blasting.
6.3	From construction or demolition	Yes	The noise level is likely to be well within specified limit.
6.4	From blasting or piling	Yes	Controlled blasting as per DGMS statutes will be practiced. (Source- Revised Feasibility Report)
6.5	From construction or operational traffic	Yes	From construction material, Coal and OB transportation. The quantum is measured through regular monitoring and is likely to remain within permissible limits.(Source-Revised Feasibility Report)
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:

S.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	No	Not applicable

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	hazardous materials		
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	No	No contamination expected as domestic sewage and mine effluent will be properly treated before discharge into local drainage.
7.3	By deposition of pollutants emitted to air into the land or into water	No	Control measures like spraying at all dust generating points is adopted. In view of this, fugitive dust emission into air is expected to be insignificant.
7.4	From any other sources	No	Not applicable
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	Not applicable

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

S.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	The magazine house for storage of explosives and components of SMS is maintained as per the terms and conditions of the Explosive License. In view of this, accident leading to fire or explosion is not likely. The magazine house is fenced-off and guarded round the clock from safety point of view.
8.2	From any other causes	Yes	1) Slope failure in OB Dump and mine Pit 2) Mine Inundation 3) Blasting 4) Fire in coal or shale dump
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?	No	The project does not fall under seismically active zone or landslide prone area. Apart from safety measures, the mine is equipped to deal with any eventuality.

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:

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S. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
9.1	<p>Lead to development of supporting facilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.:</p> <ul style="list-style-type: none"> • Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.) • housing development • extractive industries • supply industries • other 	Yes	<p>Supporting infrastructure facilities of the mine will come up. This will impact the local land use pattern.</p> <p>However, socio-economic growth associated with mining activity will lead to semi-urbanisation. This will support development of ancillaries and other related activities.</p>
9.2	Lead to after-use of the site, which could have an impact on the environment	Yes	Some of the activities mentioned at 9.1 above could assume permanent residency with appropriate feed sustained growth mechanism.
9.3	Set a precedent for later developments	Yes	<p>The proposed mine infrastructure may be used in future also by other nearby projects after exhaustion of the reserves of Argada OCP. As such, the likelihood of precedence for later developments cannot be ruled out.</p> <p>Activities at 9.1 & 9.2 above will lead to over all socio economic growth of the area. Socio-economic benefits of the Project will accrue to local population also.</p>
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	Yes	As South Karanpura Coalfield covers a large area having very good mining potential, associated mining activities in future with numerous closely located centers as indicated at 9.1, 9.2 and 9.3 along with other activities like coal beneficiation and power generation etc can not be ruled out. This could lead to cumulative impact on environment.



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(III) Environmental Sensitivity

S. 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	None	Not applicable
2	Areas which are important or sensitive for ecological reasons -Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	None	Not applicable
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	None	Not applicable
4	Inland, coastal, marine or underground waters	None	Not applicable
5	State, National boundaries	None	Not applicable
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	None	Not applicable
7	Defence installations	None	Not applicable
8	Densely populated or built-up area	None	Not applicable
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	None	Not applicable

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10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	None	Not applicable
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	None	Not applicable
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)	None	Not applicable

(IV). Proposed Terms of Reference for EIA studies

1. Location map showing Project and Area boundary along-with major surface features like road, rail line, surface water bodies, pits, washery etc.
2. The buffer zone will comprise of 10 km zone around the mine lease area.
3. Present land use of core zone and buffer zone.
4. Authenticated list of flora and fauna in the core and buffer zones.
5. A site plan showing the areas ear-marked for various components of the Project.
6. Justification for selection of mining technology proposed for this Project.
7. Description of the present environmental scenario based on one –season (non-monsoon) primary base-line data on Ambient Air Quality (SPM, RPM, PM2.5, SO₂, NO_x), Water Quality, Noise Level, Soil Characteristics, Flora & Fauna.
8. Details of Chapri village to be affected by mining activity and R&R action plan for 35 PAFs.
9. Detailed Hydro-geological study to study the impact of the proposed mining activity on ground water resources.
10. Water balance study showing the impact of mine-pumping of ground water and its discharge into surface water bodies.
11. Prediction of impact on different components of environment inter-alia
 - i) Air including noise
 - ii) Water
 - iii) Soil
 - iv) Flora & Fauna
 - v) Socio-economic scenario

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Argada Area, Central Coalfields Limited

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12. Impact due to blasting, noise and vibration, solid waste management & washery operation.
 13. Conceptual post-mining land-use and reclamation and rehabilitation of mined-out area (with plans and sections) and comparison between land-use during mining and post-mining.
 14. Progressive green-belt development plan.
 15. Environmental management plan for mitigation of impacts.
 16. Detail of health-care facilities available for local population.
 17. Safety and risk-analysis study.
 18. Details (including video-graphy of the proceedings) of Public-hearing and issues raised by the public.
 19. Description of the technology used for mining and allied activities.
 20. Details of the coal handling and transportation.
 21. Brief description of profiles of various agencies involved in the preparation of the EIA/EMP report.
 22. Status of Forestry Clearance, Project Approval of CCL Board.
 23. The generic structure suggested in EIA Notification, 2006 will be followed for preparation of EIA/EMP document.

I hereby give the undertaking that the data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance given, if any, to the project will be revoked at our risk and cost.

Signature of the applicant with full name, official
seal & address

General Manager (Mining)/ Project Officer
Argada OCP, Argada Area,
Central Coalfields Limited
PO Sirka, Dist Ramgarh, Jharkhand
PIN- 829101

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Argada Area, Central Coalfields Limited

SUMMARISED DATA

SI. No.	Particulars	Unit	Value		
A.	GENERAL				
1	Name of Project		Revised Feasibility Report for Argada OCP, CCL		
2	Name of Area / Company		Central Coalfields Ltd.		
3	Nearest Railway Station from project	Name km	Argada Rly Stn. 0.8		
4	Nearest National / State Highway / Approach road	Name km	NH-33 7		
B.	GEOLOGICAL				
1	Name of geological blocks considered	Name	ARGADA BLOCK		
2	Area of the geological blocks	sq. km	4.6		
3	Borehole Density within blocks	BHs / sq.km	27		
4	Description of all coal seams within block				
Stratigraphic Sequence	Thickness (m)		No. of borehole intersections as per MECL report	Geological Reserves (Mt)	Remarks
	Min.	Max.			
ARGADA B	0.77	3.93	5	3.83	GR MECL-1990
Parting	6.30	18.40	5		
ARGADA C	0.62	3.00	6	1.61	-do-
Parting	15.92	28.00	5		
ARGADA D	2.29	3.79	10	4.24	-do-
Parting	3.04	9.65	10		
ARGADA E	0.47	2.51	10	2.11	-do-
Parting	13.79	26.60	9		
ARGADA F	0.27	1.93	10	2.72	-do-
Parting	13.20	30.20	7		
ARGADA G	0.17	2.13	10	3.08	-do-
Parting	13.2	35.99	9		
ARGADA H	0.7	3.87	14	5.21	-do-
Parting	38.91	59.27	13		
ARGADA I	0.8	5.25	17	9.40	-do-
Parting	5.38	17.00	16		
ARGADA J	1.4	4.78	17	9.91	-do-
Parting	8.83	26.75	16		

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ARGADA K	1.05	3.74	17	8.14	-do-
Parting	26.10	70.10	5		
ARGADA L	0.89	6.84	6	4.56* (* Quarriable Reserves at 1:2 Coal:OB Ratio)	GR Quarriable reserves (Naditoli seams)- 1974
Parting	3.5	25.10	5		
Stratigraphic Sequence	Thickness (m)		No. of borehole intersections as per MECL report	Geological Reserves (Mt)	Remarks
	Min.	Max.			
ARGADA M	1.52	10.68	7	42.12	GR NCDC-1965
Parting	0.65	6.00	5		
ARGADA N	3.56	14.17	5	48.06	GR NCDC-1965
Parting	3.69	19.99	4		
ARGADA O	4.49	26.29	5	50.73	GR NCDC-1965
Parting	0.81	14.29	5		
ARGADA P	1.52	9.75	5	4.48* (*reserves in part of the Block only)	GR MECL-1990
Parting	1.20	11.33	5		
ARGADA Q	0.94	7.15	5	2.78* (*reserves in part of the Block only)	GR MECL-1990
Parting	2.76	47.50	5		
ARGADA R	1.1	15.43	5	3.82* (*reserves in part of the Block only)	GR MECL-1990
Parting	2.58	43.99	4		
ARGADA S	0.58	15.82	4	18.33	GR NCDC-1965
Parting	9.59	16.26	2		
ARGADA T	0.62	3.10	3	5.96	GR NCDC-1965
Total				231.09	
Sl. No.	Particulars		Unit	Value	
C.	TECHNICAL				
1	Area of the proposed mine block (with		sq. km	3.08	

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Argada Area, Central Coalfields Limited

break-up of different geological blocks)			(of which 1.82 sq.km. lies within Argada Block Boundary)		
2	Borehole density within mine area	BHs/sq. km	29		
3	Mine parameters <ul style="list-style-type: none"> • Length along Strike <ul style="list-style-type: none"> - along mine floor - along mine surface • Width along Dip <ul style="list-style-type: none"> - along mine floor - along mine surface 	m m m m	1780 1790 635 940		
4	Description of coal seams proposed to be worked along with the parting details				
<i>Name of seam</i>	<i>Thickness range considered (m)</i>	<i>Av./usual Thickness / Parting Thickness (m)</i>	<i>Av. Grade (UHV/ GCV)</i>	<i>Av. Gradient</i>	<i>Mineable Reserves (Mt)</i>
<i>Top OB</i>	5-10	10.00			
<i>Argada E</i>	0.5-1.27	1.18	D	1 in 8	0.01
<i>Parting</i>	14-16	15			
<i>Argada F</i>	0.5-1.65	1.53	D	1 in 8	0.06
<i>Parting</i>	35-38	36			
<i>Argada H</i>	1.11-2.99	1.56	E	1 in 4	0.26
<i>Parting</i>	40.21-47.95	44.00			
<i>Argada I</i>	2.27-3.63	2.24	E	1 in 2.8	0.75
<i>Parting</i>	4.41-6.12	5.00			
<i>Argada J</i>	1.87-1.99	1.7	D	1 in 2.75	0.63
<i>Parting</i>	25.74-30.41	27.00			
<i>Argada K</i>	0.61-2.91	1.76	E	1 in 2.75	0.88
<i>Parting</i>	33.36-39.61	35.00			
<i>Argada L</i>	2.21-6.84	4.12	G	1 in 2.5	3.09

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Parting	3.5-11.78	6.00						
Argada M	5.15-9.53	6.94	E	1 in 2.6				5.80
Parting	2.39-6.00	4.00						
Argada N	8.08-12.13	8.12	E	1 in 2.6				7.57
Parting	3.69-6.96	6.00						
Argada O	4.49-21.00	12.00	D	1 in 2.6				10.11
Parting	2.38-14.71	8.00						
Argada P	1.52-9.75	4.88	-	1 in 2.1				0.38
Parting	3-11.33	7.50						
Argada Q	0.94-4.73	2.63	-	1 in 2.1				0.23
Parting	25.43-47.5	40.00						
Argada R	1.2-7.52	3.52	-	1 in 2.1				0.67
Parting	7.28-43.99	15.00						
Argada S	0.58-6.7	2.56	C	1 in 2.2				0.41
Total Coal in Mt.					30.85			
Total OB in Mcum					57.73			
Av. Stripping Ratio				m ³ /t	1.87			
6	Method of Mining			Opencast				
7	Target Output							
	Normative production capacity (at 100%)			Mt	1.70			
	Peak production capacity (at 130%)			Mt	2.21			
	Production capacity (at 85%)			Mt	1.45			
8	Year of achieving Target Production			Year 5 (Yr 5) of Production (7 th Year from zero date)				
9	Year of start of Internal Dumping			Not proposed				
10	Production Phasing (from zero date upto target year) Mty.							
Year / Coal Seam		C1	C2	Year 1	Year 2	Year 3	Year 4	Year 5 (Target year)
Coal		-	-	0.43	0.78	1.02	1.38	1.70
OB	Natural	-	-	1.12	2.85	3.54	4.09	4.17
	Adjusted			1.12	2.85	3.54	4.20	4.40
11	Total Mine Life			Years		23		
	Construction period			Years		02		
	Production build-up period			Years		04		
	Production period			Years		14		

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Argada Area, Central Coalfields Limited

Tapering period		Years	03			
12	Major HEMM deployed for Coal & OB					
	Excavator	Diesel Hyd. Shovel	5.5 - 6.5 Cum	02 Nos		
		Diesel Hyd. Back-hoe	4.3 - 5 cum	03 No.		
	Dumper		60 T	32 Nos		
	Drill	Electric RBH	160mm	05 Nos		
	Dozer	Crawler	410 hp	03 No.		
	Dozer with ripper	Crawler	410 hp	01 Nos		
	Dozer	Wheel	460 hp	02 Nos		
13	Total Manpower	Nos.	Departmental		Outsourcing	
			574		174	
14	Overall Output per Manshift (OMS)		Welfare Manpower			
			INCLU-SIVE	EXCL-USIVE	INCLU-SIVE	EXCLUSIVE
		t	11.21	13.04	37.00	51.51
15	Overall grade of coal considered	Overall grade E.				
17	Presence of Major Surface Constraints (nallas, road, power line, etc.)	(type)	Mines Board metallised road linking Giddi to Ramgarh, forest land, adjoining villages & area for external OB dumping, lower seams not proven.			
18	Coal Transport within the mine (In-pit belt conveying system or by Truck)		By Dump Truck.			
19	Surface Coal Transport to Siding/Dispatch Point and Mode of Dispatch		By Road from Argada CHP to Gidi Washery.			
20	Any Railway Siding/Washery and distance		Existing Gidi washery at an approx. distance of 12 km from Argada CHP is proposed for coal washing.			
21	Name of any Specific Customer/Industry		Likely to be basket linked to existing Power Houses after washing at Gidi Washery.			

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D.	ENVIRONMENTAL & OTHERS		Departmental	Outsourcing
1	Civil Construction Residential houses Housing satisfaction	Nos. %	315 54.9 (Existing Colony to be used)	95 54.6 (Existing Colony to be used)
2	Water Demand Colony Industrial	MGD MGD	0.10 0.09	0.03 0.09
3	Total Land to be acquired Government land Tenancy land Forest land	Ha Ha Ha Ha	308.23 -- 131.53 176.70	
4	Land to be acquired within minetake area (excavation area) Government land Tenancy land Forest land	Ha Ha Ha Ha	117.20 -- 34.64 82.56	
5	Land to be acquired outside minetake area (Beyond Excavation Area, such as Mine periphery, Approach Road, Infrastructure, Colony, etc.) Government land Tenancy land Forest land	Ha Ha Ha Ha	61.03 -- 44.89 16.14	
6	Land to be acquired for external dumping Government land Tenancy land Forest land	Ha Ha Ha Ha	130.00 -- 52.0 78.0	
7	Net Present Value of Forest Land Total Area Total Value	Rs.Lakhs/Ha Ha Rs.Lakhs	9.00 176.70 1590.30	
8	Habitation & Rehabilitation No. of villages within mine boundary No. of land oustees Tentative no. of PAFs to be rehabilitated	Nos. Nos. Nos.	1 170 35	

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9	Cost of land & Rehabilitation			
	Total Cost	Rs. Crores	36.75	
	R&R only	Rs. crores	5.69	
10	Total EMP Capital	Rs. crores	32.73	
11	Maximum daily rainfall	mm	156	
12	Make of Water	Cu.m/day	129905(Max)	
13	Peak pumping capacity requirement	m ³ / hour	1083 (300lps)	
14	Drainage of the Area (Name of river/nala)		Natural Nala joining Damodar River	
15	Any proposed diversion of nala or power line		Nil	
E.	FINANCIAL			
			Departmental	Outsourcing
1	Total Capital Investment	Rs. crores	232.92	92.10
2	Specific Investment	Rs. / tonne	1348.82	521.74
3	Total Capital Investment on P&M	Rs. crores	149.61	28.44
4	Specific Investment on P&M	Rs. / tonne	880.00	167.29
5	Capital requirement upto target year	Rs. crores	229.30	88.70
6	Year of opening of Revenue account (from zero date)		Yr1 (3 rd Year from zero date)	Yr1 (3 rd Year from zero date)
7	Earnings per man shift (EMS)	Rs.	1891.85	1944.05
8	Estimated Cost of Production			
	At 100% production level	Rs. / tonne	987.60	734.05
	At 85% production level	Rs. / tonne	1078.79	769.04
9	Estimated average selling price (based on coal washed at Gidi Washery)	Rs. / tonne	Washed Coal – 1689.24 Middlings/Slurry – 1223.00 Rejects – 927.00	
10	Estimated Profit			
	At 100% production level	Rs. / tonne	798.29	1160.51
	At 85% production level	Rs. / tonne	668.02	1110.52
11	Financial Internal rate of return (FIRR)			
	At 100% production level	%	33.17	72.47
	At 85% production level	%	25.00	40.46
12	Cost of Outsourcing (range)			
	OB	Rs/m ³	57.00 to 95.00	
	Coal	Rs/tonne	55.82 to 64.99	
13	Mine Closure Cost (for corpus fund)	Rs/t.	6.00	

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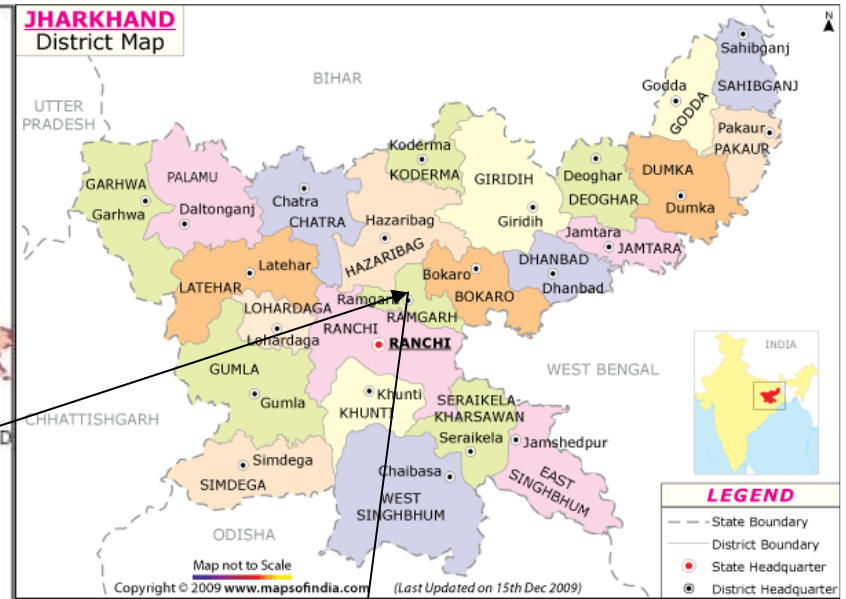


Plate-I(a)
Location Plan

LOCATION PLAN OF THE BLOCK

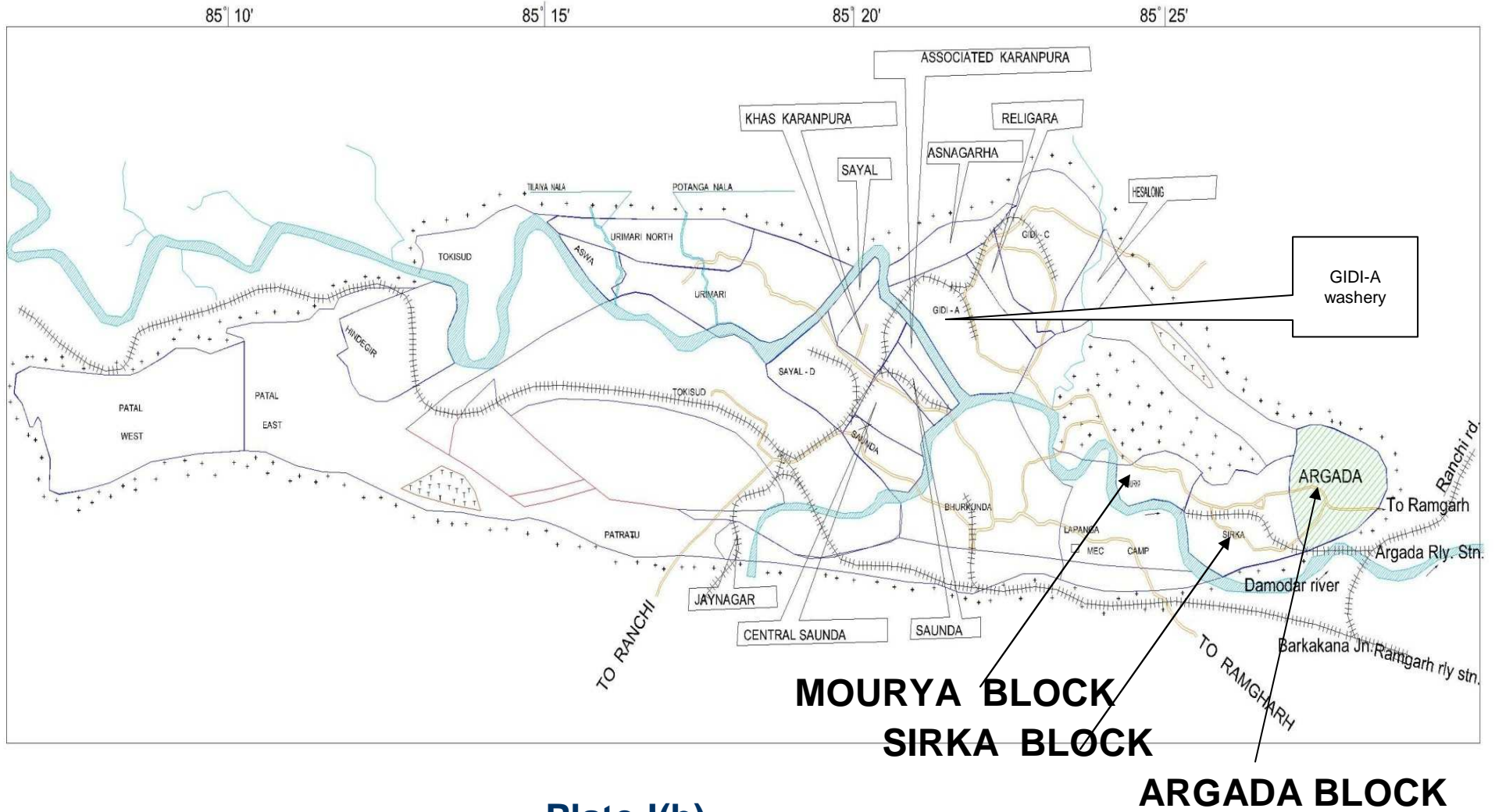


Plate-I(b)
Location Plan

Final Stage Dump & End of Mining Operations

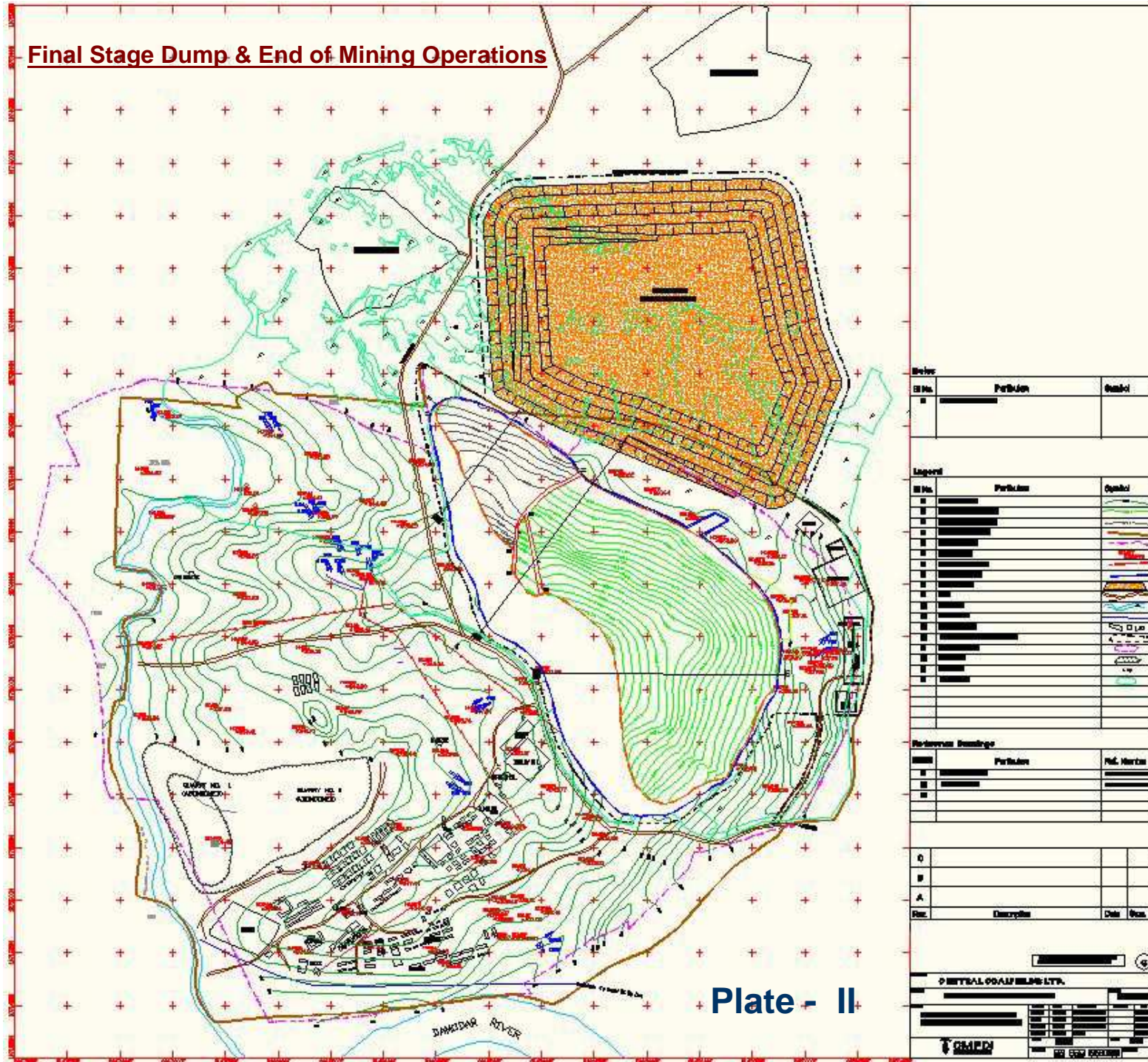


Plate - II

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