



एनटीपीसी लिमिटेड
(भारत सरकार का उद्यम)

NTPC Limited

(A Govt. of India Enterprise)

कोयला खनन परियोजनाएँ, हजारीबाग
Coal Mining Projects, Hazaribag

Date: 28.06.2024

Ref. No. NTPC/PB-NW/2024/261

To,

The Deputy Director General of Forests (C),

MoEF&CC, Integrated Regional Office,
2nd Floor, Headquarter Jharkhand State Housing Board
Harmu Chowk, Ranchi (Jharkhand) – 834002.
Email: ro.ranchi-mef@gov.in

Subject: Six monthly compliance report of conditions stipulated in Environment Clearance for the period October 2023 to March 2024 for NTPC Ltd. –North West Quarry of Pakri Barwadih opencast Coal Mine Project (3MTPA): Reg.

Reference: EC Letter No. EC/SEIAA/2023-24/2916/2023/309

Dear Sir,

With reference to above subject please find enclosed herewith the six-monthly compliance report of various conditions stipulated in the Environment Clearance accorded to NTPC Ltd. – North West Quarry of Pakri Barwadih opencast Coal Mine Project (3MTPA) for the period October 2023 to March 2024.

This is for your kind information please.

Thanking you,

Yours sincerely

Navin Kumar

(Navin Kumar)

नवीन कुमार / NAVIN KUMAR

एनटीपीसी लिमिटेड (एनटीपीसी लिमिटेड) / DGM (ENVL. MGMT.)

एनटीपीसी लिमिटेड / NTPC Limited

कोयला खनन परियोजनाएँ / COAL MINING PROJECTS

हजारीबाग / Hazaribag

Encl.: A/a

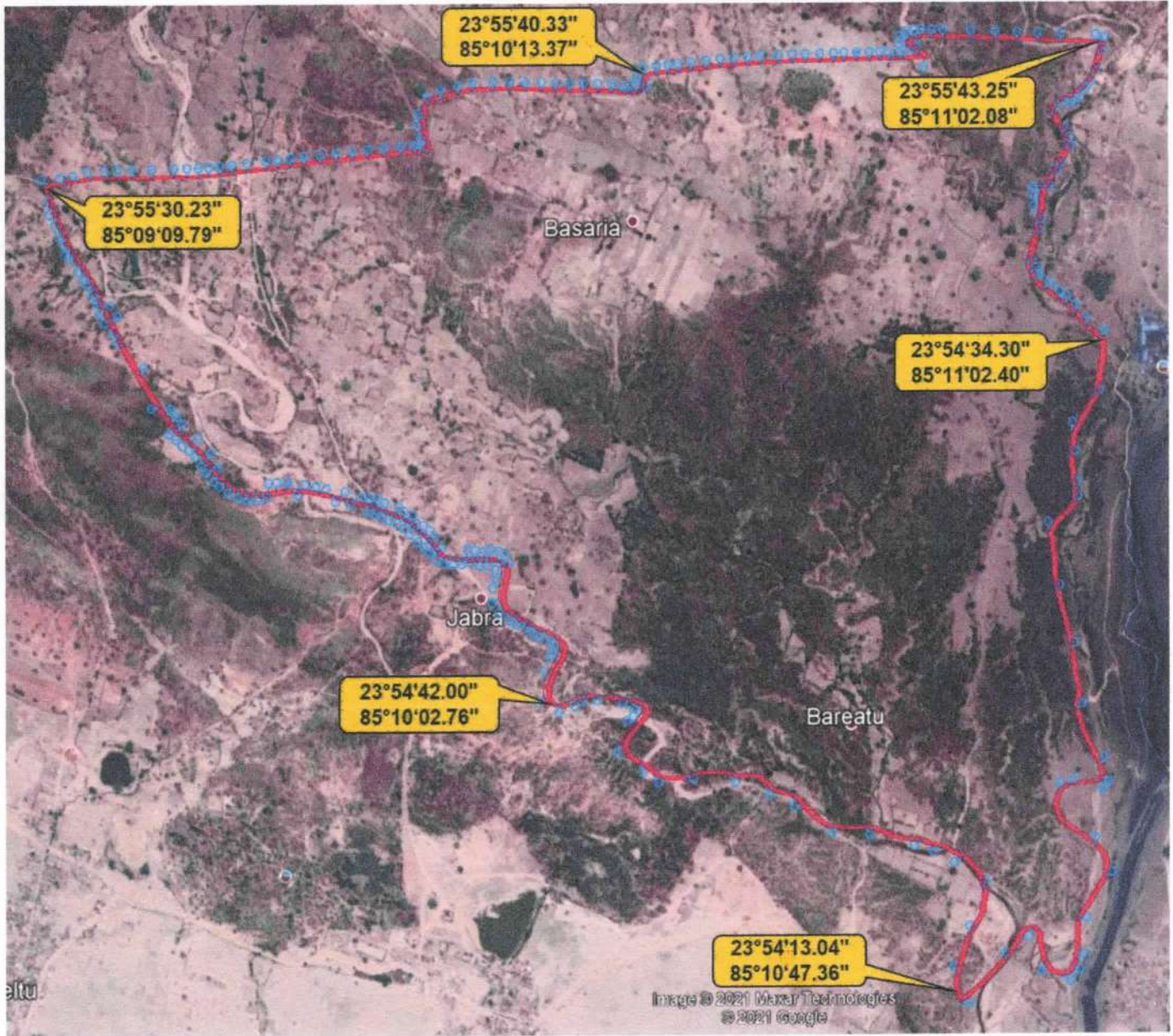
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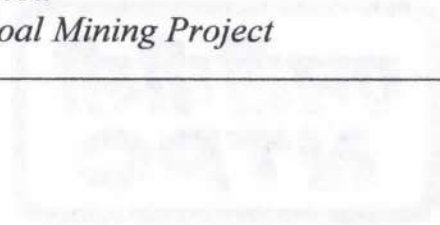
1. **Member Secretary**, SEIAA, Nursery Complex, Near Dhurwa Bus Stand, Dhurwa, Ranchi, Jharkhand – 834004.
2. **Sc. E & Regional Director, Kolkata**, Central Pollution Control Board, Southern Conclave, Block 502, 5th & 6th Floors, Rajdhanga Main Road, Kolkata-700107(W.B), Email: mkbisws.cpcb@nic.in
3. **Member Secretary**, Jharkhand State Pollution Control Board Ranchi-834004(Jharkhand), Email-ranchijspcb@gmail.com
4. **Regional Officer**, Jharkhand State Pollution Control Board, PTC Chowk, Hazaribag, Jharkhand. Email-jspcb_hazaribag@redifmail.com

कोयला खनन परियोजनाएँ, सिकरी साईट कार्यालय, बड़कागाँव, हजारीबाग – 825311
Coal Mining Projects, Sikri Site Office, Barkagaon, Hazaribag - 825311



Report Period:
October-2023
to
March-2024





Six Monthly EC Compliance Report



**COMPLIANCE STATUS OF ENVIRONMENTAL CLEARANCE
CONDITIONS**

Period: October–2023 to March–2024

EC Identification No.: EC23B001JH128665

File No. SEIAA/2023-24/2916/2023

Dated 11th October 2023



NTPC Ltd – PAKRI BARWADIH COAL MINING PROJECT

Sikri Site Office

PO: Barkagaon, Dist: Hazaribagh

Jharkhand – 825 311

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

ENVIRONMENT CLEARANCE OF PB NORTH WEST - COMPLIANCE OF CONDITIONS

Compliance of the conditions given in the Environment Clearance granted to NTPC for North-West Quarry of Pakri Barwadih Opencast Coal Mine of NTPC Ltd. by SEIAA vide its Ltr. No "EC/SEIAA/2023-24/2916/2023/309 dtd: 06.10.2023" in Hazaribagh district of Jharkhand.

S.No.	Conditions Stipulated in EC	Compliance status
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.	Noted. We shall abide by the said condition. At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project. a. All legal rights for opening the project has been obtained from respective regulatory bodies. b. NTPC is committed to obey and comply with all the applicable laws for operating the opencast coal mining project. c. Agreed to comply with the decision of SEIAA.
ii.	The Project Authorities shall take all necessary measures to ensure that the quality of the Khora Nallah water is not affected due to the mining activities.	Noted and Agreed.
iii	Project Proponent will ensure that a safety barrier of 45 m on both side of the road passing within ML area will be maintained and no mining activity will be carried out in the safety barrier. After getting the permission for diversion of road from the competent authority, the copy of the permission for diversion shall be submitted to SEIAA/SEAC, Jharkhand along with the 06 monthly compliance report.	There are no National Highway/State highway passing within the mining lease area. Since, land within Mining Lease (ML) area has been acquired under CBA Act, 1957 and whole area shall be required for mining. However, NTPC will provide alternative approach road to the affected villages. As and when any public road is diverted, necessary permission shall be obtained and information in this regard shall be provided to SEIAA/SEAC, Jharkhand along with the 06 monthly compliance report.
iv	Mining activities in the safety barrier can be undertaken after diversion of the road is fully implemented and said land must be included in approved Mine Plan for the mining purposes.	Noted and Agreed to comply. There are no National Highway/State highway passing within the mining lease area. Mining activity shall be carried out after diversion of road, if any from competent authorities and mining activity shall be carried out as per the approved Mining Plan.
v	The Project Authorities must ensure Offset of conventional energy requirement of not less than 2% by installation of solar panel. Overall conservation of not less than 20% is to be ensured by use of efficient energy measures.	Since it is a large opencast coal mining project, achievement of specific energy offset percentage may not be possible. HEMMs deployed in mines are diesel/electric driven and with available technology it is not possible to achieve such higher percentage. However, NTPC will put

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

		efforts to use solar panels in offices etc. to offset conventional energy use.
vi	No mining/activity shall be undertaken in the forest land or deemed forest without obtaining requisite prior forestry clearance.	Noted and Agreed. Stage-I Forest Clearance has been obtained on 26.05.2023, and Stage-II Forest Clearance is in progress. (Copy of Stage-I FC is attached as Annex-1). At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project.
vii	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.	Noted.
viii.	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 within 10 km. of protected area).	Stage-I Forest Clearance has been obtained on 26.05.2023, and Stage-II Forest Clearance is in progress. No wildlife sanctuary or wildlife habitat/National Park falls within 10 KM radius of the project area. However, site-specific Wildlife Management Plan for Pakri Barwadih North-West project in consonance of "Integrated Wildlife Management Plan" of North Karanpura is prepared by NTPC and is approved by PCCF-Wildlife, Jharkhand vide order no. 32 dt 03.08.2023 (attached as Annex-2). The updated cost for implementation of site specific Wildlife Management Plan as per demand note 4906 dt. 01.09.2023 from DFO, Hazaribag (West) (for an amount of Rs. 45,31,46,000.00 against wildlife management plan implementation) has been submitted by NTPC vide UTR ref. No. SBINR12023112485848761 dt. 22.11.2023 to Ad-hoc CAMPA fund. (Demand note attached as Annex-3 and payment receipt attached as Annex-4).
ix.	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.	Noted and agreed.
II. Statutory Compliance		
i.	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1980, in case of the diversion of forest land for non-forest purpose involved in the project.	Stage-I Forest Clearance accorded by MoEF & CC (FC Division) Vide Ltr. No "F. No. 8-56/2009-FC-(vol) dated 26th May 2023" for non-forestry use 331.198 ha of forest land under the section 2 (ii) of the Forest (Conservation) Act Act, 1980 in

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

		<p>favor of M/s NTPC of North-West Quarry of Pakri Barwadih Opencast Coal Mine, Tehsil Keredari, Dist. Hazaribag. (Copy of Stage-I FC is attached as Annex-1).</p> <p>Stage-II Forest Clearance is in progress.</p>
ii.	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.	Not applicable since no wildlife sanctuary or wildlife habitat/National Park falls within 10 KM radius of the project area.
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. (in case of the presence of schedule-i species in the study area).	<p>The Site-Specific Wildlife Management Plan for PB-NW project in consonance of "Integrated Wildlife Management plan" of North Karanpura is prepared by NTPC and is approved by PCCF Wildlife, Jharkhand vide order no. 32 dated 03.08.2023.</p> <p>The updated cost for implementation of site specific wildlife management plan as per demand note 4906 dated 01.09.2023 from DFO, Hazaribag (West) (for an amount of Rs. 45,31,46000.00 against wildlife management plan implementation) has been submitted by NTPC vide UTR ref. No. SBINR12023112485848761 dt, 22.11.2023 to Adhoc CAMPA fund. (Demand note attached as Annex-3 and payment receipt attached as Annex-4).</p> <p>The necessary fund for the implementation of site-specific wildlife plan have been deposited by NTPC. Implementation of wildlife plan is under control of State Forest Dept., accordingly submission of six- monthly compliance report w.r.t. site-specific wildlife plan may be exempted.</p>
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".	<p>Noted and agreed.</p> <p>No wildlife sanctuary or wildlife habitat/National Park falls within 10 KM radius of the project area.</p>
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.	<p>Noted and agreed.</p> <p>Consent to Establish (CTE) has been granted to NTPC vide ref. no. JSPCB/HO/RNC/CTE-10629209/2024/220 on 08.05.2024. (Copy of CTE is attached as Annex-5)</p> <p>At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project.</p>
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	NTPC has been granted NOC for ground water Abstraction from Central Ground Water Authority initially on 02.07.2021 and renewal was obtained

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

	authority concerned in case of draw of surface water required for the project.	vide NOC. No. CGWA/NOC /MIN/ORIG/2021/12198 dated 08 th September 2023 and valid upto 01 st July 2025. (Copy of NOC is attached as Annex-6)
vii.	Solid waste/hazardous waste generated in the mines needs to be addressed in accordance to the Solid Waste Management Rules, 2016/ Hazardous & Other Waste Management Rules, 2016 as amended from time to time.	Agreed to abide the conditions.
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.	Noted and Agreed. Six (06) monthly compliance report in respect of the stipulated prior environmental clearance terms and conditions shall be submitted to 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.	Noted and Agreed
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.	Noted and Agreed
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.	Noted and Agreed At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project. Continuous ambient air quality monitoring stations as prescribed in the statute shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM10, PM2.5, SO2 and NOx. Installation of online ambient air quality monitoring stations shall be explored.
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	Noted and Agreed At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project. The Ambient Air Quality monitoring in the core

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

	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.	zone shall be carried and 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.	Noted and agreed. As per approved EIA/EMP for the project, Transportation of coal shall be carried out by road and trucks shall be covered along with regular water/mist sprinkling/rain gun etc. as dust control measures.
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 constructed so that the impact of sound, dust and accidents could be appropriately mitigated.	Noted and Agreed. Transportation of coal shall be carried out as per the route envisaged in the environment management plan.
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 centers.	Agree to abide by the conditions.
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.	Agree to abide the conditions. Transportation of coal shall be carried out by road and trucks shall be covered along with regular water/mist sprinkling/rain gun etc. as dust control measures. It shall be ensured that 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. Environmentally friendly sustainable technology should be implemented for mitigating such parameters.	Noted and Agreed At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project. Effective pollution control measures shall be adopted during its operation.
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	Agree to abide by the conditions.

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

	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.	Noted and Agreed
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.	Noted and Agreed
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	Noted and Agreed
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.	Noted and Agreed
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 utilized for dust suppression and green belt development and other industrial use. Dimension of the retaining wall constructed, if any, at the toe of the	Noted and Agreed

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

	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 groundwater. The project authorities shall meet water requirements of nearby village(s) after due treatment conforming to the specific requirement (standards).	Noted and Agreed
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.	Noted and Agreed. Industrial waste water generated from CHP, workshop and other waste water, shall be properly collected and treated as per the standards. Adequate ETP/STP shall 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.	Noted and Agreed At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project.
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/Gol 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.	Noted and Agreed
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 revarian /riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.	Noted and Agreed
V. Noise and Vibration monitoring and prevention		
i	Adequate measures shall be taken for control of	Agree to abide by the conditions.

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

	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	Condition shall be complied. At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project.
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.	Noted and Agreed. Noise level survey shall be carried out as per the CMR 2017 after the start of mining operation and its report shall be submitted to Ministry/RO on six-monthly basis.
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	Mining shall be carried out as per Mines Act 1952 and subordinate legislations made there-under as applicable. At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project.
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).	NTPC is committed to adhering to the provisions in the Mining plan, as well as the related circulars issued by DGMS. At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project.
iii	No mining shall be carried out in forest land without obtaining Forestry Clearance as per Forest (Conservation) Act, 1980.	Noted and Agreed. Stage-I Forest Clearance has been obtained on 26.05.2023, and Stage-II is Forest Clearance is currently in progress. At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project.
iv	Efforts should made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy	NTPC has already demonstrated significant proficiency in the field of renewable energy. So, for this project as well NTPC will try to use Renewable energy as much as possible.
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	Noted and Agreed

Navin K
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रज. प्रशासक (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
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कोयला खनन परियोजनाएँ / COAL MINING PROJECTS

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

	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.	Mining Plan and mine closure plan for Pakri Barwadih Coal Mining project has been prepared and approved by Ministry of Coal and Mine closure activities shall be done as per approved mine closure plan. (copy of Mine closure plan is attached as Annex-7)
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.	Noted and Agreed. Mining operation shall be done in accordance with approved Mining Plan and the EIA/EMP for the project.
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 3 rd 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 JSPCB.	A pilot study is already under process at one of the NTPC's Coal Mining project for mixing of fly ash with overburden. Based on the observations of the study, mixing of Fly ash in external dump shall be explored. At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project.
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 stabilized 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	Noted and Agreed. Top soil shall be stacked separately and utilized for reclamation and plantation purposes. Excavated area shall be backfilled and afforested in line with the approved Mine Closure Plan.

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

	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.	Noted and Agreed
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.	<p>Stage-I Forest Clearance has been obtained on 26.05.2023, and Stage-II Forest Clearance is in progress.</p> <p>No wildlife sanctuary or wildlife habitat/National Park falls within 10 KM radius of the project area.</p> <p>However, site-specific Wildlife Management Plan for Pakri Barwadih North-West project in consonance of "Integrated Wildlife Management Plan" of North Karanpura is prepared by NTPC and is approved by PCCF-Wildlife, Jharkhand vide order no. 32 dt 03.08.2023 (attached as Annex-2).</p> <p>The updated cost for implementation of site specific Wildlife Management Plan as per demand note 4906 dt. 01.09.2023 from DFO, Hazaribag (West) (for an amount of Rs. 45,31,46,000.00 against wildlife management plan implementation) has been submitted by NTPC vide UTR ref. No. SBINR12023112485848761 dt. 22.11.2023 to Ad-hoc CAMPA fund. (Demand note attached as Annex-3 and payment receipt attached as Annex-4).</p>
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.	Noted and shall be complied.
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 & it's RO on six-monthly basis.	<p>Noted and Agreed.</p> <p>Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored weekly during mining operation. Report in this regard shall be submitted to MoEF&CC and it's Regional office on six-monthly basis.</p>


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 कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
 हजारीबाग / Hazaribag

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

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.	Noted and Agreed. At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project. IME (Initial Medical Examination) and PME (Periodic Medical Examination) of the personnel engaged in the project shall be conducted as per the provisions of the Mines Rules, 1955 and DGMS circulars.
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.	Noted and shall be complied.
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.	NTPC is implementing approved R&R policy for its Coal Mining Projects, Hazaribagh by Govt. of Jharkhand. Copy of approved R&R policy i.e. Sankalp dt. 27.02.2013 is attached as Annex- 8 Present R&R policy which is over and above Sankalp is being implemented by NTPC. Present R&R policy is attached as Annex-9
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.	Noted and agreed.
X. Corporate Environment Responsibility		
i.	The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-1A.III dated 1 May 2018, as applicable, regarding Corporate Environment Responsibility.	Noted and agreed.
ii.	The company shall have a well laid down environmental policy duly approved 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 a defined system of reporting infringements / deviation/violation of the environmental/forest/wildlife norms/conditions and/ or	NTPC has a well laid down environmental policy duly approved by its Board of Directors. (copy of NTPC's Environment policy can be found at https://ntpc.co.in/sites/default/files/policy-documents/NTPC-Environment-Policy-2022.pdf)

NTPC Limited
Pakri Barwadih North-West Coal Mining Project


	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 headquarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.	A separate Environmental Cell both at the project and the corporate office, a separate Environmental Management Cell is already functioning under supervision of senior executive who is reporting to Head of the Company to look after the implementation of the various pollution control measures and other Environment Management System requirements. Organisation chart of Environmental Cell is attached as Annex-10
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.	Noted and agreed.
v.	Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.	Noted and shall be complied.
vi.	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the plants shall be implemented.	Noted and shall be complied.
vii	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Mining operations comes under the Mines Act, 1952 and Coal Mining Regulations, 2017 and are monitored by DGMS also. Relevant health measures for workers shall be followed as per the statue and DGMS guidelines. At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project.
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	Condition has been complied. Notice of grant of Environment Clearance has been published in 2 local newspapers of the District (One in Hindi and one in English language). (Newspaper clipping is attached as Annex-11) Copy of Environment clearance has also been displayed in NTPC website and can be assessed at "https://www.ntpc.co.in/about-us/corporate-functions/environment/environment-policy-management"

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

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.	Copies of the environmental clearance has been submitted to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government. Request letter to Government officials was made vide letter ref. NTPC/PB-NW/2023/172 dt 28.10.2023 (Copy of letter attached as Annex-12)
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.	Agreed and shall be complied.
iv.	The project proponent shall monitor the criteria pollutants level namely, PM ₁₀ , SO ₂ , 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.	Noted and agreed. NTPC shall monitor the criteria pollutants level namely, PM ₁₀ , SO ₂ , NO _x (ambient levels as well as stack emissions) or critical sectoral parameters and display the same at a convenient location for public disclosure and on website of the company. At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project.
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.	Agreed and shall be complied.
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.	Agreed and shall be complied.
vii.	The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.	Mining operations shall be started after required clearances are obtained from the concerned authorities and information regarding commencement of mining operations shall be made to the Regional Office of the MOEFCC. At present no mining activity has been started in North-West Quarry of Pakri Barwadih Coal Mining Project.
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.	Agreed and shall be informed accordingly.

NTPC Limited
Pakri Barwadih North-West Coal Mining Project

ix	The project authorities must strictly adhere to the stipulation's made by the State Pollution Control Board and the State Government.	Noted and agreed.
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.	Agreed.
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).	Noted and agreed.
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.	Noted and agreed.
xiii	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Noted and Agreed
xiv	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.	Noted and agreed.
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 information/monitoring reports	Noted and Agreed
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.	Noted and Agreed.
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.	Noted and Agreed.
xviii	The Prescribed EC is valid as per Notification no. S.O. 1807(E) dated 12.04.2022 of MoEF&CC, Govt. of India.	Noted and agreed.


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 एनटीपीसी लिमिटेड / NTPC Limited
 परियोजना परियोजनाएं / COAL MINING PROJECTS
 Hazaribag

Government of India
Ministry of Environment, Forest and Climate Change
(Forest Conservation Division)

Indira Paryavaran Bhawan,
Aliganj, Jor Bag Road,
New Delhi - 110003.

Dated: 26th May, 2023

To,

The Principal Secretary (Forests),
Government of Jharkhand,
Ranchi.


Subject: Proposal for non-forestry use of 331.198 ha of forest land in favour of M/s NTPC Limited for Pakribarwadih (North West) Opencast Coal Mining Project in West Forest Division, District Hazaribagh, Jharkhand – regarding.

Madam/Sir,

I am directed to refer to the Government of Jharkhand's letter No. Van Bhumi-10/2021-1664/V.P. dated 14.06.2022 on the above subject seeking prior approval of the Central Government under Section 2 of the Forest (Conservation) Act, 1980 and to say that the proposal has been examined by the Advisory Committee constituted by the Central Government under Section-3 of the aforesaid Act.

After careful examination of the proposal of the State Government and on the basis of the recommendations of the Advisory Committee, and its acceptance by the competent authority in this Ministry, **In-principle/Stage-I approval** of the Central Government is hereby accorded for non-forestry use of 331.198 ha of forest land under Section - 2 (ii) of the Forest (Conservation) Act, 1980 in favour of M/s NTPC Limited for Pakribarwadih (North West) Opencast Coal Mining Project in West Forest Division, District Hazaribagh, Jharkhand) subject to fulfillment of the following conditions:

- i. Legal status of the diverted forest land shall remain unchanged;
- ii. A team of specialists from field of Soil Engg, Agriculture Engg, Hydrology, GIS & Geology shall be constituted under chairpersonship of DFO concerned. The team shall continuously study the area for assessing the impact of on-going mining on various environmental/ecological parameter and submit findings/ report to IRO annually.
- iii. UA shall generate drone survey data on spatial and seasonal status of Khorra Nalla & Pakwa Nalla watersheds for having first-hand information on the current status of the Khorra and Pakwa Nalas watershed parallel to the ongoing mining activities. For this purpose, a reputed institute, preferably located in the State, may be engaged for data collection, processing and


26/05/23


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कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
हजारिबाग / Hazaribag


interpretation in effective and exclusive manner.

- iv. *Study of river-aquifer interaction using non-invasive geo-physical technique in 10 km radius of NTPC Pakribarwadih Coal mine site shall be conducted to facilitate the delineation of groundwater potential zones, ground water variation in these zones and help in water budgeting to the surroundings.*
- v. *Since the area is rich in species composition therefore Reclamation, Eco-restoration, and Conservation Plan shall be prepared by conducting proper study before initiating mining activities.*
- vi. *The Catchment Area Treatment Plan shall be prepared and implemented at the cost of the user agency for the treatment of all Nallahs/streams pertaining to instant mining lease/project area. The commensurate funds shall be deposited in National Authority prior to Stage-II approval.*
- vii. *An integrated soil and water conservation plan shall be prepared and implemented at the cost of the user agency for the entire landscape affected by the mining activities of the User agency in the region.*
- viii. *The mining in the area should be in consonance with the "Integrated Wildlife Management Plan" of North Karanpura. The cost estimate of Integrated Wildlife Management Plan (IWMP) submitted is based on the rate of 2010, while approval is being considered in 2023, hence rate revision has to be done based on the present rate.*
- ix. *As observed in the existing mine of NTPC Pakri Barwadih no amount of siltation dams could prevent the sediment deposition and choking of streams as overburden is dumped just adjacent to the nallahs/ streams. The Khorra nallah will largely be affected by the mining activities hence it should be protected by identifying and developing green belt of 100 metres on the side of Khorra nallah & Pakwa Nalas that is facing the mining area, to prevent further sedimentation and choking.*
- x. *A violation of the conditions of approval in case of diversion of 1026.438 ha forest land diverted earlier has been reported and is being processed separately. The State Govt shall ensure that the penal NPV and other penal levies as imposed are deposited before the Stage-II approval.*
- xi. **Compensatory Afforestation:**
 - a. *The Compensatory afforestation over degraded forest land, double in extent to the forest land being diverted, shall be raised by the State Forest Department at the project cost within three years from the date of grant of Stage - II approval;*
 - b. *The cost of compensatory afforestation at the prevailing wage rates as per compensatory afforestation scheme and the cost of survey, demarcation and erection of permanent pillars, if required on the CA land, shall be deposited in advance with the Forest Department by the user agency. The CA will be maintained for 10 years. The scheme may include afforestation of indigenous species with appropriate provision for anticipated cost increase for works scheduled for subsequent years;*


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 कोयला खनन परियोजनाएँ / COAL MINING PROJECTS

26/05/23

- c. The KML files of diverted area and the CA areas shall be uploaded on the e-Green watch portal with all requisite details prior to Stage II approval.
- xii. The User Agency shall transfer the funds towards the cost of Net Present Value (NPV) of the forest land being diverted under this proposal from the User in accordance with the MoEF&CC's guidelines dated 6.01.2022 read with guidelines dated 22.03.2022.
- xiii. **Safety Zone Management:** Following activities, at project cost, shall be undertaken by the user agency for the management of safety zone as per relevant guidelines issued by the Ministry's guidelines:
- User agency shall ensure demarcation of safety zone (7.5 meter strip all along the inner boundary of the mining lease area), and its fencing, protection and regeneration by erecting adequate number of 6 feet high RCC boundary pillars inscribed with DGPS coordinates with barbed wire fencing and deploying adequate number of watchers under the supervision of the State Forest Department;
 - Boundary of the safety zone of the mining lease, adjacent to habitation/roads, should be properly fenced by the user agency;
 - Safety zone shall be maintained as green belt around mining lease and regeneration shall be taken up in this area by the user agency at project cost under the supervision of the State Forest Department;
 - Afforestation on degraded forest land to be selected elsewhere, measuring one and a half times the area under safety zone, shall also be done at the project cost under the supervisions of the State Forest Department. The degraded forest land (DFL) so selected will be informed to the MoEF & CC with shape files before Stage-II approval and afforestation will be done within three years from the date of Stage-II clearance and maintained thereafter in accordance with the approved Plan in consultation with the State Forest Department; and
 - The State Government and the user agency shall ensure that safety zone is maintained as per the prescribed norms.
- xiv. The cost of felling of trees shall be deposited by the User Agency with the State Forest Department;
- xv. All the funds received from the user agency under the project shall be transferred/deposited in CAMPA account only through e-portal (<https://parivesh.nic.in/>). Amount deposited through other modes will not be accepted as compliance of the Stage-I clearance;
- xvi. The complete compliance of the FRA, 2006 shall be ensured by way of prescribed certificate from the concerned District Collector;
- xvii. The compliance report shall be uploaded on e-portal (<https://parivesh.nic.in/>).
- xviii. At the time of payment of the Net Present Value (NPV) at the present rate, the user agency shall furnish an undertaking to pay the additional amount of


26/05/23


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इजाराबाग / Hazaribag

NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India:

- xix. The user agency shall explore the possibility of translocation of maximum number of trees identified to be felled and shall ensure that any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department;
- xx. Trees should be felled in phased manner as per the requirement in the approved Mining Plan with prior permission of concerned DFO;
- xxi. The User Agency shall undertake mining in a phased manner after taking due care for reclamation of the mined over area. The concurrent reclamation plan as per the approved mining plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, in the concerned State Government and the concerned Regional Office of the Ministry. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the concern Regional Officer, Integrated Regional Office may direct that the mining activities shall remain suspended till such time, such reclamation activities area satisfactorily executed;
- xxii. The User Agency shall comply with the Hon'ble Supreme Court order on re-grassing, and re-grass the mining area and any other areas which may have been disturbed due to mining to restore them to a condition which is fit for growth of fodder, flora, fauna, etc. in a timely manner;
- xxiii. Period of diversion of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease proposed to be granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended and the Rules framed there-under;
- 26/05/23 xxiv. The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;
- xxv. No labour camp shall be established on the forest land and the User Agency shall provide fuels preferably alternate fuels to the labourers and the staff working at the site so as to avoid any damage and pressure on the nearby forest areas;
- xxvi. The layout plan of the mining plan/ proposal shall not be changed without the prior approval of the Central Government and the forest land shall not be used for any purpose other than that specified in the proposal;
- xxvii. The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government;
- xxviii. No damage to the flora and fauna of the adjoining area shall be caused;
- xxix. The User Agency shall submit the annual self-compliance report in respect of the above stated conditions to the State Government, concerned Regional Office and to this Ministry by the end of March every year regularly;

1/44905/2023

- xxx. Any other condition that the concerned Regional Office of this Ministry may stipulate with the approval of competent authority in the interest of conservation, protection and development of forests & wildlife;
- xxxi. The user agency shall comply the provisions of the all Acts, Rules, Regulations, Guidelines, Hon'ble Court Order (s) and NGT Order (s) pertaining to this project, if any, for the time being in force, as applicable to the project; and
- xxxii. Violation of any of these conditions will amount to violation of Forest (Conservation) Act, 1980 and action would be taken as prescribed in para 1.21 of Chapter 1 of the Handbook of comprehensive guidelines of Forest (Conservation) Act, 1980 as issued by this Ministry's letter No. 5-2/2017-FC dated 28.03.2019.

After receipt of compliance report on fulfillment of the conditions mentioned above, the proposal shall be considered for final approval under Section-2 of the Forest (Conservation) Act, 1980. Transfer of forest land shall not be affected till final approval is granted by the Central Government in this regard.

Yours faithfully,


(Suneet Bhardwaj) 26/05/23

Assistant Inspector General of Forests (FC)

Copy to:-

1. The Principal Chief Conservator of Forests and HoFF, Government of Jharkhand, Ranchi ;
2. The Regional Officer, Integrate Regional Office of the MoEF&CC, Ranchi;
3. The Nodal Officer (FCA), O/o PCCF, Government of Jharkhand, Ranchi;
4. User Agency ;and
5. Monitoring Cell, Forest Conservation Division, MoEF&CC, New Delhi


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e-mail
05-08-2023
HBM



Office of the Principal Chief Conservator of Forests,
Wildlife & Chief Wildlife Warden, Jharkhand.
Van Bhawan, Doranda, Ranchi-834002
Email : pccf-wildlife@gov.in, Phone No. 0651-2481744



Office Order No. 32.....

Date. 08-08-2023

FCA
A
05-8-23

Sanction Order of the Site-Specific Wildlife Management Plan with reference to diversion of 331.198 ha of forest land Pakri Barwadih North Coal Mining Project in favour of M/s. NTPC Ltd in Hazaribagh district of Jharkhand.

The instant Site-Specific Wildlife Management Plan (referred to as "the Plan" here in after) has been prepared by Ecos Offset Private Ltd on behalf of M/s. NTPC Ltd in Hazaribagh. (referred to as "the User Agency or M/s NTPC Ltd") in pursuance of the following conditions/ Terms of Reference laid by MoEF&CC under item no (viii) and (xxviii) of Stage-I vide letter no. 8-56/2009-FC (Vol) dated 26-05-2023 for diversion of 331.198 Ha of forest land under Pakri Barwadih North Coal Mining Project in Hazaribag district of Jharkhand:

The aforesaid Term of Reference laid by the Central Government reads as follows:

viii. The mining in the area should be in consonance with the "integrated Wildlife Management Plan" of North Karanpura. The cost estimate of integrated Wildlife Management Plan (IWMP) submitted is based on the rate of 2010, while approval is being considered in 2023, hence rate revision has to be done based on the present rate."

xxviii. No damage to the flora and fauna of the adjoining area shall be caused.

In the above stated background, the Regional Chief Conservator of Forests, Hazaribag (RCCF, Hazaribag) vide his letter no. 1546 dated 22.06.2023 has submitted the Plan to the office of the undersigned for its due sanction.

In order to examine the plan prescriptions a communication was issued to the Regional Chief Conservator of Forests, Hazaribag, vide this office letter no. 889 dated 19.07.2023, to arrange a Power-Point Presentation on 25-07-2023 in the Office chamber of the undersigned. The presentation was made by the PP in the presence of RCCF, Hazaribag, DFO, Hazaribag West, Sri H.S Gupta (Ex PCCF, Wildlife, Jharkhand), Sri Sachin Yadav, Senior Manager, Pakri Barwadih North West Coal Mine, NTPC Ltd and Sri Kislay Kumar (Consultant) Ecos Offset Private Ltd.

The cost of the Plan with respect to the activities to be carried out by DFO, Hazaribag West has been estimated to be Rs. 4531.46 lakh. The summary of the proposed interventions (component wise) under the Plan with the objective of conservation of forest and wildlife resources as also to mitigate the impacts of mining on forests and wildlife is as follows:



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हजारीबाग / Hazaribag

S.N.	Work Component	Cost estimates (Rs. In Lakh) To be implemented by the DFO Hazaribag West
1	Biodiversity Enhancement	1757.16
2	Measures for forest protection, anti-depredation and wildlife protection	351.41
3	Fire prevention and protection of habitat	227.37
4	Livelihood improvement and capacity building to local people	351.50
5	Capacity building of forest department for implementing, monitoring and supervision of plan	337.98
6	Establishment of Project Management Unit cum Elephant research center	512.20
7	Community-Development	133.60
8	Awareness promotion about Medecinal Plants and protection of endangered species.	65.00
9	Corpus Fund for ex Gratia payment (lumpsum Rs 10 Lakhs) to be topped up on advice by CWLW. Amount to be disbursed based on demand note from DFO Hazaribag West	10.00
10	Contingency amount	30.00
	Total:-	3776.21
		755.24
11	Cost Escalation @20%	4531.46
	Grand Total:-	4531.46

The Plan with a total financial outlay of Rs. 4531.46 Lakh extends over a period of 10 years (Year 2023-24 to 2032-33; tentatively) shall be utilized by the Forest Department through the DFO, Hazaribag West in accordance with the Plan prescriptions. Amount Rs 4531.46 Lakhs of SSWMP shall be deposited in CAMPA Account by User Agency.

Considering the proposals under the plan, sanction is hereby accorded to the instant Plan subject to the following conditions:

- (i) That the User Agency shall ensure that its officials/contractors and the work force engaged into mining and allied operations under the Project shall not commit or abet any forest/wildlife offence in their area of operation. They will also promptly report any forest/wildlife offence in the area to the nearest forest office/official. Further, they will extend their full cooperation to the forest officials in control/mitigation of any incident, natural or man-made, detrimental to forest and wildlife in their area of operation.
- (ii) That the total amount of Rs. 4531.46 lakh shall be deposited by the User Agency into CAMPA account under the relevant head/sub-head and shall be utilized by the State Forest Department through the DFO, Hazaribag West, as delineated under the Plan, strictly in accordance with the prevailing norms under the Jharkhand Forest Department.

- (iii) *That the User Agency shall implement the activities mentioned under Chapter 4 of the Plan. The implementation shall be under the direction and strict supervision of DFO, Hazaribag West Division.*
- (iv) That as regards the funds earmarked against activities to be undertaken by the State Forest Department, DFO, Hazaribag West Division shall prepare a detailed Annual Plan of Operations (APO) in the beginning of every financial year in respect of the instant Plan following all the rules, regulations, Schedule of Rates etc. issued from time to time by the State Government/ Forest Department. Regional Chief Conservator of Forests, Hazaribag shall accord sanction to the said APO following due process and he/she will closely monitor the progress of the activities undertaken by Divisional Forest Officer, Hazaribag West.
- (v) That the Conservator of Forests, Hazaribag shall supervise all the activities as per directions issued by the Forest Department from time to time.
- (vi) That the DFO, Hazaribag West shall carry out the activities under the Plan strictly as per the duly sanctioned APO.
- (vii) That the DFO, Hazaribag West shall ensure that no violation of duly sanctioned Working Plan of Hazaribag West Forest Division takes place during implementation of any of the activities involved in this plan over notified and demarcated forest land.
- (viii) That at least one year before the expiry of the instant Plan the User Agency shall formulate and submit to the Forest Department another plan in continuation of the instant plan for next 10 years. The impact of implementation of this Plan shall be evaluated by the competent authority.
- (ix) That the instant Plan is dynamic and may be revisited after every 2 years and a revised plan may be formulated as per need of the project impacted area and convenience of the implementing agencies. The revised plan, if any, shall be put up before the Principal Chief Conservator of Forests, Wildlife & Chief Wildlife Warden, Jharkhand for its due approval.
- (x) That though adequate provisions have been made towards cost escalation in the plan viz. increase in wage rate/ material cost etc., yet the User Agency shall submit an undertaking to the Divisional Forest Officer, Hazaribag West to the effect that they will deposit extra cost of the plan beyond the cost escalation provision owing to increase in wage rate etc. in due course of time as well as consequent upon revision in the plan, if any, as and when given effect to by the competent authority.

Sd/-
Principal Chief Conservator of Forests
Wildlife and Chief Wildlife Warden, Jharkhand

Page 3 of 4

Memo No.

Dated:

Copy forwarded to Deputy Director General of Forests (Central), Ministry of Environment, Forests and Climate Change, Integrated Regional Office, Harmu Housing Colony, Ranchi [E-mail: ro.ranchi-mef@gov.in] for information and necessary action.

Sd/-

Principal Chief Conservator of Forests
Wildlife and Chief Wildlife Warden, Jharkhand

Memo No.

Dated:

Copy forwarded to Additional Chief Secretary, Department of Forests, Environment and Climate Change, Govt. of Jharkhand Ranchi/ Principal Chief Conservator of Forests, Jharkhand, Ranchi/ Principal Chief Conservator of Forests-cum-Executive Director, Wasteland Development Board, Jharkhand, Ranchi for Information.

Sd/-

Principal Chief Conservator of Forests
Wildlife and Chief Wildlife Warden, Jharkhand

Memo No.

Dated:

Copy forwarded to Additional Principal Chief Conservator of Forests, CAMPA, Jharkhand, Ranchi with a copy of plan for Information and necessary action.

Sd/-

Principal Chief Conservator of Forests
Wildlife and Chief Wildlife Warden, Jharkhand

Memo No. 1005

Dated: 03-08-2023

Copy forwarded to Regional Chief Conservator of Forests, Hazaribag/Conservator of Forests, Hazaribag/ Divisional Forest Officer, Hazaribag West Forest Division for information and necessary action.

Jamsh
03/8/23
Principal Chief Conservator of Forests
Wildlife and Chief Wildlife Warden, Jharkhand

कार्यालय , वन प्रमंडल पदाधिकारी, हजारीबाग पश्चिमी वन प्रमंडल

ज्ञापांक:

दिनांक:

प्रतिलिपि अपर महाप्रबंधक (खनन), एन0टी0पी0सी0 लिमिटेड, पकरी बरवाडीह कोल खनन परियोजना, सिकरी साईट कार्यालय, बड़कागांव, हजारीबाग को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

ह0/-

वन प्रमंडल पदाधिकारी,
हजारीबाग पश्चिमी प्रमंडल

ज्ञापांक: 444A

दिनांक: 05/10/23

प्रतिलिपि वन क्षेत्र पदाधिकारी, बड़कागांव प्रक्षेत्र को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

Shyam
वन प्रमंडल पदाधिकारी,
हजारीबाग पश्चिमी प्रमंडल

D:\pandey/pskri barwadih Noth Coal Mining



कार्यालय – वन प्रमंडल पदाधिकारी,
हजारीबाग पश्चिमी वन प्रमंडल, वन भवन, हजारीबाग

☎ 06546-222339, Email- dfo.hazaribagwest@rediffmail.com & dfo-hazaribagwest@gov.in

सेवा में,

पत्रांक : 4906

दिनांक: 01/09/23

अपर महाप्रबंधक (पर्यावरण प्रबंधन),
कोयला खनन परियोजनाएं,
एनटीपीसी लिमिटेड,
सिकरी साईट, बड़कागाँव, हजारीबाग

विषय:-

एनटीपीसी लिमिटेड पकरीबरवाडीह उत्तरी-पश्चिमी ब्लॉक कोल माइनिंग खनन परियोजना हेतु 331.198 हे० वन भूमि का अपयोजन प्रस्ताव पर भारत सरकार द्वारा स्टेज-1 की स्वीकृति में लगाये गये शर्तों के अनुपालन के संबंध में।

प्रसंग :-

भारत सरकार, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, नई दिल्ली का पत्रांक 8-56/2009/FC-(VOL) दिनांक 26.05.2023, प्रधान मुख्य वन संरक्षक-सह-कार्यकारी निदेशक, बंजर भूमि विकास बोर्ड, झारखण्ड, रांची का ज्ञापांक 569 दिनांक 30.05.2023 एवं वन संरक्षक, प्रादेशिक अंचल, हजारीबाग का ज्ञापांक 1151 दिनांक 02.06.2023 तथा आपका पत्रांक 160 दिनांक 20.07.2023, पत्रांक 168 दिनांक 18.08.2023 तथा इस कार्यालय का पत्रांक 4256 दिनांक 02.08.2023।

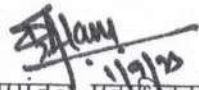
महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्र के संदर्भ में सूचित करना है कि विषयक परियोजना में भारत सरकार पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, नई दिल्ली का पत्रांक 8-56/2009/FC-(VOL) दिनांक 26.05.2023 द्वारा 32 शर्तों के साथ स्टेज-I की सैद्धांतिक स्वीकृति प्रदान की गई है। जिसमें शर्त संख्या xi(b) में क्षतिपूरक वनरोपण (659.93 हे०) एवं शर्त संख्या xiii के क्रम में (1.84 हे०) सेफ्टी जोन पर वृक्षारोपण की राशि 15,62,23,890.00 (पन्द्रह करोड़ बासठ लाख तईस हजार आठ सौ नब्बे रूपये। प्राक्कलन संलग्न), xi(b) के क्रम में पक्का सीमा स्तम्भ की राशि 40,13,800.00 (चालीस लाख तेरह हजार आठ सौ रूपया) एवं शर्त संख्या xviii एनटीपीसी राशि 44,94,72,117.78 (चौवालीस करोड़ चौरानबे लाख बहत्तर हजार एक सौ सत्रह रूपया अठहत्तर पैसे), तथा शर्त संख्या Viii & xxviii

के आलोक में प्रधान मुख्य वन संरक्षक, वन्य प्राणी प्रतिपालक, झारखण्ड, रांची का कार्यालय आदेश संख्या 32 झापांक 1005 दिनांक 3.08.2023 द्वारा अनुमोदित IWMP की राशि 45,31,46000.00 (पैंतालीस करोड एकतीस लाख छियालीस हजार रुपया (पत्र की छाया प्रति संलग्न) कुल **106,28,55,807.78** (एक सौ छः करोड अठ्ठाइस लाख पचपन हजार आठ सौ सात रूपये अठहत्तर गंसे) मात्र भुगतये राशि e-Portal (<https://parivesh.nic.in/>) के माध्यम से कैम्पा के खाता में जमा करते हुए भारत सरकार द्वारा लगाये गये सभी शर्तों का कंडिकावार अनुपालन प्रतिवेदन 08 प्रति में समर्पित करना सुनिश्चित किया जाय। साथ ही इस मांग पत्र में वर्णित अन्य मदों में विभागीय उच्चाधिकारियों द्वारा किसी तरह का संशोधन होता है तो संशोधित राशि भी आपको जमा करना होगा।

अनु0-यथोक्त।

आपका विश्वासी,


वन प्रमंडल पदाधिकारी
हजारीबाग पश्चिमी प्रमंडल



संशोधित मांग पत्र

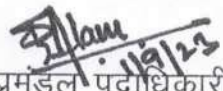
भारत सरकार द्वारा सैद्धान्तिक सहमति प्रसंग- 8-56/2009/FC-(VOL) दिनांक 26.05.2023 द्वारा एन0टी0पी0सी0 लिमिटेड पकरीबरवाडीह उतरी ब्लॉक कोल माइनींग खनन परियोजना हेतु 331.198 हे0 वन भूमि का अपयोजन का प्रस्ताव पर भारत सरकार द्वारा सशर्त सैद्धान्तिक सहमति में निहित शर्तों के आलोक में मांग पत्र:-

हजारीबाग पश्चिमी वन प्रमण्डल

वनों का घनत्व :- 0.8

मद	रकवा	दर (हे0)	राशि (रू0)
(1.) एन0पी0भी0	331.198 हे0	1357110.00	44,94,72,117.78 (चौवालीस करोड चौरानबे लाख बहत्तर हजार एक सौ सत्रह रूपया एवं अठहत्तर पैसे) मात्र।
(2.) क्षतिपूरक वनरोपण राशि <ul style="list-style-type: none"> • सेफ्टी जोन का रकवा - 1.23 हे0 • क्षतिपूरक वनरोपण के लिए सेफ्टी जोन का 1.5 गुना रकवा-1.84 हे0 • वनभूमि रकवा (सेफ्टी जोन के बिना) - 329.968 हे0 (331.198 - 1.23) • क्षतिपूरक वनरोपण के लिए वनभूमि रकवा का दोगुना - 659.93 हे0 (329.968 * 2) • कुल क्षतिपूरक वनरोपण रकवा (1.5 गुना सेफ्टी जोन + 2 गुना वनभूमि) - 661.77 हे0 (659.93 + 1.84) 	क्षतिपूरक वनरोपण के वास्तविक गणना के आधार पर मांग की गई राशि। (मजदूरी दर- 346.01 रू0 प्रति मानव दिवस)	15,62,23,890.00 (पन्द्रह करोड बासठ लाख तईस हजार आठ सौ नब्बे रूपये (प्राक्कलन संलग्न) मात्र।	
(3) पक्का सीमा स्तम्भ	854 Pillar x @ 4700.00		40,13,800.00 (चालीस लाख तेरह हजार आठ सौ) मात्र
(4) वन्य प्राणी प्रबंधन योजना	प्रधान मुख्य वन संरक्षक, वन्यप्राणी एवं मुख्य वन्य प्राणी प्रतिपालक, झारखण्ड रांची का कार्यालय आदेश संख्या 32 दिनांक 03.08.2023 एवं ज्ञापांक 1005 दिनांक 03.08.2023 द्वारा अनुमोदित वन्य प्राणी प्रबंधन योजना की राशि		45,31,46,000.00 (पैंतालीस करोड एकतीस लाख छियालीस हजार) मात्र
			कुल :- 106,28,55,807.78 (एक सौ छः करोड अठ्ठाईस लाख पचपन हजार आठ सौ सात रूपये अठहत्तर पैसे मात्र)

यदि माँग पत्र में संशोधन होता है तो संशोधित राशि विभाग के पक्ष में देय होगा।


 वन प्रमण्डल पदाधिकारी
 हजारीबाग पश्चिमी प्रमण्डल



NTPC Limited

Pakri Barwadih CMP
Sikri Site Office, P.O. Barkaga
Hazaribag - JHARKHAND 825311

Name of the Company **NTPC Limited**
Registered Office NTPC Bhawan, SCOPE Complex, 7, Institutional Area
Lodi Road, New Delhi - 110003
CIN **L40101DL1975GOI007966**
PAN **AAACN0255D**
Telephone No.
FAX No.
e-Mail
Website www.ntpc.co.in

Ref No. / सन्दर्भ संख्या: IN35R/2023262147/22.11.2023

To / सेवा में,
Ad-hoc CAMPA Account No CA 1587
CORPORATION BANK
DG FOREST & SPECIAL SECRETARY,
GOI, MOEF, PARYAVARAN BHAVAN
CGO COMPLEX LODHI ROAD
NEW DELHI 110003
Email :

Date / दिनांक: 28.11.2023

Dear Sir / Madam,
आदरणीय महोदय/महोदया,

We are pleased to inform you that the company has arranged to remit the amount as per the following details, directly to your bank **Union Bank of India, FCS Centre, Bangalore** account number **150725838798908** with Payment Ref No : **SBINR12023112485848761**.

हमें आपको यह सूचित करने में प्रसन्नता हो रही है कि कंपनी ने निम्नलिखित विवरण के अनुसार राशि को सीधे आपके बैंक **Union Bank of India, FCS Centre, Bangalore** खाता संख्या **150725838798908** पर प्रेषित करने की व्यवस्था की है।

	Total Amount Paid	453,146,000.00
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Amount (in words) / राशि : **Rupees Forty-Five Crore Thirty-One Lakh Forty-Six Thousand**

The amount has been credited to your bank account as indicated above through Electronic Clearing Service (ECS) and therefore, no service charge is deductible by your bank.

उपरोक्त वर्णित राशि इलेक्ट्रॉनिक क्लियरिंग सेवा (ईसीएस) के माध्यम से आपके बैंक खाते में जमा की गई है और इसलिए, आपके बैंक द्वारा इसके लिए कोई सेवा शुल्क नहीं लगाया जा सकता है

If the amount is not received in your account kindly contact the EIC (Engineer In Charge) / Store Department, giving the above reference number.

यदि राशि आपके खाते में प्राप्त नहीं होती है तो कृपया ईआईसी (इंजीनियर प्रभारी) / स्टोर विभाग से उपरोक्त संदर्भ संख्या के साथ संपर्क करें

This is a computer generated communication and does not require any signature.

यह संचार कंप्यूटर द्वारा निष्पादित है, तथा इसमें किसी भी हस्ताक्षर की आवश्यकता नहीं है

Nav K
नवीन कुमार / NAVIN KUMAR
एन.टी.पी.सी. लिमिटेड (पर्यावरण प्रबंधन) / DGM (ENVL. MGMT.)
एन.टी.पी.सी. लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
हजारीबाग / Hazaribag

This is a computer generated communication, For any query please contact EIC.



NTPC Limited

Pakri Barwadih CMP
Sikri Site Office, P.O. Barkaga
Hazariabag - JHARKHAND 825311

Name of the Company **NTPC Limited**
Registered Office NTPC Bhawan, SCOPE Complex, 7, Institutional Area
Lodi Road, New Delhi - 110003
CIN **L40101DL1975GOI007966**
PAN **AAACN0255D**
Telephone No.
FAX No.
e-Mail
Website www.ntpc.co.in

Ref No. / सन्दर्भ संख्या: KC58R/2023265633/25.11.2023

To / सेवा में,
Ad-hoc CAMPA Account No CA 1587
CORPORATION BANK
DG FOREST & SPECIAL SECRETARY ,
GOI, MOEF ,PARYAVARAN BHAVAN
CGO COMPLEX LODHI ROAD
NEW DELHI 110003
Email :

Date / दिनांक: 28.11.2023

Dear Sir / Madam,
आदरणीय महोदय/महोदया,

We are pleased to inform you that the company has arranged to remit the amount as per the following details, directly to your bank **Union Bank of India, FCS Centre, Bangalore** account number **150725838798908** with Payment Ref No : **SBINR12023112586053399**.

हमें आपको यह सूचित करने में प्रसन्नता हो रही है कि कंपनी ने निम्नलिखित विवरण के अनुसार राशि को सीधे आपके बैंक **Union Bank of India, FCS Centre, Bangalore** खाता संख्या **150725838798908** पर प्रेषित करने की व्यवस्था की है।

	Total Amount Paid	449,472,118.00
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Amount (in words) / राशि : Rupees Forty-Four Crore Ninety-Four Lakh Seventy-Two

The amount has been credited to your bank account as indicated above though Electronic Clearing Service (ECS) and therefore, no service charge is deductible by your bank.

उपरोक्त वर्णित राशि इलेक्ट्रॉनिक क्लियरिंग सेवा (ईसीएस) के माध्यम से आपके बैंक खाते में जमा की गई है और इसलिए, आपके बैंक द्वारा इसके लिए कोई सेवा शुल्क नहीं लगाया जा सकता है

If the amount is not received in your account kindly contact the EIC (Engineer In Charge) / Store Department, giving the above reference number.

यदि राशि आपके खाते में प्राप्त नहीं होती है तो कृपया ईआईसी (इंजीनियर प्रभारी) / स्टोर विभाग से उपरोक्त संदर्भ संख्या के साथ संपर्क करें

This is a computer generated communication and does not require any signature.

यह संचार कंप्यूटर द्वारा निष्पादित है, तथा इसमें किसी भी हस्ताक्षर की आवश्यकता नहीं है

This is a computer generated communication, For any query please contact EIC.

Navin K
नवीन कुमार / NAVIN KUMAR
उप महासंचालक (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
एनटीपीसी लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
हजारीबाग / Hazariabag



NTPC Limited

Pakri Barwadih CMP
Sikri Site Office, P.O. Barkaga
Hazaribag - JHARKHAND 825311

Name of the Company **NTPC Limited**
Registered Office NTPC Bhawan, SCOPE Complex, 7, Institutional Area
Lodi Road, New Delhi - 110003
CIN **L40101DL1975GOI007966**
PAN **AAACN0255D**
Telephone No.
FAX No.
e-Mail
Website www.ntpc.co.in

Ref No. / सन्दर्भ संख्या: KC58R/2023265634/25.11.2023

To / सेवा में,
Ad-hoc CAMPA Account No CA 1587
CORPORATION BANK
DG FOREST & SPECIAL SECRETARY,
GOI, MOEF, PARYAVARAN BHAVAN
CGO COMPLEX LODHI ROAD
NEW DELHI 110003
Email :

Date / दिनांक: 28.11.2023

Dear Sir / Madam,
आदरणीय महोदय/महोदया,

We are pleased to inform you that the company has arranged to remit the amount as per the following details, directly to your bank **Union Bank of India, FCS Centre, Bangalore** account number **150725838798908** with Payment Ref No : **SBINR12023112586053398**.

हमें आपको यह सूचित करने में प्रसन्नता हो रही है कि कंपनी ने निम्नलिखित विवरण के अनुसार राशि को सीधे आपके बैंक

Union Bank of India, FCS Centre, Bangalore

खाता संख्या **150725838798908**

पर प्रेषित करने की व्यवस्था की है।

	Total Amount Paid	160,237,690.00
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Amount (in words) / राशि :

Rupees Sixteen Crore Two Lakh Thirty-Seven Thousand Six

The amount has been credited to your bank account as indicated above though Electronic Clearing Service (ECS) and therefore, no service charge is deductible by your bank.

उपरोक्त वर्णित राशि इलेक्ट्रॉनिक क्लियरिंग सेवा (ईसीएस) के माध्यम से आपके बैंक खाते में जमा की गई है और इसलिए, आपके बैंक द्वारा इसके लिए कोई सेवा शुल्क नहीं लगाया जा सकता है

If the amount is not received in your account kindly contact the EIC (Engineer In Charge) / Store Department, giving the above reference number.

यदि राशि आपके खाते में प्राप्त नहीं होती है तो कृपया ईआईसी (इंजीनियर प्रभारी) / स्टोर विभाग से उपरोक्त संदर्भ संख्या के साथ संपर्क करें.

This is a computer generated communication and does not require any signature.

यह संचार कंप्यूटर द्वारा निष्पादित है, तथा इसमें किसी भी हस्ताक्षर की आवश्यकता नहीं है


Navin Kumar / NAVIN KUMAR
एन.टी.पी.सी. लिमिटेड (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
एन.टी.पी.सी. लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
हजारिबाग / Hazaribag

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JHARKHAND STATE POLLUTION CONTROL BOARD

TOWNSHIP ADMINISTRATION BUILDING, HEC COMPLEX, DHURWA, RANCHI 834004

Telephone: 0651-2400850 (Fax)/ 2400851/2400852/2401847/2400979/2400139

Ref No.: JSPCB/HO/RNC/CTE-10629209/2024/220

Dated : 2024-05-08

Consent to Establish (CTE) under section 25 /26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981

- Reference: Application (s) No.- 10629209 / dated : 20/12/2023 of North-west quarry of Pakri Barwadih Coal Mining Project , NAVIN KUMAR for consent under section 25 /26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981
- Documents Relied Upon:**
 - The content of copy of Environmental clearance granted vide Letter no. EC/SEIAA/2023-24/2916/2023 /309 dated - 06.10.2023 for the project North West Quarry of Pakri Barwadih opencast Coal Mine Project of M/s NTPC Ltd. at village: Bariatu, Basaria, Beltu, Jabra, Kandaber, Nawadih, Sirma & Urub.
 - The content of copy of letter from MoEF&CC vide letter no. 8-56/2009-FC-(Vol) dated-26.05.2023, proposal for non-forestry use of 331.198 ha of forest land in favour of M/s NTPC Limited for Pakri Barwadih (North West) Opencast coal mining Project in West Forest Division, District-Hazaribagh, Jharkhand.
 - The content of distance certificate issued by the DFO, Wildlife Hazaribagh vide Letter No. 1219 dated 26.06.2023 certifying that there is no any National Park, Wildlife Sanctuary and ESZ located available within 10 km distance from the project location.
 - The content of copy of a notification issued by Ministry of coal issued vide S.O.4116 (E) dated- 21st December, 2016 regarding land schedule.
 - The content of copy of allotment letter of Pakri Barwadih coal block in favour of National Thermal Power Corporation issued by Ministry of coal and Mines vide letter no. 13016/29/2003-CA dated- 11.10.2004.
 - The content of copy of approved revised Mining Plan and Mine closure plan along with approval letter from the Ministry of coal,GOI vide letter no. 13016/29/2003-CA-I(Part) dated-07.03.2016.
 - The content of check-list dated 13.01.2024 issued by Regional Officer, Regional Office, JSPCB, Hazaribagh.
- The consent is granted under section 25 / 26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 to establish the project in Mauza- Urub, Bariyatu, Beltu, P S -Barkagaon, District-HAZARIBAGH as follows:

Project	Site-Area		Investment (Rs)/ Year	Product & Capacity	Period of CTE
	Plot Nos.	Area			

नवीन कुमार / NAVIN KUMAR
रतन मारवाहक (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
एनटीपीसी लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS

Before Expansion	As per EC	485.159 Ha (as per EC)	91232 Lakhs (as per EC)	Coal - 03 MTPA	As per EC
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(A) Specific Conditions:

1. That, the occupier shall construct toe wall and garland drain around the OB dump.
2. That, occupier shall maintain proper housekeeping within the premises.
3. That, the occupier shall reclaim mined out areas with OB and shall plant trees on them.
4. That, the occupier shall if be found violating the Consent to Operate at any point of time during inspection of the plant by the competent authority, the Consent to Operate shall be revoked as per provision of the acts.
5. That, the occupier shall do Over Burden management properly as prescribed in environmental clearance.
6. That, the occupier shall construct catch drain, siltation pond retaining wall of appropriate size to arrest silt & sediment flows from soil, OB dump and mineral dump.
7. That, the occupier shall inform to Regional Office-Cum- Lab, Hazaribagh and Head Office, JSPC Board, at Ranchi within 24 hrs from the time of closure or opening of the plant.
8. That, the occupier shall operate & maintain ETP with workshop of heavy vehicles.
9. That, the occupier shall ensure washing of tyres of vehicles used for transportation of coal and also ensure proper covering of the same to avoid any dust emission.
10. That, the occupier shall ensure that crushers at the CHP shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc.
11. That, the occupier shall construct, operate and maintain the ETP for workshop and CHP.
12. That, the occupier shall install, operate and maintain the STP for the township/colony to treat the domestic effluents to prescribed standards and for green belt development or reuse in project activities.
13. That, the occupier shall install, operate and maintain CAAQMS & PM 10 analyzer and ensure data transmission to CPCB and JSPCB server.

14. That, the occupier shall submit comply all the conditions of EC and submit six monthly compliance report to the Board.

15. That, the occupier shall comply all the condition of EC and CTE and submit its compliance at the time of application made for CTO.

(B) General Conditions :

(1) That, the occupier shall construct pucca (i) minimum ten feet high boundary wall and (ii) approach road and internal roads and shall keep the premises neat and clean and tidy.

(2) That, the occupier shall install comprehensive enclosure (s) to cover the places of unloading of raw materials, the equipments of their processing & transferring, the places of loading of products, by products and wastes for prevention of fugitive emission and shall install such automatic inbuilt system(s) that in house dust/ gases collect(s) and undergo (es) cleaning and clean air goes out.

(3) That, the occupier shall install such automatic inbuilt system(s) that process flue gas(es) / process gas(es) and undergo(es) cleaning and clean air go(es) out through the chimney(s), having height(s) as per Central Pollution Control Board norm.

(4) That, the occupier shall have D G Set(s) of the standard as laid in the Environment (protection) Rules, 1986 and shall install it (them) within acoustic enclosure (s) and shall keep the height(s) of exhaust pipe(s) as per Central Pollution Control Board norm .

(5) That, the occupier shall impart treatment as per Central Pollution Control Board text to wastewater and shall keep process effluent in close-circuit and effluent from other sources in conformity with the standard (s).

(6) That, the occupier shall install Central Ground Water Board/ State Ground Water Directorate approved system of rain water harvesting-cum-ground water recharge.

(7) That, the occupier shall create new water body (ies) / remove deposit(s) of existing water body(ies) and nearby stream(s) and pond(s) and shall maintain the wholesomeness of water.

(8) That, the occupier shall grow greenery in the periphery and other available spaces and shall continue enhancing its plant density and biodiversity.

(9) That, this CTE is valid subjected to the validity of mining Lease / Mining Plan / Ecofriendly / Environmental Clearance, if applicable. In case of no renewal of Mining Lease/Mining Plan, this consent shall be treated as revoked automatically.

(10) That, this CTE is issued from the environmental angle only and does not absolve the occupier from other statutory obligations prescribed under any other law or any other instrument in force. The sole and complete responsibility to comply with these conditions laid down in all other laws for the time being in force, rests with the industry/ unit/ occupier.

(11) That, this CTE shall not in any way, adversely affect or jeopardize the legal proceeding , if any, instituted in the past or that could be , instituted against you by the State Board for violation of the provisions of the Act or the Rules made there under.

Nav K

नवीन कुमार / NAVIN KUMAR
उप महासंचालक (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
एनटीपीसी लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
हजारीबाग / Hazaribag

(12) That, the occupier shall comply with all applicable provisions of the Water (Prevention & Control of Pollution) Act, 1974; the Water (Prevention & Control of Pollution) Cess Act, 1977; the Air (Prevention & Control of Pollution) Act, 1981; and the Environment (Protection) Act, 1986 and Rules there under.

4. **That, this CTE shall not absolve the occupier from making compliance of other statutory prescribed under any law or direction of courts or any other instrument for the time being in force.**
5. **That, this CTE is being issued on the basis of information/ documents/ certificate submitted by the unit. This CTE will be revoked if any of the information/ documents/ certificates/ undertaking given by the occupier is found false/fictitious/forged in future.**
6. **This order shall be valid subject to compliance of all other legal requirements applicable to the unit.**
7. **The State Board reserves the right to revoke, withdraw or make any reasonable variation / change / alteration in condition of this consent.**

This is issued with the approval of the competent authority

Ram Pravesh Kumar
Digitally signed by
Ram Pravesh Kumar
Date: 2024.05.08
10:45:25 +05'30'
[Ram Pravesh Kumar]
Section Head, Hazaribagh

Memo No. : JSPCB/HO/RNC/CTE-
10629209/2024/220

Dated : 2024-05-08

Copy to : M/s North-west quarry of Pakri Barwadih Coal Mining Project, NTPC Ltd., Sikri Site office, Barkagaon, Hazaribagh-825311/Director of Industry, Government of Jharkhand, Ranchi/ Deputy Commissioner, Hazaribagh/ Director of Mines, Government of Jharkhand, Ranchi/ Chief Inspector of Factories, Ranchi/ DFO, Hazaribagh/ DMO, Hazaribagh/ R O, JSPCB, Hazaribagh for information & ensuring compliance of the above.

Ram Pravesh Kumar
Digitally signed by Ram
Pravesh Kumar
Date: 2024.05.08
10:45:34 +05'30'
[Ram Pravesh Kumar]
Section Head, Hazaribagh

नवीन कुमार / NAVIN KUMAR
रूप महाप्रबंधक (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
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हजारिबाग / Hazaribag



Revised

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)

NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Pakri Barwadih North West Coal Mining Project		
Project Address:	Ntpc Ltd Pakri Barwadih North West Coal Mining Project, Site Office Sikri, Barkagaon		
Village:	Sirma	Block:	Barkagaon
District:	Hazaribagh	State:	Jharkhand
Pin Code:			
Communication Address:	Ntpc Ltd Pakri Barwadih North West Coal Mining Project, Site Office Sikri, Barkagaon, Barkagaon, Hazaribagh, Jharkhand - 825311		
Address of CGWB Regional Office :	Central Ground Water Board Mid Eastern Region, 6th & 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road Dak Banglow, Patna, Bihar - 800011		

- | | | | |
|---|------------------------------|------------------------------------|------------|
| 1. NOC No.: | CGWA/NOC/MIN/ORIG/2021/12198 | 2. Date of Issuance | 22/08/2023 |
| 3. Application No.: | 21-4/724/JH/MIN/2021 | 4. Category:
(GWRE 2022) | Safe |
| 5. Project Status: | New Project | 6. NOC Type: | Extension |
| 7. Valid from: | 02/07/2023 | 8. Valid up to: | 01/07/2025 |
| 9. Ground Water Abstraction Permitted: | | | |

Fresh Water		Saline Water		Dewatering		Total	
m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year
237.36	86636.45			2534.58	9251.22		

10. Details of ground water abstraction /Dewatering structures

	Total Existing No.:4						Total Proposed No.:5					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	0	0	0	0	0	0	5	0	0	0
Dewatering Structure*	0	0	0	0	4	0	0	0	0	0	0	0

*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

11. **Ground Water Abstraction/Restoration Charges paid (Rs.):** 5058796.35

12. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers	Monitoring Mechanism		
		Manual	DWLR**	DWLR With Telemetry
**DWLR - Digital Water Level Recorder	2	0	1	1

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: cgwa-noc.gov.in

पानी बचाये - जीवन बचाये
SAVE WATER - SAVE LIFE

Navin Kumar
नवीन कुमार / NAVIN KUMAR
रजिस्टर्ड इंजीनियर (पर्यावरण प्रबंधन) / DGM (ENVT. NGMT.)
एनटीपीसी लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

- 1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.
- 2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.
- 3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.
- 4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.
- 5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.
- 6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.
- 7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.
- 8) Industries abstracting ground water in excess of 100 m³ /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.
- 9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.
- 10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

- 11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).
- 12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).
- 13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.
- 14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.
- 15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.
- 16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.
- 17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.
- 18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.
- 19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.
- 20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.
- 21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.
- 22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.
- 23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.
- 24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.
- 25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.
- 26) In case of new infrastructure projects having ground water abstraction of more than 20 m³/day, the firm/ventity shall ensure implementation of dual water supply system in the projects.
- 27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.
- 28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.
- 29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
- 30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

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Website: cgwa-noc.gov.in

पानी बचाये - जीवन बचाये
SAVE WATER - SAVE LIFE


नवीन कुमार / NAVIN KUMAR
उप महासंचालक (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
एनटीपीसी लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
हजारीबाग / Hazaribag

CHAPTER XI

PROGRESSIVE AND FINAL MINE CLOSURE PLAN


Sanjiv Kumar Singh

Sanjiv
SANJIV KUMAR SINGH
Recognised Qualified Person
No. 34C (15)/2009-CPAM
Ministry of Coal, Govt. of India

N-K
नवीन कुमार / NAVIN KUMAR
एन एमटीसी लिमिटेड (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
एनटीपीसी लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
हजारीबाग / Hazaribag

**CHAPTER-XI
MINE CLOSURE PLAN**

11.1 Introduction on Mine Closure Plan

The present Mine Closure Plan is prepared for 4695 Ha, which includes PB West, PB East and PB North West Quarries. This Mine Closure Plan covers extraction area, external OB dump area, facilities, diversion/realignment of nallah & road, colony and coal evacuation through cross country conveyor.

Mine Closure Plan based on the Approved Mining Plan has already been approved by MoC as separate document vide letter No. 34011/09/2011-CPAM dated 20.04.2012 (Copy of approval letter is placed as Annexure-XIII).

The Mine Closure Plan is integrated with present Mining Plan of Pakri Barwadih Mining Plan (1st Revision). Mine Closure Plan consists of two parts namely "Progressive Mine Closure Plan" and "Final Mine Closure Plan". Final Mine Closure Plan shall be prepared five years before closure of mine. Present Progressive Mine Closure Plan is in line with the MoC guidelines issued in this regard includes all aspects covered in approved Mine Closure Plan.

11.1.1 Reasons for Closure

Mine shall be closed either

- after exhaustion of coal reserves or,
- by any order of government or,
- by any violation of statutory obligation or,
- any other unforeseen reason.

11.1.2 Statutory Obligations

All applicable statutory rules, regulations, bye-laws etc. and statutory requirement related to Government Licenses, workers' compensation, insurance, etc. including Minimum Wage Act for the workers employed by the outside agencies shall be adhered to. Following statutory rules, regulations, bye-laws etc. shall be adhered to:

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

Sampat
Sampat Singh
Registered Person
No. 34011/(15)/2009-CPAM
Ministry of Coal, Govt. of India

Page XI - 1

Navin K
नवीन कुमार / NAVIN KUMAR
उप महासंचालक (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
एनटीपीसी लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
हजारीबाग / Hazaribag

- a. Coal Mines Regulation 1957
- b. Mines Act 1952
- c. Mines Rules 1966
- d. Vocational Training Rules 1966
- e. Indian Electricity Rules 1956
- f. DGMS circulars from 1948 (up-to-date)
- g. Factories Act 1948 (as applicable to mines)
- h. Explosive Act and Rules
- i. Conditions attached to statutory permissions and exemptions granted by DGMS to Mines of CIL.
- j. Recommendations of National Safety Conferences, Tripartite Safety Review
- k. Special guidelines issued by DGMS following accident enquiries etc.
- l. ILO code of Safety and Health and in open cast Mines (1991).

Special conditions imposed while execution of lease deed, approval of Mining Plan, directive issued by the Ministry of Coal, conditions imposed by the MoEF, State Pollution Control Board or by any other statutory organizations shall be followed. All conditions stipulated in the Approved Mining Plan, Environmental clearance, Forest clearance and other future clearances shall be complied. List of clearance along with their status is given in Table 11.1

Table 11.1

LIST OF CLEARANCES FOR PB EAST, WEST and NORTH WEST QUARRY

Sl. No.	Clearances	Status for PB West & East Quarry	Status for NW Quarry
1.	Approval of Mining Plan by MoC	Approved	Not Approved
2.	Revised Mining Plan (1st Revision) and Mine Closure Plan	Under approval	Integrated with PB West and East as one mine mine

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

Sanjiv
SANJIV KUMAR SINGH
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Page XI - 2

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Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

3.	Public Hearing conducted by SPCB	Completed	Not done
4.	Environment clearance by MoEF	Obtained	Not Available
5.	Forest clearance by MOEF(Stage I and Stage II)	Obtained	In Process
6.	Permission for Diversion of Nalla passing through West Quarry of PB from Govt. of Jharkhand	Obtained	Not Available
7.	Permission for Withdrawal of Ground Water from CGWA	Obtained	In Process
8.	Land Acquisition / surface rights - State Govt. /Govt. of India	In Process (Section 11 under CBA Act has been notified)	In Process
9.	Clearance for use of explosives and construction of magazine	In Process	Integrated with PB WE as one mine
10.	Permission for opening of coal mine from DGMS	Obtained	In Process

11.1.3 CLOSURE PLAN PREPARATION

Conceptual Final Mine Closure Plan has been prepared. However, Final

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

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Page XI - 3

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Mine Closure plan shall be prepared 5 years before the likely cessation of mining operations shall continue for 3 years after likely cessation of mining operations and will have the approval of the Board of Directors.

11.2 MINE DESCRIPTION

The entire coal block has been considered for opencast mining in the interest of conservation of reserves and techno economic considerations.

The minimum workable in-band thickness of seam for opencast mining has been taken as 1.00 m. In case of opencast potentiality, a seam has been considered as splitted if the parting between the two sections has attained a thickness of more than 1.00 m and is persistent.

During the course of mining operations, Khora, Dumuhani and Hardara Nala will need to be diverted at different stages of mining operations to ensure safety of mine workings as also for releasing the coal reserves which otherwise would be lost in the safety barriers required to be left against this water channel. Care would also be necessary to provide suitable garland drains as well as embankment along diverted nala route to avoid any inundation of opencast mine workings.

11.2.1 Mine Boundaries

It is proposed to mine maximum area leaving a barrier of 7.5 m on surface from block boundary which is a statutory requirement. The boundaries of PB West & East Quarry PB-NW Quarry are delineated and given in **Table-11.2**.

Mine parameters for the delineated mine boundaries are shown below:

Table 11.2
Boundaries up to 300 m depth line

Particulars	WEST QUARRY				EAST QUARRY	NORTH WEST QUARRY	
	WP -1	WP -2	WP -3	WP -4		PIT-1	PIT-2
North-West Boundary	Incrop of seam I	F ₁₄ and Incrop of seam I	Incrop of seam I	Incrop of seam I	Incrop of seam I	in-crop of K -1 seam Quarry surface has been projected at 45° on the surface, with respect to the quarry floor.	in-crop of K -1 seam Quarry surface has been projected at 45° on the surface, with respect to the quarry floor.
West Boundary	Khora nala and Incrop of	Khora nala and Incrop of	Arbitrary line	Khora nala	F ₄ F ₅	20 m from the Khora – B Nala.	20 m from the Khora – B Nala.

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

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Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

	seam I	seam I					
East Boundary	F ₁₄ & Incrop of seam I	F ₁₀ - F ₁₁	F ₅	F ₅	F ₁ - F ₂ / F ₂ - F ₃	60 m from the Khora - A Nala.	60 m from the Khora - A Nala.
South-East Boundary	F ₁₃	F ₁₀ & F ₁₁	F ₂ and FRL of 300 Seam-II	300 m depth line/ FRL of 120 m Seam II	300 m depth & FRL of 120 m of Seam II	Quarry surface has been projected at 45° on the surface as well as on the confluence of Khora Nala - A & B.	Quarry surface has been projected at 45° on the surface as well as on the confluence of Khora Nala - A & B.

Note: 7.5m-space width is left from the outer boundary of PB NW quarry

Some major system parameters are given in Table 11.3.

Table-11.3
System Parameters

Sl. No.	Particulars	PB-West & East	PB -NW
1.	Maximum Bench Height		
	Top OB	15m	15m
	Coal and Intervening parting	5 - 15m	5 - 15m
2.	Proposed minimum Bench Width		
	Working Bench	50m	40m
	Non-Working Bench Width	25m	25m
3.	Width of the permanent haul road	30m	25m
4.	Width of the temporary transport ramp	10m	10m
5.	Usual height of the spoil dump bench (1Tier)	30m	30m
6.	Width of the active dump bench	30m	30m
7.	Bench Slope		
	OB Bench	70°	70°
	Coal Bench		70°
	Dump bench	37°	37°
	Overall (Ultimate) pit slope	37° (300 m depth)	43° (155m depth)

Chapter -XI Mine Closure Plan

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Page XI - 5

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11.2.2 Geology

The Pakri-Barwadih block (East & West Quarry) comprises of Talchir, Karharbari, Barakar, Barren Measures and Raniganj Formations belonging to Damudas, a Sub-Group of Lower Gondwana. Talchir Formation rest directly over the Pre-Cambrians. The Karharbaris and Barkars are the main coal bearing formations in the block. Stratigraphic succession of the formations in the PB West & East and PB NW is given in the following **Table-11.4 A**.

Table-11.4 A
Stratigraphic Sequence of Pakri-Barwadih Block

Period	Group	Sub-group	Formation	Thickne ss Range	Lithology
Recent	Lower Gondwana	Damuda	Alluvium	3.50 – 25.85	Detrital and Alluvial soil & subsoil
Upper Permian			Raniganj	1.50 – 324.50	Fine to medium grained micaceous sandstone, interbanded shale and sandstone, Carbonaceous shale & thin uneconomic Coal seams.
Upper Permian			Barren Measures	5.14 – 353.00	Dark shale, sandy shale & interbanded shale & sandstone.

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हजारीबाग / Hazaribag

Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

			Barakar	12.50 268.85	- Fine to coarse grained sandstone, Shale, Conglomerate, Carbonaceous shale & Coal seams.
			Karharbari	10.00 81.60	- Medium to coarse grained sandstone, Shale, silicified quartzite rock & thin coal seams.
Permo Carboniferous	--	--	Talcher	0.80 13.50	- Green coloured shale, Boulder & Conglomerate
-----Unconformity-----					
Pre-Cambrian	--	--	Metamorphics	--	Granite, Gneisses & Quartzites

There are a few small outliers of Barakar/ Karharbari/ Talcher Formations occurring over the Pre-Cambrian Basements immediately north of the Pakri-Barwadih Block.

However, in PB North West (sector-A) area small exposures of sand stone and coal seam are found near the bank of Khora Nala in the western margin of the block. At places Karharbari Formation also rest directly over metamorphic. The geological succession established in the PB North West area (sector-A) of the block from sub-surface exploration data is given in Table 11.4 B.

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Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

Page XI - 7

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Table-11.4 B
STRATIGRAPHIC SUCCESSION OF PB NW (SECTOR-A) AREA OF COAL
BLOCK

Period	Group	Sub-Group	Formation (Thickness)	Lithology
Recent & Sub-Recent			Alluvium (3.00 to 23.00m)	Soil & Sub-soil
-----Unconformity-----				
Middle Permian			Barren Measure (44.00 – 138.70m)	Predominantly shale with intercalation of sandstone and shale and arenaceous shale
Lower Permian	Lower Gondwana	amuda	Barakar (19.07m – 137.10m)	Fine to coarse grained sandstones, shale, carbonaceous shale and coal seams.
			Karharbari (5.14m to 91.52m)	Fine to coarse grained sandstone with bands of shale and coal seams
Permo Carboniferous			Talchir 0.65m to 4.64m)	Green coloured shale, boulders and conglomerates
-----Unconformity-----				
Precambrian			Metamorphics (2.80-11.00m)	Gniesses, granites and quartzites

As per the geological report, no major, minor and trace elemental analysis of different rock types was available. The chemical analysis of coal indicates presence of nontoxic minerals. The sandstones of Barakar Formation constitute major part of area forms a principal aquifer. The chemical analysis of ground water shows the trace element like Cu, Mn, Hg, Cd, Se, As, Pb, Zn, Cr, Al and B are present below deduction limit.

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

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Page XI - 8

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The ground water quality indirectly infers the source rocks characters hence, the rock of Pakri-Barwadih Coal block contains no toxic elements.

11.2.3 Reserves

As per United Nations Framework Classification (UNFC) the geological reserves of Pakri-Barwadih (East & West Quarry) can be classified as given in Table 11.5.

Table 11.5

Summary of Coal Reserve in Million tonnes

UNFC Code	Type	Net Coal Reserves
111	Proved Reserves	703
211	Feasibility Mineral Reserves	636
222	Indicated Mineral Reserves	733
Total(111+222)		1436

A total of 137.584 million tonnes of coal reserves has been established in Pakri Barwadih North West (Sector-A) Coal Block, out of which 134.470 m.t falls in proved category and 3.114 m.t in 'Indicated Category'. Category wise Geological Reserve of PB North West Quarry is given in Table 11.6.

Table 11.6

Category wise Geological Reserve of PB North West Quarry

Property	Reserves in Million Tonnes		
	Category		Total
	Proved	Indicated	Total
Opencast	106.263	0.425	106.688
Underground	28.207	2.689	30.896
Total	134.470	3.114	137.584

Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

The seam wise, grade wise and depth wise geological reserves have been provided in Geology chapter.

Net opencastable reserves of Pakri Barwadih is 808.23 Mt, barrier loss and batter loss worked out as 58.74 Mt and 106.22 Mt. Taking into account of mining losses of 20.72 Mt extractable reserves worked out as 642.34 Mt. Percentage of extraction by opencast mine is 78%. Net reserves and extractable reserves along with losses are given in **Table -11.7**.

Table -11.7

Net reserves and extractable reserves and losses.

Seam:	Net Reserve	Barrier Loss	Batter Loss	Mineable Reserves	Mining Loss	Extractable Reserve	% Extraction
	In Mt						
V Top	22.29	0.72	1.57	19.99	0.59	19.40	87.06
V Bottom	15.56	0.51	1.10	13.96	0.41	13.55	87.06
V Combined	11.57	0.21	0.49	10.87	0.44	10.43	90.16
Seam - V	49.42	1.44	3.16	44.82	1.44	43.38	87.78
IV Top	19.82	0.64	2.23	16.95	0.50	16.46	83.01
IV Bottom	9.92	0.32	1.12	8.48	0.25	8.23	83.01
IV Combined	92.32	3.15	10.68	78.49	2.43	76.06	82.39
Seam - IV	122.06	4.10	14.03	103.93	3.18	100.75	82.54
III Top	27.45	1.21	2.04	24.20	0.70	23.49	85.59
III Bottom	9.83	0.43	0.73	8.66	0.25	8.41	85.59
III Combined	4.80	0.21	0.36	4.23	0.12	4.11	85.59

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

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Page XI - 10

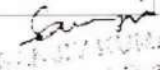
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हजारीबाग / Hazaribag

Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

Seam	Net Reserve	Barrier Loss	Batter Loss	Mineable Reserves	Mining Loss	Extractable Reserve	% Extraction
	In Mt						
Seam - III	42.08	1.85	3.13	37.10	1.08	36.02	85.59
II Top	59.98	4.66	6.21	49.11	1.89	47.22	78.72
II Middle	139.75	11.83	11.24	116.68	3.83	112.86	80.75
II TM	76.09	7.28	5.63	63.18	1.77	61.40	80.70
II Bottom	116.05	10.76	9.90	95.39	2.89	92.50	79.71
II MB	17.90	1.71	1.32	14.86	0.42	14.44	80.70
II Combined	7.35	0.70	0.54	6.11	0.17	5.94	80.70
Seam- II	417.13	36.95	34.85	345.33	10.97	334.36	80.16
I Top	36.93	2.72	9.39	24.81	0.77	24.05	65.11
I Middle	72.97	5.27	18.20	49.49	1.66	47.84	65.56
I TM	2.51	0.23	0.79	1.49	0.04	1.45	57.80
I Bottom	35.60	2.52	8.69	24.39	0.52	23.87	67.06
I MB	14.85	1.35	4.67	8.83	0.24	8.58	57.80
I Combined	3.58	0.33	1.13	2.13	0.06	2.07	57.80
Seam- I	166.44	12.42	42.88	111.14	3.28	107.86	64.81
LL	2.60	0.10	0.35	2.15	0.11	2.04	78.62
K5	0.13	0.01	0.06	0.06	0.01	0.05	36.32
K4	4.21	0.13	1.11	2.97	0.11	2.86	67.83
K3	3.34	0.22	0.86	2.26	0.06	2.20	65.95
K2	5.38	0.27	1.14	3.97	0.07	3.90	72.40

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.


NAVIN KUMAR SINGH
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 No. 34011/(15)/2009-CPAM
 Ministry of Coal, Govt. of India

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Seam	Net Reserve	Barrier Loss	Batter Loss	Mineable Reserves	Mining Loss	Extractable Reserve	% Extraction
	In Mt						
K1	15.24	1.25	4.65	9.34	0.41	8.93	58.62
Seam-Local	30.90	1.98	8.17	20.75	0.77	19.98	64.66
Total	828.03	58.74	106.22	663.07	20.72	642.34	77.58

11.2.4 Mining Method

Opencast mining method for the targeted reserves has been adopted due to following reasons

- a. The coal seams are in cropping at a shallow depth;
- b. The OB : Coal ratio is favorable (3.15 : 1) for opencast mining;
- c. Higher percentage of recovery as compared to underground system.
- d. The mining by opencast method shall be economical against underground method
- e. The opencast mining operations are comparatively safer and ensure higher recovery of coal resource.

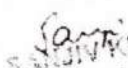
Shovel & dumper combination is recommended for this block to mine the coal due to following reasons:

- i. In view of multiple seams and equal nos. of inter burden layers to be tackled, an equipment system which is capable of dealing many layers at a time (flexibility) of operations with the help of smaller units has been recommended as shovel dumper combination.
- ii. The quality problem can be handled with the help of hydraulic excavators, which have three-dimensional movement of bucket. They are capable of carrying out selective mining.
- iii. Furthermore, to tackle about 15 Mty coal & 66 Mcum of OB from West & East Quarry and 3 Mty and 12 Mm³ OB from several locations in the mine, comparatively medium and higher size shovels of upto 20 m³ bucket capacity have been envisaged along with matching capacity of rear dumpers.

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

Page XI - 12


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iv. Flexibility in operation shall be available due to such equipment system.

11.2.5 Equipment Selection

A. Equipment selection for PB West and PB East Quarries

The geo-mining conditions warrant that the equipment deployed in partings and coal to alternate between the coal seam and partings. Thus, in the process of selection of mining equipment, two major equipment combinations have been proposed. One for Top OB and the other for the coal seams and the partings.

20 cum Electric Rope Shovels operating with 170T-190T class of dumpers shall be deployed in Top OB and 10 cum Electric/Diesel Hydraulic shovel/ backhoe operating with 100-120T class of dumpers in partings and Coal. The size has been decided to meet the twin objective of effective deployment, optimal utilization of the equipment and at the same time keeping the fleet size to manageable levels. This equipment size shall also offer a choice from a variety of vendors during the procurement and facilitate better inventory management.

In the initial years, the mine shall be opened by 10 cum hydraulic shovel/backhoe working with 100-120 T rear dumpers. This is proposed, as this combination shall have much smaller lead time for deployment. Deployment of 20 cum Electric rope shovels shall start as soon as the load for top OB increases.

A part of the Top OB workload is also proposed to be handled by 10 cum hydraulic shovel/backhoe operating with 100-120T rear dumpers. This has been done in years where there isn't enough consistent workload for a deployment of a new 20 cum rope shovel. This gives flexibility to the operations and also ensures better equipment utilization.

It is also proposed to work out the thin seams/partings with the help of high capacity ripper dozers (510hp).

B. Equipment selection for PB NW Quarries.

The geo-mining conditions warrant that the equipment deployed in partings and coal to alternate between the coal seam and partings. Thus, in the process of selection of mining equipment, two major equipment combinations have been proposed. One for Top OB and the other for the coal seams and the partings.

10 cum Electric Rope Shovels operating with 100T class of dumpers shall be deployed in Top OB and 5.5 cum Electric/Diesel Hydraulic shovel/ backhoe operating with 60 T class of dumpers in partings and Coal. The size has been

decided to meet the twin objective of effective deployment, optimal utilization of the equipment and at the same time keeping the fleet size to manageable levels. This equipment size shall also offer a choice from a variety of vendors during the procurement and facilitate better inventory management.

In the initial years, the mine shall be opened by 5.5 cum hydraulic shovel/backhoe working with 60 T rear dumpers. This is proposed, as this combination shall have much smaller lead time for deployment. Deployment of 10 cum Electric rope shovels shall start as soon as the load for top OB increases.

A part of the Top OB workload is also proposed to be handled by 5.5 cum hydraulic shovel/backhoe operating with 60T rear dumpers. This has been done in years where there isn't enough consistent workload for a deployment of a new 10 cum hydraulic shovel. This gives flexibility to the operations and also ensures better equipment utilization.

It is also proposed to work-out the thin seams/partings with the help of high capacity ripper dozers (410hp). These machines shall rip the material, doze to form a heap to be handled by 10 cum front end loaders with 100 T class dumpers.

Detailed list of HEMM deployment has been provided in Chapter-V "Mining".

11.2.6 Mined - Out Land

The opening of a mine, irrespective of the method of mining, has impact on the land use pattern. In the proposed project, the impact on the land is expected due to following activities:-

- Extraction of Coal and Overburden removal.
- Dumping of overburden as well as Coal,
- Construction of infrastructural facilities such as, workshop, office, road etc. within the project area.
- Diversion of Nalla, stream etc.

Mining, dumping, road, built area etc. shall change the existing land use pattern by degrading/utilizing forest and non-forest land. Post mining land use pattern is given in Table 11.8.

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TABLE 11.8

POST MINING LAND USE PATTERN

SL. NO.	TYPE OF LAND USE	AREA IN PB WEST & EAST QUARRY (Ha)	AREA IN PB NORTH WEST QUARRY (Ha)	TOTAL (Ha)
1	Plantation	2844	286	3130
2	Water Body	596	104	700
3	Public Use	105	47	152
4	Grazing	223	24	247
5	Agriculture and Greenbelt	442	24	466
6	Total	4210	485	4695

11.2.7 Water Quality Management

Water is an essential element for sustenance of life supporting system on the earth. It is an essential requirement for all human activities right from survival to the development. Therefore, quality and quantity of water are the utmost important factors for survival and sustainable development. Hydro-geologically, the district is mainly confined to Precambrian crystalline ground water and Gondwana ground water province.

11.2.7.1 Existing Surface and Groundwater bodies

A. Surface Water Resources

The source of the surface water is mainly River, Nallahs and Ponds. The drainage system of the study area is dendrites to sub-dendritic type and well developed. The drainage of the block is controlled by Sunrah River in the east, which finally joins to Badmahi River, which is one of the major tributary of Damodar River flowing in south central part of coalfield. Three major nallahs flows north to south of the area viz. Khora, Dumuhani and Hardara (Pakwah). Besides these major nallahs of the block, there are many small Streams & streamlet, which discharge their load into this major nallahs. All the nallahs of the block are seasonal and become dry during summers.

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B. Ground water sources

The groundwater in sedimentary formation occurs under confined conditions and is limited to the thickness of the formation. The Barakar formation acts as a good aquifer due to high porosity and permeability in the formation. Predominantly western part of the study area comprises of hills and rugged topography, the water level is at great depth as compared to the Padi plain areas. Mostly the rainwater gets run-off in this area and hence the percentage of recharge of ground water is very less. The water table of this area varies from 5m to 20m; in the valley-fill areas, the water table is at shallow depth. The ground recharge in these areas is very high. The major source of drinking water is dug wells and hand pumps, which are available in almost all the villages in the study area.

11.2.7.2 Existing Water Quality (Surface and Groundwater)

Water quality monitoring was carried out in order to collect baseline data on existing water quality, which can be used to predict the impacts due to the project on water regime. Samples were collected from fifteen (15) locations within the block area.

The results of analysis of surface water is given in Table 11.9. The results have been compared with the IS: 10500. It can be seen that at all seven monitoring stations, water from these sources can be used for drinking after conventional treatment and disinfection.

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Table 11.9
Results of Surface Water Analysis

Sl. No	Parameters	Results						
		SW1	SW2	SW3	SW4	SW5	SW6	SW7
1	Colour, Hazen Units	30	>70	20	30	40	20	50
2	Odour	#	#	#	#	#	#	#
3	Turbidity, NTU	30	100	700	1400	1500	1000	340
4	pH at 30oC	7.1	7.25	7.7	7.68	7.34	7.34	7.33
5	Dissolved Oxygen, mg/l	2.06	3.29	5.36	5.05	5.56	5.25	0.3
6	Iron(as Fe), mg/l	5.8	4.48	21.48	13.64	105.89	53.96	12.57
7	Floating Matter (TSS) in mg/l	65	124	720	1480	1840	1140	380
8	Chloride(as Cl), mg/l	14.24	9.5	18.99	9.5	11.87	18.99	56.98
9	Fluoride (as F), mg/l	0.63	0.53	0.42	0.41	0.28	0.13	0.67
10	Total Dissolved Solids, mg/l	130	94	152	122	92	74	310
11	Copper (as Cu) in mg/l	<0.01	<0.01	<0.01	0.026	0.026	0.02	<0.01
12	Sulphate (as SO ₄), mg/l	22.4	20	33.6	18.8	24.22	16	40
13	Nitrates (as NO ₃), mg/l	0.39	1.65	0.71	2.38	0.56	0.66	0.27
14	BOD (3 days at 27°C), mg/l	40	44	22	28	24	46	54

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15	Phenolic Compound (as C ₆ H ₅ OH) in mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Cadmium (as Cd) in mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Selenium (as	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
18	Arsenic (as As) in mg/l	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
19	Lead (as Pb) in mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Zinc (as Zn) in mg/l	<0.005	<0.005	0.03	0.077	0.026	0.03	0.156
21	Anionic Detergent (MBAS) in mg/l	0.11	0.16	0.49	0.6	0.62	0.46	0.25
22	Hexavalent Chromium (as Cr+6) in mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
23	Oil & Grease in mg/l	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
24	Total coliform org. MPN/100 ml	36	230	210	73	91	36	2400
#Unobjectionable								

The results of analysis of ground water are given as **Tables 11.10 A, 11.10 B and 11.10 C**. The results have been compared with the drinking Water Quality standards specified in IS 10500. From the results it transpires that the ground water quality parameters meet the prescribed norms.

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RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

Page XI - 18

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Table 11.10A
Results of Ground Water Analysis

Sl. No.	Parameter	Norms		Results			
		Desirable limits *	Permissible limits **	GW1	GW2	GW3	GW4
Essential Characteristics							
1	Colour	5	25	<5.0	<5.0	<5.0	<5.0
2	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Odour	#	#	#	#	#	#
4	Turbidity as NTU	5max.	10	<1.0	<1.0	2.9	<1.0
5	pH	6.5-8.5	6.5-8.5	7.52	7.41	7.67	7.32
6	Total Hardness (as CaCO ₃) in mg/l	300	600	233.12	297.92	219.52	246.96
7	Iron (as Fe) in mg/l	0.3	1	<0.1	<0.1	0.14	<0.1
8	Chlorides (as Cl) in mg/l	250	1000	33.11	85.53	17.47	47.82
9	Fluoride (as F) in mg/l	1	1.5	0.16	0.56	0.4	0.19
10	Residual Free Chlorine in mg/l	0.2		NIL	NIL	NIL	NIL
Desirable Characters							
11	Total Dissolved Solids in mg/l	500	2000	320	428	262	324
12	Calcium (as Ca) in mg/l	75	200	59.58	73.7	68.99	61.15
13	Magnesium (as Mg) in mg/l	30	100	21.64	27.28	11.29	22.58
14	Copper (as Cu) in mg/l	0.05	1.5	<0.01	<0.01	<0.01	<0.01
15	Manganese (as Mn) in mg/l	0.1	0.3	<0.01	<0.01	<0.01	<0.01
16	Sulphate (as SO ₄) in mg/l	200	400	6	30.8	2	21.2

Chapter -XI Mine Closure Plan

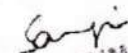
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Page XI - 19

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17	Nitrates (as NO ₃) in mg/l	45	100	<0.1	<0.1	<0.1	<0.1
18	Phenolic Compound (as C ₆ H ₅ OH) in mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001
19	Mercury (as Hg) in mg/l	0.001	0.001	<0.0005	<0.0005	<0.0005	<0.0005
20	Cadmium (as Cd) in mg/l	0.01	0.01	<0.005	<0.005	<0.005	<0.005
21	Selenium (as Se) in mg/l	0.01	0.01	<0.005	<0.005	<0.005	<0.005
22	Arsenic (as As) in mg/l	0.05	0.05	<0.03	<0.03	<0.03	<0.03
23	Lead (as Pb) in mg/l	0.05	0.05	<0.05	<0.05	<0.05	<0.05
24	Zinc (as Zn) in mg/l	5	15	<0.005	<0.005	<0.005	<0.005
25	Anionic Detergent (MBAS) in mg/l	0.2	1	NIL	NIL	NIL	NIL
26	Hexavalent Chromium (as Cr+6) in mg/l	0.05	0.05	<0.01	<0.01	<0.01	<0.01
27	M-Alkalinity (as CaCO ₃) in mg/l	200	600	254.8	156.8	229.32	203.84
28	Aluminium (as Al) in mg/l	0.03	0.2	<0.01	<0.01	<0.01	<0.01
29	Boron (as B) in mg/l	1	5	0.26	0.86	2.84	3.73
30	Cyanide (as CN) in mg/l	0.05	0.05	<0.01	<0.01	<0.01	<0.01
31	Mineral Oil, mg/l	0.01	0.03	<0.01	<0.01	<0.01	<0.01
*:Requirement(Desirable limits),#:Unobjectionable							
**:Permissible limits in the absence of alternate source							


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Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

Page XI - 20


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Table 11.10 B
Results of Ground Water Analysis

Sl. No	Parameter	Norms		Results			
		Desirable limits *	Permissible limits **	GW5	GW6	GW7	GW8
				10.06.0 5	10.06.0 5	12.06.0 5	12.06.0 5
Essential Characteristics							
1	Colour	5	25	<5.0	<5.0	<5.0	<5.0
2	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Odour	#	#	#	#	#	#
4	Turbidity as NTU	5	25	1.7	<1.0	3.5	1.6
5	pH	6.5-8.5	6.5-8.5	7.37	7.47	7.27	7.52
6	Total Hardness (as CaCO ₃) in mg/l	300	600	235.2	211.68	301.84	348.88
7	Iron (as Fe) in mg/l	0.3	1	<0.1	0.12	0.53	0.76
8	Chlorides (as Cl) in mg/l	250	100	68.05	20.23	44.14	93.81
9	Fluoride (as F) in mg/l	1	1.5	0.38	0.47	0.072	0.092
10	Residual Free Chlorine in mg/l	0.2		NIL	NIL	NIL	NIL
Desirable Characters							
11	Total Dissolved Solids in mg/l	50	200	235.2	211.68	301.84	348.88
12	Calcium (as Ca) in mg/l	75	200	61.15	65.86	98.78	106.62
13	Magnesium (as Mg) in mg/l	30	100	19.75	11.29	13.17	19.75

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

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Page XI - 21

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Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

14	Copper (as Cu) in mg/l	0.05	1.5	<0.01	<0.01	<0.01	<0.01
15	Manganese (as Mn) in mg/l	0.1	0.3	<0.01	<0.01	<0.01	<0.01
16	Sulphate (as SO ₄) in mg/l	200	400	61.15	65.86	98.78	106.62
17	Nitrates (as NO ₃) in mg/l	45	100	<0.1	<0.1	<0.1	<0.1
18	Phenolic Compound (as C ₆ H ₅ OH) in mg/l	1	2	<0.001	<0.001	<0.001	<0.001
19	Mercury (as Hg) in mg/l	1	1	<0.0005	<0.0005	<0.0005	<0.0005
20	Cadmium (as Cd) in mg/l	0.01	0.01	<0.05	<0.05	<0.05	<0.05
21	Selenium (as Se) in mg/l	0.01	0.01	<0.05	<0.05	<0.05	<0.05
22	Arsenic (as As) in mg/l	0.05	0.05	<0.03	<0.03	<0.03	<0.03
23	Lead (as Pb) in mg/l	0.05	0.05	<0.05	<0.05	<0.05	<0.05
24	Zinc (as Zn) in mg/l	5	15	<0.005	<0.005	<0.005	<0.005
25	Anionic Detergent (MBAS) in mg/l	0.2	1	NIL	NIL	NIL	NIL
26	Hexavalent Chromium (as Cr+6) in mg/l	0.05	0.05	<0.01	<0.01	<0.01	<0.01
27	M-Alkalinity (as CaCO ₃) in mg/l	200	600	188.16	203.84	260.68	184.24
28	Aluminium (as Al) in mg/l	0.03	0.2	<0.01	<0.01	<0.01	<0.01
29	Boron (as B) in mg/l	1	5	3.77	1	1.42	1.29

Chapter -XI Mine Closure Plan

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Page XI - 22

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Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

30	Cyanide (as CN) in mg/l	0.05	0.05	<0.01	<0.01	<0.01	<0.01
31	Mineral Oil mg/l	0.01	0.03	<0.01	<0.01	<0.01	<0.01
*:Requirement(Desirable limits),#:Unobjectionable							
**:Permissible limits in the absence of alternate source							

Table 11.10 C
Results of Ground Water Analysis

Sl. No.	Parameter	Norms		Results		
		Desirable limits *	Permissible limits **	Sinduari	Pakri-Barwadih	Deworia-Khurd
				15.12.05	15.12.05	18.12.05
Essential Characteristics						
1	Colour	5	25	<5	<5	<5
2	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Odour	#	#	#	#	#
4	Turbidity as NTU	5 max.	10	<1	5.2	<1
5	pH	6.5-8.5	8.5	6.5-7.97	7.73	7.99
6	Total Hardness (as CaCO ₃) in mg/l	300	600	355.52	298.96	246.44
7	Iron (as Fe) in mg/l	0.3	1	0.37	0.25	BDL
8	Chlorides (as Cl) in mg/l	250	1000	81.29	79.15	38.5
9	Fluoride(as F) in mg/l	1	1.5	0.23	0.15	BDL
10	Residual Free Chlorine in mg/l	0.2	-	NIL	NIL	NIL
Desirable Characters						

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Chapter -XI Mine Closure Plan


RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

11	Total Dissolved Solids in mg/l	500	2000	390	3	248
12	Calcium (as Ca) in mg/l	75	200	87.26	64.64	72.72
13	Magnesium (as Mg) in mg/l	30	100	32.96	32.97	15.51
14	Copper (as Cu) in mg/l	0.05	1.5	BDL	BDL	BDL
15	Manganese (as Mn) in mg/l	0.1	0.3	BDL	BDL	BDL
16	Sulphate (as SO ₄) in mg/l	200	400	22.88	7.49	3.74
17	Nitrates (as NO ₃) in mg/l	45	100	16.38	6.05	5.19
18	Phenolic Compound (as C ₆ H ₅ OH) in mg/l	0.001	0.002	BDL	BDL	BDL
19	Mercury (as Hg) in mg/l	0.001	0.001	BDL	BDL	BDL
20	Cadmium (as Cd) in mg/l	0.01	0.01	BDL	BDL	BDL
21	Selenium (as Se) in mg/l	0.01	0.01	BDL	BDL	BDL
22	Arsenic (as As) in mg/l	0.05	0.05	BDL	BDL	BDL
23	Lead (as Pb) in mg/l	0.05	0.05	BDL	BDL	BDL
24	Zinc (as Zn) in mg/l	5	15	0.05	BDL	BDL
25	Anionic Detergent (MBAS) in mg/l	0.2	1	NIL	NIL	NIL
26	Hexavalent Chromium (as Cr+6) in mg/l	0.05	0.05	BDL	BDL	BDL
27	M-Alkalinity (as	200	600	232	199.52	180.96

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.


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Page XI - 24


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Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

	CaCO ₃) in mg/l					
28	Aluminium (as Al) in mg/l	0.03	0.2	BDL	BDL	BDL
29	Boron (as B) in mg/l	1	5	BDL	1.25	BDL
30	Cyanide (as CN) in mg/l	0.05	0.05	BDL	BDL	BDL
31	Mineral Oil, mg/l	0.01	0.03			NIL
*Requirement (Desirable limits); #: Unobjectionable						
**Permissible limits in the absence of alternate source						

11.2.7.3 Ground Water

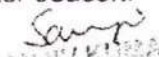
Groundwater occurrence and storage in study area are mainly controlled by the geological set up of the area. The ability of geological formation to store and transmit water is dependent on its formation parameters, such as porosity and hydraulic conductivity.

Ground water in unconsolidated rocks circulated to a limited extent through the secondary openings represented by joints, cracks, fissures and such other planes of discontinuity. The weathered residuum of the hard rocks as well as the fractures, joints, fissures, faults and other zones of discontinuity are the principle repositories of groundwater in the area. Ground water in the weathered and fracture zones of hard rocks occur under unconfined condition. Depth of the water-table in the hard rock of the area generally ranges from 2.0 m to 15.0 m below ground level. The Gondwana sediments form the semi-consolidated formations and are better water potential zone. Gondwana sandstones are known to constitute good aquifers and ground water occurs at 7-14 m as observed in the dug wells. Depth of water level for pre-monsoon period varies from 5-7 mbgl around the block to some places it stretches to a deeper depth of 7-12 m.

Hydrogeological condition together with climate and topography influences the occurrence and movement of ground water in this region. The major source of the water in the region is south-west monsoon during summer and very small contribution from the north-east during the winter season.

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.


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Page XI - 25


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In the study area ground water is withdrawn usually by means of open dug-wells and small diameter hand operated tube-wells. The tube-wells are most often deeper (18 m–58 m) than the dug wells and tap the fractures below the weathered mantle. During the wet monsoon seasons, the net evaporation is less than the precipitation, resulting in surplus water which loss through either surface runoff or being part of the subsurface storage.

In order to calculate the water potential and impact of proposed mining activity, the sub-watershed has been demarcated. The sub-watershed confining the contributing and receiving steams has been studied. Physical characteristics of the sub-water shed are given at **Table 11.11**.

Groundwater levels in the open wells of the villages surrounding the core zone were measured during June (Summer Season) and October (Post-Monsoon season), 2005. The measured water levels are given in **Table 11.12**.

Table 11.11
Physical Characteristics Sub-Water Shed

Sl. No.	Characteristics	Value
1.	Area	176.46
2.	Drainage density	5.3
3.	Length of river/ stream in sub- watershed	Ghagra Nadi
4.	Elevation variation	405–681

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Table 11.12
Ground Water Levels in Open Wells

Sl. No.	Village	Pre-monsoon	Post-monsoon	Fluctuation (m)
		(June' 2005) (m)	(Oct' 2005) (m)	
1	Garri Kalan	8.23	2.44	5.79
2	Jamira (S)	6.71	3.35	3.36
3	Jamira (N)	15.25	6.71	8.54
4	Mataji	14.64	8.54	6.1
5	Khdabar	9.15	2.13	7.02
6	GarriKhurd	9.15	2.44	6.71
7	DeoriaKhurd	4.57	2.44	2.13
8	Darri Kalan	8.85	3.05	5.8
9	Karrigada	9.15	2.44	6.71
10	Changara	3.05	1.52	1.53
11	Sikri	6.41	3.05	3.36
12	Chandol	7.32	2.44	4.88
13	Pandual	10.67	3.05	7.62
14	Badam	5.79	2.13	3.66
15	Ambajit	8.23	2.13	6.1
16	Pipradih	5.79	2.44	3.35
17	Pakri	6.41	2.74	3.67
18	Chepa Khurd	7.62	2.44	5.18
19	Jugra	8.54	3.05	5.49
20	Chepa Kalan	6.71	1.83	4.88
21	Upardari	5.49	3.05	2.44
22	Barwadih	10.67	4.57	6.1
23	Nagribad	4.25	2.13	2.12
24	Sinduari	5.49	1.52	3.97
25	Sanbarsa	7.93	3.35	4.58
26	Rajhar	7.93	2.74	5.19
27	Palah	9.15	2.13	7.02
28	Horam	7.62	1.52	6.1
29	Harli	7.62	1.52	6.1
30	Bisrampur	6.1	2.13	3.97
31	Balta	11.89	4.88	7.01
32	Pahre	10.98	3.05	7.93
	Average	8.04	2.9	5.14

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

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Page XI - 27

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11.2.7.4 Impact on water quality due to Mining

Washing of coal has not been envisaged at present.

11.2.7.5 Impact on Surface Water

The surface water quality is likely to be affected with higher load of suspended solids by the following:

- Wash off from dumps
- Soil erosion from mine and roads
- Pumping out mine water to surface water channels

The outside dump may contribute to the pollution of surface water in terms of suspended solids. Since dumping location proposed to be carried out at a safe distance from nallahs, it shall have negligible impact on water pollution.

The pumped out water during dewatering may carry higher levels of suspended solids. Other sources of pollution are by oil spillage at the pit head and at the facilities viz. Workshop, resulting in oil and grease contamination of surface water if appropriate control measures are not adopted.

Ground water pollution can take place only if dumps and stockpiles contain harmful chemical substances, which may get leached by precipitation of water and percolate to the ground water table, thus causing water pollution.

However, this is not the case with this mine, as neither the coal nor the OB, contains any harmful ingredients which may leach down to the water table and pollute it. Therefore, no adverse impact on ground water quality is anticipated considering this aspect. The leaching down of pollutants (oil, grease etc.) to the ground water may render the water non-potable and hence cannot be used by the local people. The percolation of sewage waste from the pit head as well as colony area shall also pollute the ground water if control measures are not adopted as envisaged in the management plan.

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11.2.7.6 Impact on water regime

The mining operation starting from western side of the coal block shall affect Dumuhani Nallah, Khora Nallah and distributary streams and streamlets joining it from northern part of the block. The nallah flows in more or less NNE to SSW direction across the western part of the lease and finally joins the Haharo-Nadi outside the southern part of lease. Groundwater level of the area varies from 25 to 35 m from the surface. The opencast mining below ground water level shall involve release of water in order of 500 m³/hr. through pumping, which shall be discharged to the proposed garland nallah along north-eastern boundary of lease. The drawl of this quantity of water is expected to be recharged through rains during monsoon which is 200-800 mm in monsoon and 100-200 mm in post & pre-monsoon season.

In addition, water requirement of 526 m³/ day for PB West Quarry and 553 m³/ day for PB North West Quarry for the domestic purposes shall also be met through bore wells. Industrial water requirement for drilling, spraying over road, washing of machinery etc. shall be met through creating a small reservoir on Dumuhani Nallah, at eastern boundary of the lease and drawl through pumping.

11.2.7.7 Water Requirement

A. PB West and PB East Quarry:

The average daily demand of water for the proposed mine shall be 4576 m³/d whereas peak daily demand shall be 5256 m³/d. Of the 5256 m³/d of water (peak daily demand) to be consumed in the project, 4730 m³/d of industrial water requirement shall be met by utilizing treated mine discharge water (650 m³/d of water shall be the recycled second used water generated from pit head bath and equipment washing). Balance 526 m³/d of water required for drinking and for domestic purposes in the township, shall be drawn from bore-wells. The water requirement and source of water are given in Table 11.6 and Table 11.7 respectively.

B. PB North West Quarry:

The average daily demand of water for the proposed mine shall be 1089 m³/d. Of the 1089 m³/d of water to be consumed in the project, 537 m³/d of industrial water requirement shall be met by utilizing treated mine discharge water. Balance 553m³/d of water required for drinking and for

domestic purposes in the township, shall be drawn from bore-wells. The water requirement is given in Table 11.13A and Table 11.13B. Source of Water Supply for PB West & East Quarry is given in Table 11.14.

Table 11.13 A
Water Requirement (m³/day) for West & East Quarry

Purpose	Avg. Demand	Peak Demand
A. Mine site		
1. Mine operation		
a) Drilling & Spraying	1200	15 00
2. Land reclamation	Included in above	Included in above
3. Dust suppression	Included in above	Included in above
4. Drinking	526	5
5. Green Belt	1750	20
6. Beneficiation	Not Applicable	Not Applicable
7. Washery	Not Applicable	Not Applicable
8. Fire Service	Nil	1
9. Others		
a. Pit Head Bath	200	2
b. Equipment Washing	700	0
c. Misc.	200	0
B. Township		
1. Green Belt	Included under sl.4/5	Included under sl.4/5
2. Domestic	Included under sl.4	Included under

Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

3. Other(specify)	Not Applicable	Not Applicable
Total	4576	52

TABLE 11.13 B
WATER REQUIREMENT FOR PB NORTH WEST QUARRY

SL. NO.	PARTICULARS	m ³ /day (Avg.)
1	Drinking Water Demand	553
2	Non- Drinking Water Demand	537
	Total water demand (1+2)	1090

Table 11.14
Source of Water Supply for PB West & East Quarry

Sl. No.	Source	m ³ /day (Avg.)
1	River (Specify)	
2	Ground water	526
3	Mine water (surmp/ pit)	3400 Treated Mine Discharge Water + 650 Treated Effluents (2ndUse)
4	Other surface water bodies (specify)	Nil

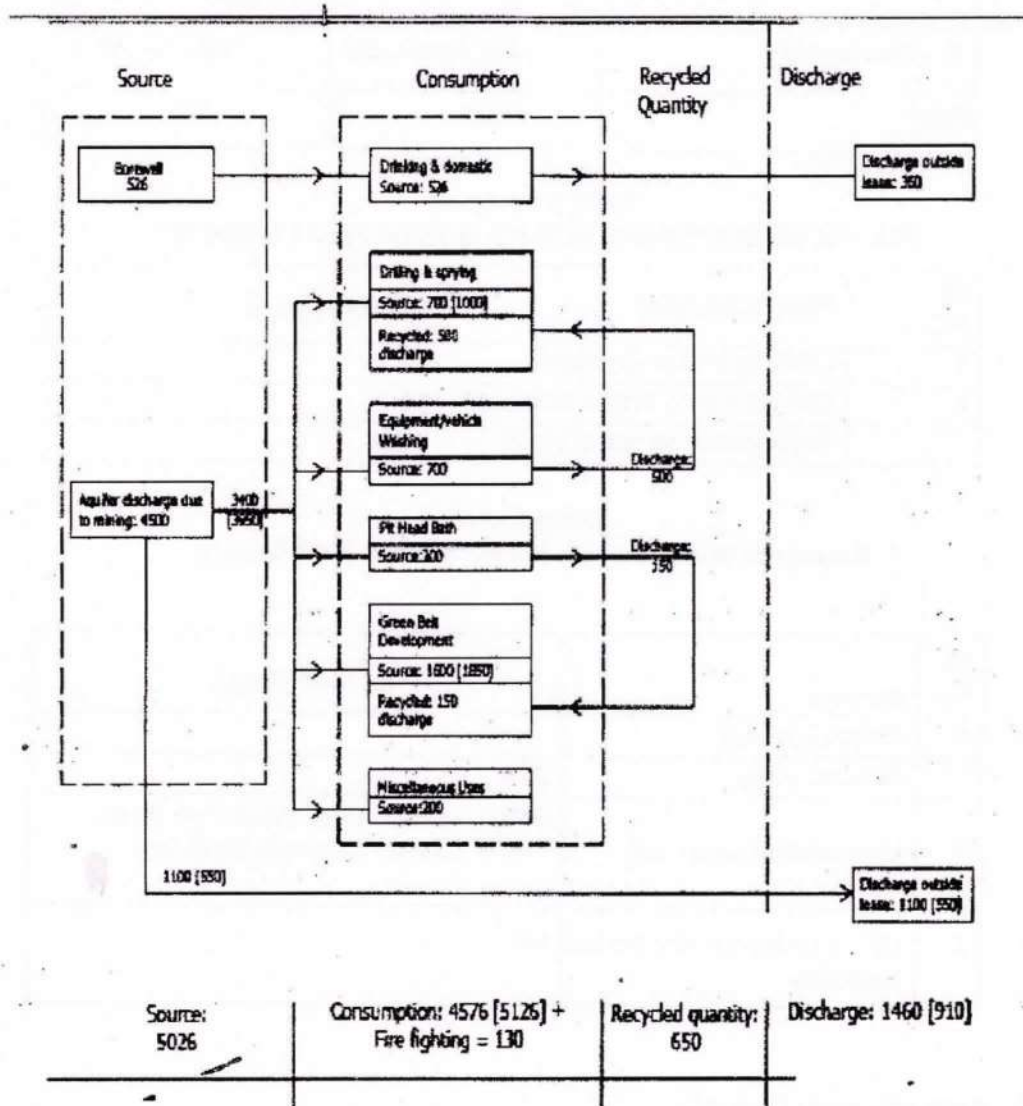
11.2.7.8 Water Balance Diagram

(a) Water Balance chart for PB West and East Quarry is **Fig-11.1:**

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Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block



1. Figures are in m³/d
2. Figures outside [] corresponds to average daily water demand.
3. Figures within [] corresponds to daily demand in peak season. [] values are indicated only when peak demand is different than average demand; Otherwise daily demand in peak season and average daily demand should be taken as equal.

Fig-11.1

Water Balance chart for PB West and East Quarry

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

Page XI - 32

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(b) Water Balance chart for PB North West Quarry is given in Fig-11.2.

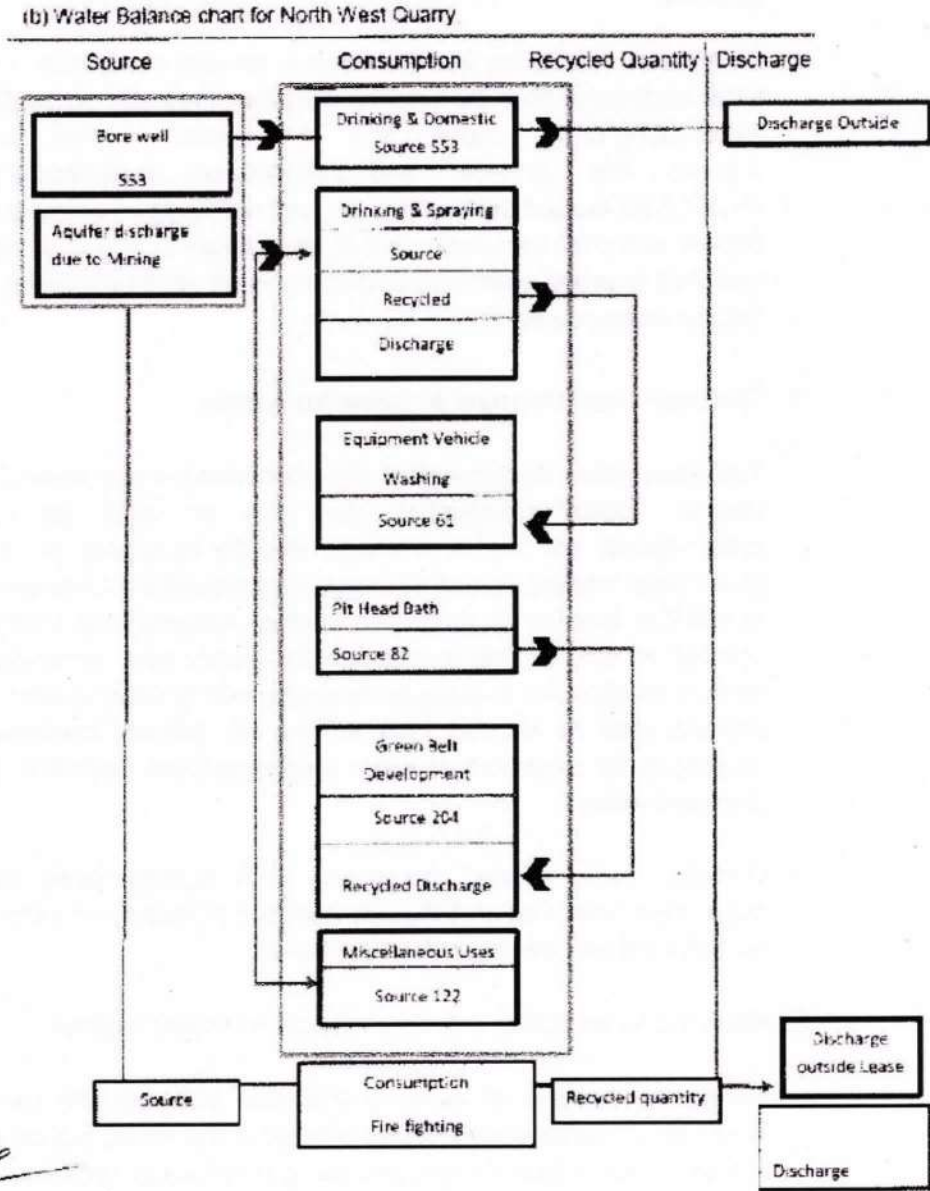


Fig-11.2

Water Balance chart for PB NW Quarry

11.2.7.9 Water Pollution Control Measures

A. Measures to control erosion/sedimentation of water courses

Continuous monitoring shall be done to remove overburden material and loose sediments from the working mine benches and excavation zone to avoid rolling of the same into the water course and thereby prevent the erosion and sedimentation. Retention wall shall be constructed around the dump to prevent rolling down of loose sediments. Settling pits shall be constructed at appropriate locations along the water channels to arrest sediments and clean water shall be allowed to flow into natural water course.

B. Treatment and disposal of water from mine

The water inside the mine pit is expected from the rain water during rainy season. Entire precipitation over the pit shall be channelized systematically into natural drainage. In order to ensure the discharge of clean water into the natural drainage, sedimentation ponds shall be made at suitable location to arrest the sludge. Accumulated sludge shall be scraped off time to time to maintain the proper mine water discharge. In order to monitor and subsequent management of water quality, monitoring stations shall be located near settling pit. Effluent treatment plant is envisaged for treatment of water discharge from workshop as well as domestic waste.

Garland drains around the quarry with settling tanks shall arrest suspended solid matter. Effluents from the workshop and the CHP shall be collected and treated before discharge.

C. Measure to minimize adverse effects on water regime

During the process of mine rehabilitation and with the completion of backfilling, a water body shall be created in the mined out pit which shall act as water reservoir improving the ground water recharge, source of attraction for fauna and shall help in the maintenance of afforested areas. To enhance aesthetic appearance, parks and lawns shall be made around the water body.

Selected water quality parameters of ground and surface water resources within 10 km radius of the study area have been studied for assessing the water environment and evaluate anticipated impact of the proposed project. Secondary data shows that water quality in ground water sources is within permissible limits.

11.2.7.10 Proposed Nallah Diversion / Construction of catchment canal

A. PB West and East Quarry:

The study area has dendritic pattern of drainage. Three different nallahs viz Khora/ Lathorwa (Western), Dumuhani (Central) and Pakwa (Eastern) Nallah traverse through the coal mining block. The Table 11.15 below gives the particulars of three nallahs.

Table 11.15
Details of Nallah

Sl. No.	Name of the Nallah	Length of Nallah (km)	Catchment area (Sq. km)
1	Western	18.35	54.86
2	Central	-	25.64
3	Eastern	18.75	51.92

Central nallah originates at a small distance upstream of the northern boundary of the coal mining block and traverses towards south. The mining activity would be carried out in such a way that the catchment area of the central nallah shall go on reducing towards south. Water entering the central nallah from the upper catchment at the northern boundary of the coal mining block would be diverted through canals constructed along the boundary of the mining block to eastern and western nallah.

Precipitation falling within the mining block from the catchment area of central nallah would be pumped to the eastern and western nallah progressively. All the three nallahs rise in the hills on northern side of the coal mining block and flow towards south. The nallah pass through steep falls in the range of 5 to 10 m spread over a length of about 600 to 800 m.

Investigations for locating the check dam on eastern and western nallahs have been carried out and six sites each on Khora Nallah and Pakwa

Nallah have been identified. Attempts were made to ensure that there is no change in the alignment and location of all three nallahs in coal mining block.

It is proposed to tap the discharge of central nallah at the northern boundary of the coal mining block and transfer flows to eastern and western nallahs through diversion canals to be constructed near the outer boundary of the mining block. The alignment is more or less along 460 m contour. The eastern arm of diversion canal would continue to traverse a distance of about 5100 m before reaching the outfall point in Pakwa Nallah. Similarly, western arm would flow for a length of about 800 m up to outfall in Khora Nallah. A fall structure with height of fall equal to difference in elevation of canal bed and nallah bed is to be provided at the end of canal alignment.

Catchment area of central nallah up stream of diversion canal is 7.6 sq. Km and maximum flood discharge component from this area was derived as 57.44 m³/s. Out of this flow only 90% is proposed to be diverted to eastern nallah i.e. 51.7 m³/s and remaining would be diverted to western nallah. Component of discharge from the catchment of eastern nallah that would get blocked due to diversion canal was estimated as 1.81 m³/s. Thus total discharge in eastern canal would be 53.51 m³/s and the design discharge for the eastern part of the diversion canal was computed as 58.86 m³/s.

Component of discharge from the catchment of western nallah was estimated as 1.5 m³/s. Thus total discharge in western canal would be 7.24 m³/s and by adding 10% to account for safety, the design discharge for the western arm of the diversion canal was computed as 7.94m³/s.

The diversion canal is required to be designed for the maximum discharge derived above and aligned along the north-eastern boundary of the mining block. As the canal is proposed in are mostly hilly area near reserve forest and the bed material consisting of boulders; maintenance of the canal would be difficult. So, an unlined canal is suggested. The details of a typical section of eastern arm of diversion canal derived for two different bed slopes are in Table 11.16

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Table 11.16

Details of Eastern Arm of Diversion Canal

Design discharge (m ³ /s)	60	60
Slope	1 in 1000	1 in 500
Bed width (m)	5	5
Side slope (m)	2 H to 1 V	2 H to 1 V
Depth off low (m)	3.24	2.74
Manning's (n)	0.03	0.03
Velocity (m/s)	1.62	2.09
Freeboard (m)	1.5	1.5

The dimensions of western arm of diversion nallah were also derived on the similar lines of eastern arm.

B. PB North West Quarry:

The study area has dendritic pattern of drainage. Two different nallahs viz Khora A & B on the western and eastern sides traverse through the coal mining block.

Both nallah originates at a small distance upstream of the northern boundary of the coal mining block and traverses towards south. The mining activity would be carried out in such a way that the catchment area of the nallah shall go on reducing towards south.

Meandering part of Khora Nala – B at the western side of the block approximately 1 km in length is planned for straightening. Except this re-alignment rest part of nala shall not be disturbed. An embankment suitably sloped both sides shall be constructed to prevent in-rush during rainy season and flash flood. A road of 5m wide shall run all alongside the embankment.

After 25th year of mine operation, Khora Nala – A is envisaged to be diverted on the back filled area of PB. A separate study for diversion shall be conducted at appropriate time and recommendation after approval

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from relevant competent authority shall be implemented. This shall help in releasing approximately 32Mt of coal in the barrier and batter of PB – A and PB (west) mines.

11.2.7.11 Impact on villagers due to Nala diversion

Three nalas viz. western nala (Khora/Lathorwa), central nala (Dumuhani) and eastern nala (Pakwa) traverse through Pakri Barwadih coal mining block and outfall into Haharo River one Km south of lease area, near Barkagaon village. The eastern and western nalas originate upstream of the coal mining boundary on north side. It is proposed to divert flow of the central nala outside the boundary through canals constructed along the boundary of the Western Quarry of the mining block to eastern and western nala. Since the water flow in the central nala shall outfall into Haharo River through canals at same point where it was joining that before diversion. Hence there shall be no effect of diversion downstream the lease area. The lease area shall also be evacuated for mining operations. Hence there shall also be no effect on villagers living in the lease area.

11.2.8 Air Quality Management

There shall be constant monitoring of air quality to keep within the prescribed norms. Dust pollutants are generated during blasting and while operating diesel equipment and these shall be kept at minimum levels by ensuring good blast design and good equipment maintenance. Dust suppression system and dust extraction System shall be in operative. Plantation around the quarry and CHP shall put up a green belt for mitigating air pollution.

11.2.8.1 Existing air quality status

To quantify the impact of the proposed mining and allied activities on the ambient air quality, it is necessary at first to evaluate the existing ambient air quality of the core and the buffer zones. The existing ambient air quality, in terms of Suspended Particulate Matter (SPM), Respirable Particulate Matter (RPM), Sulphur-dioxide (SO₂), Oxides of Nitrogen (NO_x), Carbon Monoxide (CO), Lead (Pb) and Dust fall has been measured through a planned field monitoring.

To assess the ambient air quality level, 15 (fifteen) monitoring stations (includes 4 from core zone) were set up to a maximum distance of 10.0 km from core zone limit (Buffer Zone). Table 11.17 gives summarised ambient air quality results.

The results when compared with National Ambient Air Quality Standards (NAAQS) of Central Pollution Control Board (CPCB) for "Residential and Rural Areas" shows that the ambient air quality is within the stipulated limit except with respect to SPM at a number of stations. Dust blowing from the unpaved roads and dry agricultural fields account for the high SPM levels.

Dust fall rates were recorded as 30 days average during monitoring periods at twelve

(12) AAQ monitoring stations. The results are given in Table 11.18.

In absence of Indian Norms, the results have been compared with the German norm published in TA Luft, 1986 which is as follows:

98 percentile value : $0.65 \text{ g/m}^2/\text{d}$

The above results indicate that the dust fall rates at all the stations, except at Pundaul and are within the compared German standards.

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Table 11.17 - Summarized Ambient Air Quality Results

Parameters	SP			RP			SO			NOx			CO			Lead			
	Min.	Max	Arth. Mea	Min.	Max	Arth. Mea	Min.	Max	Arth. Mea	Min.	Max	Arth. Mea	Min.	Max	Arth. Mea	Min.	Max	Arth. Mean	
Permissible AAQ standard(CPB)	200	100	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	1.00	
	500	150	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	1.50	
	150	75	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	0.75	
Monitoring Location	Category	Min.	Max	Arth. Mea	Min.	Max	Arth. Mea	Min.	Max	Arth. Mea	Min.	Max	Arth. Mea	Min.	Max	Arth. Mea	Min.	Max	Arth. Mean
Barkagaon	R	142	318	251.9	64	147	108.5	<10	10.6	<10	21.4	37.8	30.7	<0.00	0.051	<0.00	0.051	0.042	0.047
Sinduari	R	139	340	254.9	59	131	104	<10	11.2	<10	41.9	88.8	31.7	<0.00	0.013	<0.00	0.013	<0.003	0.007
Pundaui	R	146	349	260.6	63	139	104.8	<10	10.3	<10	20.6	38.2	30.2	<0.00	<0.00	<0.00	<0.00	<0.003	<0.003
Sirma	R	175	184	179.3	62	85	79	<10	<10	<10	19.5	34.6	25.8	<0.00	<0.00	<0.00	<0.00	<0.003	<0.003
Hesabar	R	104	201	252.5	45	78	61.5	<10	<10	<10	15.0	23.6	20.1	<0.00	<0.00	<0.00	<0.00	<0.003	<0.003
Kandabar	R	155	387	281.4	62	172	119.4	<10	11.3	<10	16.0	38.5	23.5	<0.00	<0.00	<0.00	<0.00	<0.003	<0.003
Rajhar	R	116	204	176.5	49	92	69.1	<10	<10	<10	14.3	27.3	21.5	<0.00	0.034	<0.00	0.034	0.022	0.028
Garriklan	R	172	398	314.5	80	180	103.4	<10	12.8	<10	24.0	52.9	40.0	<0.00	<0.00	<0.00	<0.00	<0.003	<0.003
Sikri	R	114	314	224.9	45	129	89.8	<10	<10	<10	15.7	38.4	25.6	<0.00	<0.00	<0.00	<0.00	<0.003	<0.003
Kanrtari	R	152	373	271.5	70	155	112.3	<10	<10	<10	161.0	35.9	24.4	<0.00	<0.00	<0.00	<0.00	<0.003	<0.003
Bisarpur	R	142	417	306.3	68	182	124.6	<10	13.4	<10	25.5	56.5	28.8	<0.00	<0.00	<0.00	<0.00	<0.003	<0.003
Badam	R	158	405	258.3	57	197	111.8	<10	<10	<10	18.1	32.7	27.4	<0.00	<0.00	<0.00	<0.00	<0.003	<0.003
Sukulkhapi	R	112	314	200.5	50	124	84.3	<10	<10	<10	15.7	31.5	24.0	<0.00	<0.00	<0.00	<0.00	<0.003	<0.003
Deuntiakhur	R	268	346	296.5	101	133	119.5	<10	<10	<10	21.5	27.7	24.9	<0.00	<0.00	<0.00	<0.00	<0.003	<0.003
Upardri	R	118	351	213.3	54	162	99.3	<10	<10	<10	17.6	32.5	24.6	<0.00	<0.00	<0.00	<0.00	<0.003	<0.003

Chapter - XI Mine Closure Plan

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Table 11.18
Measurement of Dust fall Rate

Station Location	Station No.	Results(g/m ² /d)
Barkagaon	A1	0.468
Sinduari	A2	0.599
Pundaul	A3	1.528
Sirma	A4	0.185
Kandabar	A5	0.576
Rajhar	A6	0.128
Garrikalan	A7	2.415
Sikri	A8	0.238
Kanrtari	A9	0.424
Bisrampur	A10	0.511
Badam	A11	0.382
Deuriakhurd	A12	0.476

11.2.8.2 Impact on Air Quality due to Mining

A. Construction Phase

Impacts of construction activities on air quality are cause for concern mainly in the dry months due to dust particles. The main sources of emission during the construction period are the movement of equipment at site and dust emitted during the levelling, grading, earthworks, foundation works and other construction related activities. The dust emitted during the above mentioned activities depend upon the type of soil being excavated. The dust generated during the construction activities shall however, settle quickly. Therefore, the impact shall be for short duration and confined locally to the construction site. The composition of dust in this kind of operation is, however, mostly inorganic and non-toxic in nature.

Exhaust emissions from vehicles and equipment deployed during the construction phase is also likely to result in marginal increase in the levels of SO₂, NO_x, SPM, CO and unburnt hydrocarbons. It may, therefore, be deduced that construction activities may cause changes in the SPM levels locally. The impact shall, however, be reversible, marginal, and temporary in nature.

The impact of such activities would be temporary and restricted to the

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construction phase. The impact shall be confined within the project boundary and is expected to be negligible outside the ML boundaries. Proper upkeep and maintenance of vehicles, sprinkling of water on roads and construction site, providing sufficient vegetation etc. are some of the measures that would greatly reduce the impacts during the construction phase.

B. Operation Phase

The main activities, which generally contribute to air pollution in mining industry, are:

- Drilling and blasting
- Excavation and loading
- Transportation
- Crushing at CHP

The excavation / loading of the OB/coal shall be done by hydraulic shovels. The transportation of OB and coal shall be carried out in the same way as is generally done in OC mining i.e. by dumpers. Dust generation by this is anticipated. Coal crushing at CHP shall also generate dust.

The opencast mining operations are generally prone to generation of high levels of SPM and to a limited extent SO₂, NO_x and CO due to fossil fuel based vehicles, machines and blasting using explosive and fuel combustion etc. Air pollution due to SO₂, NO_x and SPM may result in irritation and inflammation of eyes and congestion of throat and oedema of lungs. Carbon monoxide can cause loss of hemoglobin in blood and subsequently stresses on those suffering from Cardio-Vascular and pulmonary diseases. High level of CO in the air is dangerous and may be fatal.

11.2.8.3 Air pollution mitigation measures

In the proposed lease area, the existing air quality is within the norms as specified by the National Ambient Air Quality Standards (NAAQS). Fugitive dust shall be generated in open cast mine due to drilling, blasting, handling of overburden & coal. To control dust from various operations following measures will be resorted to.

- Drilling area will be wetted prior to drilling
- Water will be sprayed during loading/unloading of OB and ore

- Periodical water spraying will be done on haul road, overburden dump & stacks of coal
- Trees will be planted on road side.
- Dumps will be stabilized by planting grass/trees

It has been proposed that all mining and ore processing equipment will have dust extraction and separation attachment to minimize air pollution. In order to monitor and subsequent management of air quality, monitoring stations will be located near dust generating areas such as haul road, OB dump, coal handling plant etc.

11.2.8.4 Measures to control noise pollution

The following control measures shall be adopted to keep the ambient noise levels below permissible limits:

- i. Provision of protective devices like ear muffs/ear plugs to those workers who cannot be isolated from the source of noise.
- ii. Confining the noise by isolating the source of noise
- iii. Reducing the exposure time of workers to the higher noise levels

Precautions shall be taken as per conditions imposed by MoEF or other statutory bodies.

11.2.8.5 Measures to reduce ground vibrations due to blasting and prevent fly rocks

The vibrations due to blasting shall be studied before the commencement of mining operations and the recommendations/suggestion given as per the result of the said study shall be strictly adhered to especially the charge per delay.

11.2.9 Waste management

11.2.9.1 Type of Rocks

The block is mostly covered with Barakar formation. This formation constitutes fine to coarse grained, white to grey feldspathic, micaceous sandstone, shale, fire clay and carbonaceous shale with economic coal horizons. The Karharbari formation is noticed towards the east of Pakri Barwadih Coal Block. The rocks are mostly coarse to gritty, carbonaceous sandstone pebbly at places with unaltered fresh pink feldspar and quartz pieces. Few very thin carbonaceous shale and coal bands are also intersected in some boreholes. The Barren Measures which is characterized by fine grained sandstone, shale and sandy

shale is noticed towards the north-west part of the block and Sector –A . The block is free from any igneous intrusions.

As per the geological report, no major, minor and trace elemental analysis of different rock types was available. The chemical analysis of coal indicates presence of nontoxic minerals. The sandstones of Barakar Formation constitute major part of area forms a principal aquifer. The chemical analysis of ground water shows the trace element like Cu, Mn, Hg, Cd, Se, As, Pb, Zn, Cr, Al and B are present below deduction limit.

The ground water quality indirectly infers the source rocks characters hence, the rock of Pakri-Barwadih Coal block contains no toxic elements.

11.2.9.2 Removal of Overburden

For PB West and East Quarry Proposed quarries namely PB West and PB East are to be opened in Barakar formations, which consist of alluvium soil, sandstone and shale. The thickness of soil/weathered mantle generally varies from 6-18 m. It is commonly dirty-white to reddish-brown in colour and carbonaceous shale generally constitutes bulk of in-seam burden.

OB removal and its phasing from Pakri Barwadih is detailed Chapter 5 "Mining", yearwise dumping schedule of overburden in internal and external dumps are given in Table-11.19.

Table-11.19
Schedule of Overburden Dumping

Particulars	PB WEST AND EAST										PB NW							PB GRA ND TOT AL	
	External Dump (Solid)					Internal Dump (Solid)					External				Internal				
	A	B	C	D	SUB TOT AL	A (Ext n.)	B (Ext n.)	WP-4	SUB TOT AL	Total (West&East)	DU MP 'A'	DU MP 'B'	DU MP 'C'	Sub Tot al	DU MP 'A' Extrn	WP-4	Sub Total		TOT AL (NW)
1- 5 yrs																			
WP1	10.33	6.55			16.88					16.88									16.88
WP2		40.00			40.00					40									40.00
WP3		8.23	21.00		29.23					29.23									29.23
WP4		7.36			7.36					7.36									7.36
EP1				6.00	6.00					6									6.00
PIT-1											9.08			9.08	3.15		3.15	12.23	12.23
PIT-2																			
6 - 10 yrs																			
WP1					9.36				9.36	9.36									9.36
WP2		4.86			4.86	36.36			36.36	43.24									43.24
WP3					33.15				33.15	33.15									33.15

Chapter -XI Mine Closure Plan

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Revised Mining Plan (1st Revision) - Pakri Barwadih Coal Block

WP4						115.71			115.71	115.71								115.71	
PIT-1									6.61	4.00		10.6	45.39		45.39	56		56.00	
PIT-2																			
11 - 15 yrs																		299.80	
WP 4		159.00	169.80		130.80													299.80	
PIT-1									3.00	11.00		14	27.10		27.1	41.1		41.10	
PIT-2																			
16 - 20 yrs																		324.00	
WP 4		206.00	206.00	37.00	2.00	79.00												324.00	
PIT-1													10.93		10.93	10.83		19.93	
PIT-2									1.50	13.00	2.00	19.5	13.63		13.63	30.13		30.13	
21 - 25 yrs																		330.85	
WP 4 + East Quarry		167.00	167.00			163.05												330.85	
PIT-1																			
PIT-2										12.00	1.50	13.5	27.60		27.6	41.1		41.10	
26 - 30 yrs																			
PIT-1																			
PIT-2										8.75		8.75	12.46	27.14	39.65	48.35		48.35	
WP 4 + East Quarry						330.00		330		330								330.00	
31 - 35 yrs																		330.00	
East Quarry						330.00		330		330								330.00	
PIT-1																			
PIT-2										1.00		1	21.72	54.23	55.95	56.95		56.95	
36 - 38 yrs								184.00		184		184						184.00	
East Quarry																			
PIT-1																			
PIT-2													22.86	20.36	43.22	43.22		43.22	
40 - 52 yrs																			
PIT-1																			
PIT-2													0.00	98.22	98.22	98.22		98.22	
Total	10.33	67.00	563.00	6.08	646.33	223.00	132.80	1086.05	1482.45	2098.78	20.19	49.75	3.50	73.44	184.84	179.95	364.75	438.23	2537.01

Final stage dump plan, as well as other stage plans also show the location of external/internal dumps in respective stage plans including height as well as volume of dump.

11.2.9.3 Types of Solid Waste

Four types of solid waste are likely to be generated through mining activities.

These are:

- a) Overburden (both topsoil and waste)
- b) Sludge from washing HEMM

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Chapter - XI Mine Closure Plan

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- c) Sludge created by mine water in settling pond.
- d) Municipal solid waste

Protective measures

The dump shall be stabilized and afforested. The top soil shall be used for spreading over backfilled area and over OB dump for plantation. The area of top soil stack shall be afforested.

The area of ground disturbance shall be minimized by progressively rehabilitating disturbed land.

Reclamation of land shall be carried out by landseaping, re-vegetation etc. As far as possible the reclamation activities shall be taken up concurrently with the mining operations. For re-vegetation, the native plants and saplings suitable for the existing soils and site conditions shall be considered.

A. Steps to be taken to avoid Dump Slides

- Dumping of top soil shall be avoided at the bottom of the dump as it leads to instability. Dumping of soil and clayey material shall be done away from the working area that is on farther end of the dump so that formation of weak planes is avoided.
- Afforestation by planting trees shall helped a lot in improving stability of dumps by preventing erosion.
- Construction of retaining walls
- Construction of drains for drainage
- Provision of jute mesh for facilitating grass or vegetative growth on slopes
- Provision of good soil mixed with manure and subsequent irrigation for growth of grass for anchorage on slopes. Plantation mixed with indigenous and fast growing plant species.
- The degraded area shall be reclaimed and rehabilitated with local species of plantation in a phased manner.
- Plantation shall be carried out on waste dumps.
- A belt of trees with thick canopy shall be created along the mine boundary to intercept dust, gaseous pollutants and noise.

The void area of the excavated pit shall ultimately become a water reservoir. The depth of the void shall be reduced in the post mining stage by filling it with waste. This void area shall also be suitably sloped, bunded and fenced.

B. Management of Sludge

➤ Management of Sludge from Oil/Water separator

Effluent from workshops, vehicle washing etc. shall be passed through impermeable drains and shall be treated in the oil/water separator. The treated effluent will be re-circulated in the workshop.

➤ Management of Sludge created by mine water in settling pond

Sludge from the mine water settling pond shall be removed periodically and shall be backfilled along with the OB.

➤ Sludge from domestic waste

Sludge from the domestic waste shall be utilized as manure for the plantation in the mine lease area and on dump.

➤ Management of Municipal solid waste

The municipal solid waste e.g. from canteen, etc. shall be composted and used as manure for plantation along with the domestic sludge.

11.2.9.4 Topsoil management

- A. For PB-WEST and EAST Quarry during Operating life of mine 5.81 Mm³ of top soil shall be generated. This figure is arrived at by considering 1 m (approx.) thickness of top soil, as because unlike PB-NW Quarry considerable deposition has not taken place in the block.

For the initial 5 years of Mining operation, top soil shall be stacked at a designated location over coal bearing area, as shown in **Surface Master Plan**. Estimated land requirement for stacking is 1 Ha. The requirement of land shall cease to operate from 10th year onwards as because scrapped top soil shall be spread over the dump for land reclamation.

Stacking of top soil shall be achieved in two tiers. The bottom tier shall be of 3m in height while top tier shall be of 2m or shall be below height not exceeding the limit as per prescribed norms.

Stack of top soil shall be grassed to retain fertility if required. Besides this, top soil stack them shall be made use of concurrent filling without bringing the scrapped top soil to the stack.

- B. For PB-NW Quarry during Operating life of mine 5.81 Mm³ of top soil shall be

generated. This figure is arrived at by considering 1.5m (approx.) thickness of top soil, as because presence of ravines and surrounding nalas considerable deposition has taken place in the block.

For the initial 5 years of Mining operation, top soil shall be stacked at a designated location over Pit – 2, as shown in **Plate No.4**. Estimated land requirement for stacking is 1 Ha. The requirement of land shall cease to operate from 10th year onwards as because scrapped top soil shall be spread over the dump for land reclamation.

Stacking of top soil shall be achieved in two tiers. The bottom tier shall be of 3m in height while top tier shall be of 2m or shall below height not exceeding the limit as per prescribed norms.

C. Top Soil Scrapping: Scrappers shall be deployed to scrap the top soil off the surface. With the help of front end loader, top soil shall be loaded on the tripper of 10T capacity and transported to top soil stock yard. In the event of non-stacking system, top soil shall be transported directly to the desired location.

D. Top Soil Spreading: Front end loader shall load on to the trippers and transported to desired location and spread with the help of dozer/ graders.

Stack of top soil shall be grassed to retain fertility if required. Besides this, top soil stack them shall be made use of concurrent filling without bringing the scrapped top soil to the stack. Year wise quantity schedule of management of top soil excavated and spread and summerised data for Top Soil Management is given in **Chapter 5 “Mining”**.

11.2.10. Management of Coal rejects from Washery

Not applicable

11.2.11 Decommissioning of Infrastructure

The infrastructure consists of substation, CHP, Workshops, Mine office, blasting shelters, rest shelters etc. The mine office & related infrastructure shall be handed over to state govt. for public use. The probable list of facilities which shall be dismantled and those which shall be retained has been furnished in **Table 11.20**

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Table 11.20

List of facilities to be dismantled or retained at the end of Life of
PB Coal Block

Sl.No.	Facilities	Remarks(Dismantled/Retained)
1	Service buildings/Infrastructure	
a	Project/Mine Office	To be retained.
b	Workshop	Dismantled
c	Store	Dismantled
d	Canteen	To be retained.
e	First aid center	To be retained.
f	Rest shelter	To be retained.
g	Training Centre	To be retained.
h	Firefighting station	To be retained.
i	Pit head bath	Dismantled
j	Magazines	Dismantled.
k	Environmental laboratory	To be retained.
l	Dispensary	To be retained.
2	Mining Machinery	i) Usable: - to be moved to any other units. ii) Non-usable:- auctioned.
3	Pumps used in mines	Dismantled.
4	Electrical/mechanical equipment used in workshop or other places	Dismantled.
5	CHP, conveyors and railway siding	Dismantled.
6	Sub-station	Dismantled
7	Furniture	To be retained.
8	Approach road and Culverts	To be retained.
9	Haul road and Culverts	Restricted Entry.
10	Water supply arrangement	To be retained.
11	Permanent Manpower	To be transferred to any other projects of NTPC or options for VRS or as per company's existing policy.
	Corpus fund for maintenance	Provision has been made in fund requirements as provided

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

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11.2.12 Disposal of Mining Machinery

Nearly all the mining machinery shall be moved to other units of the owner. Only the scraps and non-usable machines, if any, shall be auctioned.

11.2.13 Safety & Security

a. Closure of Mine Entries

After closure of the mining activities, all the entries to the mine shall be effectively sealed off to avoid any accident and to prevent access to any unauthorized person. Underground worksites with surface openings, shall be effectively sealed. The area that is not reclaimed shall be properly fenced and/ sealed to prevent any unauthorized entry into the area.

Security Personnel shall be detained for a period of three years after mine closure for protecting new plantations in the reclamation area and look after the protective fence around the boundary of the mine to prevent any stray animal/man entering the area.

b. Disaster Management and Risk Assessment

Provisions under coal mines regulation and rules made there under and different circulars of DGMS shall be strictly followed, Safety training shall be imparted in the vocational training center to the workers for protection against landslide/fall, moving equipment and precautions during blasting, electrical shock protection and accidental fire.

c. Care and Maintenance during temporary discontinuation

During such period round the clock security guard shall be provided to prevent stray animal or persons entering mining area. Temporary fencing with proper signage about danger shall be erected.

11.2.14 Economic Repercussions of Closure of Mine

The mine shall be one of the highly mechanized open cast mines and shall require services of highly skilled and semi-skilled work force.

As far as possible local population shall be given employment in semi-skilled and unskilled category.

In lieu of employment, an annuity of around Rs. 36,000 per acre per annum for 30 years for those losing one acre or more land which is to be escalated by Rs. 1000 every two years (limited to maximum for 5 acres) and those losing land less than 1 acre then annuity of around Rs. 30,000 per annum for 30 years which is

to be escalated by Rs. 750 every two years is proposed. This shall help the annuitants residing in the peripheral area of coal block to make them self-sustainable after the closure of the mine.

Persons engaged in satellite occupations connected to mining industry shall have access/ market in other industries of the mine owner. They shall be given preference or they shall have to opt for other related engagement similar to their occupation.

After closure of mining operations, local residents employed in the mine may be offered jobs elsewhere in the running projects of NTPC.

To mitigate any hardship, the following things are being done or shall be done

1. R&R plan pertaining to NTPC mining projects in Jharkhand has already been prepared in consultation and participation of stakeholders which is in line with the state R&R policy. This include among others provisions and activities pertaining to preference in employment subject to suitability and availability, vocational / self-employment opportunities, education, health, skill development and training programs for various focused groups.
2. In addition to the preference in direct and indirect gainful employment opportunities to affected families / locals through contracting agencies etc. and otherwise subject to suitability and availability, NTPC has committed to build a Greenfield ITI in the vicinity of these mining projects of Jharkhand for capacity building, skill development which shall also result in improving the employability of the affected families / locals.
3. Skill of the unskilled workers shall be developed through structured programme to the extent possible so that they can be absorbed in other units or they can follow some self-employment.
4. Employees who would be retrenched would get adequate compensation as per existing labour laws/ golden hand sack / VRS or any other scheme of the Company prevailing at the time of mine closure.

NTPC would endeavour for harmonious relations with PAPs, not only during mining operation but there after also. But it would be prudent to develop their own ability to sustain their present life standard after the closure of the mine by self-employment. NTPC would like continuance of the social welfare amenities created for the employees and PAPs and try to meet the expectation of the society under the given financial constraints. The persons shall be imparted lectures on the financial mechanism for its sustenance after the mine closure.

11.3 Time Scheduling for Abandonment

Tentative details of likely closing activities with manpower requirement as envisaged below has been estimated based on the present mine closure plan. Actual closing activities and manpower requirement may change during the preparation of Final Mine Closure Plan which shall be prepared 5 years before the likely cessation of mining operation. A time schedule for abandonment along with tentative manpower requirement has been shown in the bar chart given in **Table 11.21.**

Table 11.21

Manpower Requirement for Closure Activities

Sl. No	Activities to be undertaken	Manpower of NTPC	P-6	P-11	P-16	P-21	P-26	P-31	P-36	P-41	P-46	P-51	P-52	P-53	P-54	P-55
1	Mined Area & Waste Management															
1.1	Plantation along the block boundary, embankment, approach road, CHP Cross country conveyor, Railway siding etc and around the mine infrastructure area	Outsourced (under the														
1.2	Physical reclamation of internal and external dump (Leveling, Spreading of top soil, toe wall formation, drain etc.)	supervision of NTPC) Environment: al Engr-1, Surveyor-2, Chainman-4														
1.3	Physical reclamation of land of batter and haul road															
1.4	Bio reclamation of above items															
1.5	Making safe approach up to															

Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

Sl. No	Activities to be undertaken	Manpower of NTPC	P-6	P-11	P-16	P-21	P-26	P-31	P-36	P-41	P-46	P-51	P-52	P-53	P-54	P-55
	the water lagoon for future uses															
1.5	Barbed wire fencing as per requirement															
2	Environmental Management (Air, Water, Waste, Noise etc.)															
2.1	Thorough inspection of external and stabilized internal dumps to find state of its stabilization & Bio-reclamation.	Supervisors-2 in each shift, Environmental Engineer-1 in each shift														
2.2	Action to stabilize & vegetate uncovered patches, if any	Job Outsourced														
2.3	Inspection of garland drains & bunds around external dumps to prevent leachate water from entering natural water courses directly	Supervisors-2 in each shift, Mining Engineer-1 in each shift														
2.4	Inspection of embankment to prevent entry of uncontrolled water to mine	Supervisors-2 in each shift, Engineer-1 in each shift														
2.5	Strengthening of embankment															
2.6	Quarterly sampling of water to know its quality status	Lab Assistant-1, Helper-1														
2.7	Record keeping, monitoring and reporting	Surveyor-1 Chainman-3														
3	Management of Infrastructure & Mining Machineries															

Chapter -XI Mine Closure Plan

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Page XI - 53

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Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

Sl. No	Activities to be undertaken	Manpower of NTPC	P-6	P-11	P-16	P-21	P-26	P-31	P-36	P-41	P-46	P-51	P-52	P-53	P-54	P-55
3.1	Decommissioning of structural's & semi-permanent constructions	Job Outsourced Civil Engineer-1, Supervisor-1, Surveyor-1, Chainman-2														
3.2	Renovation of Mine/Project office, Canteen, Training Centre, Rest shelter etc.															
3.3	Cleaning of land for vegetation over the area															
3.4	Dismantling of machineries															
4	Actions for safety & security of local community due to abandonment of the mine or part of the mine															
4.1	Regular inspection of the mined out area, O.B. dumps for assessing the closure job.	Supervisors-2 in each shift, Mining Engineer-1 in each shift														
4.2	Action, if required, for making safe, the drainage areas, fire areas etc.															
4.3	Making 2 metre high pucca wall on the slope of internal dumps, along the estimated water level.	Supervisor-1 in each shift, Civil Engineer-1 in each shift														
4.4	Making 2 meter high pucca wall around the top edge of the mined out area, where immediate void exists at the quarry edge.															
4.5	Making 2 meter high pucca wall															

Chapter -XI Mine Closure Plan

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Sl. No	Activities to be undertaken	Manpower of NTPC	P-6	P-11	P-15	P-21	P-26	P-31	P-36	P-41	P-46	P-51	P-52	P-53	P-54	P-55
	around the external OB Dump															
4.6	Closing with walling and gates in the haul road, to prevent advertant entry into water lagoon.	Supervisor-1 in each shift														
4.7	Filling the haul road up to ground level, from surface up to sealing gate.															
4.8	Survey of the total project area for updating mine plans Under Coal Mine Regulation.	Supervisors-2 in each shift, Mining Engineer-1 in each shift														
5	Social & Economic Aspects															
5.1	C.S.R activities.	Engineer-1, HR executive/ staff-2														
6	Execution & Supervisor															
6.1	Purchasing/Hiring of equipment for closure activities etc															
6.2	Execution & Supervision of the activities by mining personal.	Mining Engineer-1 HR executive/ staff-2														
7	Miscellaneous charges including power cost, deployment of security personal, 3 years post closure environmental monitoring, supervision, power cost etc.	Engineer-2, HR executive/ staff-3														
8	Underground Mining															

Chapter -XI Mine Closure Plan

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Sl. No	Activities to be undertaken	Manpower of NTPC	P-6	P-11	P-16	P-21	P-26	P-31	P-36	P-41	P-46	P-51	P-52	P-53	P-54	P-55
8.1	Sealing of Mine entries for UG mine									■						
8.2	Isolation stopping, if required									■						
8.3	Withdrawal of machinery etc												■	■	■	■
8.4	Subsidence Management				■	■	■	■	■	■	■	■	■	■	■	■
8.5	Post closure Subsidence Monitoring														■	■
8.6	Miscellaneous charges including power cost, supervision etc.														■	■

Other manpower shall be deployed or, outsourced as per actual requirement.

11.4 Abandonment Cost

Tentative cost of likely closing activities as envisaged below has been estimated considering base date as December '2015 at current cost. Actual closing activities and activity wise costs may change during the preparation of Final Mine Closure Plan which shall be prepared before the likely cessation of mining operation. A time schedule for abandonment including post 3 years of likely cessation of mining operation along with tentative fund requirement has been shown in the bar chart given at Table 11.22.

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Table-11.22
Provision for Expenditure for Mine Closure of Pakri Barwadih Coal Mining Block

Amount in Rs. Crores

Sl. No.	Activities to be undertaken	P-6	P-11	P-16	P-21	P-26	P-31	P-36	P-41	P-46	P-51	P-55	Cost
1	Mined Area & Waste Management	14.33	10.20	8.24	12.34	8.43	12.17	12.89	24.99	26.96	51.45	48.27	229.08
1.1	Plantation along the block boundary, embankment, approach road, CHP Cross country conveyor, Railway siding etc and around the mine infrastructure area	14.33	10.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.53
1.2	Physical reclamation of internal and external dump (Leveling, Spreading of top soil, toe wall formation, drain etc.)	0.00	0.00	6.24	12.34	8.43	12.17	12.89	10.00	10.39	0.00	0.00	74.26
1.3	Physical reclamation of land of batter and haul road	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	10.39	20.56	0.00	40.96
1.4	Bio reclamation of above items	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.29	16.09	26.38
1.5	Making safe approach up to the water lagoon for future uses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.29	16.09	26.38
1.6	Barbed wire fencing as per requirement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.19	10.29	16.09	36.57

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

SANJIV KUMAR SINGH
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Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

2	Environmental Management (Air, Water, Waste, Noise etc.)	2.87	6.12	18.13	29.62	28.65	29.21	43.16	23.99	21.81	21.81	85.97	291.14
2.1	Thorough inspection of external and stabilized internal dumps to find state of its stabilization & Bio- reclamation.	0.09	1.02	1.65	2.47	1.89	2.43	2.54	2.00	2.08	4.12	8.44	26.42
2.2	Action to stabilize & vegetate uncovered patches, if any	0.00	2.04	3.30	4.94	3.37	4.87	5.08	4.00	4.15	8.23	12.87	52.85
2.3	Inspection of garland drains & bunds around external dumps to prevent leachate water from entering natural water courses directly	0.00	2.04	3.30	4.94	3.37	4.87	5.08	4.00	4.15	8.23	12.87	52.85
2.4	Inspection of embankment to prevent entry of uncontrolled water to mine	0.00	0.00	0.00	7.41	5.06	7.30	7.62	6.00	0.00	0.00	0.00	33.38
2.5	Strengthening of embankment	0.00	0.00	0.00	7.41	5.06	7.30	7.62	6.00	0.00	0.00	0.00	33.38
2.6	Quarterly sampling of water to know its quality status	0.00	0.00	8.24	0.00	8.43	0.00	12.89	0.00	10.38	0.00	32.18	71.93
2.7	Record keeping, monitoring and reporting	2.87	1.02	1.65	2.47	1.89	2.43	2.54	2.00	1.04	1.03	1.61	20.34
3	Management of Infrastructure & Mining Machineries	0.00	10.20	0.00	0.00	16.85	24.34	25.39	39.99	41.54	41.18	64.36	263.83
3.1	Decommissioning of structurals & semi-permanent constructions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.77	41.16	64.36	126.29
3.2	Renovation of	0.00	5.10	0.00	0.00	6.43	0.00	0.00	10.00	0.00	0.00	0.00	73.02

Chapter -XI Mine Closure Plan

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Page XI - 58

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 हजारीबाग / Hazaribag

Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

	Mine/Project office, Canteen, Training Centre, Rest shelter etc.													
3.3	Cleaning of land for vegetation over the area	0.00	5.10	0.00	0.00	8.43	0.00	0.00	10.00	0.00	0.00	0.00	26.52	
3.4	Dismantling of machineries	0.00	0.00	0.00	0.00	0.00	24.34	25.39	19.99	20.77	0.00	0.00	90.50	
4	Actions for safety & security of local community due to abandonment of the mine or part of the mine	0.72	1.02	9.69	14.61	10.11	14.61	16.23	21.99	36.43	34.98	35.40	197.19	
4.1	Regular inspection of the mined out area, O.B. dumps for assessing the closure job.	0.00	0.51	0.82	1.23	0.64	1.22	1.27	1.00	0.04	2.06	3.22	13.21	
4.2	Action, if required, for making safe, the drainage areas, fire areas etc.	0.00	0.00	0.00	12.34	0.00	0.00	12.69	0.00	10.39	0.00	0.00	35.42	
4.3	Making 2 metre high pucca wall on the slope of internal dumps, along the estimated water level.	0.00	0.00	8.24	0.00	8.43	0.00	0.00	10.00	0.00	20.58	0.00	47.24	
4.4	Making 2 meter high pucca wall around the top edge of the mined out area, where immediate void exists at the quarry edge.	0.00	0.00	0.60	0.00	0.00	12.17	0.00	0.00	10.39	0.00	0.00	22.56	
4.5	Making 2 meter high pucca wall around the external OB Dump	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	10.39	0.00	0.00	20.39	

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

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Page XI - 59

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 हजारीबाग / Hazaribag

Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

4.6	Closing with walling and gates in the haul road, to prevent inadvertant entry into water lagoon.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.19	0.00	16.09	21.28
4.7	Filling the haul road up to ground level, from surface up to sealing gate.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.23	15.09	25.33
4.8	Survey of the total project area for updating mine plans Under Coal Mine Regulation.	0.72	0.51	0.52	1.23	0.54	1.22	1.27	1.00	1.04	2.06	0.00	10.71
5	Social & Economic Aspects	7.17	5.10	8.24	0.00	8.43	0.00	12.69	10.00	10.39	0.00	0.00	62.01
5.1	C.S.R activities.	7.17	5.10	8.24	0.00	8.43	0.00	12.69	10.00	10.39	0.00	0.00	62.01
6	Execution & Supervisor	0.00	0.00	0.00	0.00	0.00	12.17	0.00	15.00	15.58	30.87	16.09	89.70
6.1	Purchasing/Hiring of equipment for closure activities etc.	0.00	0.00	0.00	0.00	0.00	12.17	0.00	10.00	10.39	20.58	0.00	53.13
6.2	Execution & Supervision of the activities by mining personal.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	5.19	10.29	16.09	36.57
7	Miscellaneous Charges	0.00	0.00	0.00	0.00	0.00	0.00	2.54	2.00	2.08	4.12	6.44	17.167
7.1	Miscellaneous charges including power cost, deployment of security personal, 3 years post closure environmental monitoring, supervision .	0.00	0.00	0.00	0.00	0.00	0.00	2.54	2.00	2.08	4.12	6.44	17.17

Chapter -XI Mine Closure Plan

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Page XI - 60

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 हजारीबाग / Hazaribag

Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

	power cost etc.												
8	Underground Mining	0	0	0	0	0	0	6.346 8	9.997 3	20.77 2	41.15 8	144.8 1	223.09
8.1	Sealing of Mine entries for UG mine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.54	96.54
8.2	Isolation stopping, if required	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.19	10.29	0.00	15.46
8.3	Withdrawal of machinery etc	0.00	0.00	0.00	0.00	0.00	0.00	6.36	5.00	5.19	10.29	0.00	26.64
8.4	Subsidence Management	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.19	10.29	0.00	15.46
8.5	Post closure Subsidence Monitoring	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.18	32.18
8.6	Miscellaneous charges including power cost, supervision etc.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	5.19	10.29	16.09	36.57
	Total estimated expenditure incurred (In Rs Crore)	25.0 8	32.6 4	44.4 9	56.7 8	72.4 7	92.5 0	118.0 5	147.9 6	176.5 6	225.3 4	381.3 4	1373.2 1

11.5 Annual Closure Cost

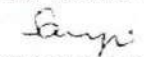
The annual closure cost has been calculated as per guidelines issued by MoC (vide letter no 55011-012009-CPAM dated 27/08/2009, 18.02.2011, 07.06.2011, 11.01.2012, & 07.01.13).

A. For Opencast

As per circulated guidelines of MoC the closure cost for an opencast mine is to be modified based on the Wholesale Price Index (WPI) as notified by Govt. of India.

The WPI for all commodities Issued from Office of Economic Advisor, Ministry of Commerce and Industry, Govt. of India (Base date: 2004-05) was 129.60 in




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हजारीबाग / Hazaribag

Aug'09 and 177.60 in November '2015. The closure cost was Rs. 6.00 Lakhs per Ha in Aug'09. The current closure cost has been arrived by multiplying Rs. 6.00 Lakhs per Ha by the ratio of WPI in November '15 and WPI in Aug'09 which comes to be Rs. 8.22 Lakhs per Ha. The calculation methodology is given in Table 11.23.

Table-11.23

Methodology of Calculation of Annual Closure Cost (Opencast)

A	Lease hold area for West Quarry (including area for infrastructure outside the block boundary), Unutilised area	3103.04 Ha
B	Lease hold area for Eastern Quarry	
C	Lease hold area for Pakri Barwadih 'A'	485.00 Ha
D	Total lease hold area for opencast (West Quarry, East Quarry, area for infrastructure outside the block boundary, Unutilised area and North West(Sector-A) considered for mine closure (A+B+C)	3588.04 Ha
E	Mine closure cost per Ha for opencast mine in Aug'09	6.00 Lakhs
F	Mine closure cost per Ha for opencast mine in November '15	8.22 Lakhs
G	Life of the mine	52 years
H	Annual base price [(D X F)/G] (for 1 st year)	Rs. 567.34 Lakhs
I	Total closure cost for opencast mine (Compounding @ 5% annual escalation)	Rs. 1321.09 Cr.

B. For Underground

As per calculated guidelines of MoC the closure cost for an underground mine is to be modified based on the Wholesale Price Index (WPI) as notified by Govt. of India.

The WPI for all commodities issued from Office of Economic Advisor, Ministry of Commerce and Industry, Govt. of India (Base date: 2004-05) was 129.60 in Aug'09 and 177.60 in November '2015. The closure cost was 1.00 Lakhs per Ha

Chapter -XI Mine Closure Plan

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in Aug'09. The current closure cost has been arrived by multiplying Rs. 1.00 Lakhs per Ha by the ratio of WPI in November '15 and WPI in August'09 which comes to be Rs. 1.37 Lakhs per Ha. The base cost has been escalated to arrive the mine closure cost of land for underground area in year P-10 @ 5% annually. The calculation methodology is given in Table 11.24:

Table-11.24
Methodology of Calculation of Annual Closure Cost (Underground)

A	Total lease hold area considered for mine closure	1106.96 Ha
B	Mine closure cost per Ha for underground area in Aug'09	Rs. 1.00 Lakhs
C	Mine closure cost per Ha for underground area in November ' 2015	Rs. 1.37 Lakhs
D	Rate per Ha (1.37 Lakhs per ha ~ escalated up to P-10 th year @ 5% PA)	Rs. 2.13 Lakhs
E	Life of Mine (P-10 to P-39)	30 year
F	Annual base price [(A X D)/E] (for 1 st year of underground operation i.e. P-10)	Rs. 78.44 Lakhs
G	Total closure cost for underground mine (Compounding @ 5% annual escalation)	Rs. 52.12 Crores

The year wise closure cost for opencast and underground is tabulated in Table 11.25.

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हजारीबाग / Hazaribag

Table 11.25
Year wise Closure Cost for Pakri Barwadih Mine

Closure Cost of PB Coal Block								
Year	Average cost per annum on current cost (In Crores)			Year wise Expenditure with 5 % escalation(In Crores)			Cumulative amount deposited in the Escrow account excluding interest (Rs Crore)	Maximum amount excluding interest to be released w.r.t. expenditure incurred (Rs Crore)
	Opencast	Underground	Total	Opencast	Underground	Total		
P1	5.67	0.00	5.67	5.67	0.00	5.67	5.67	
P2	5.67	0.00	5.67	5.96	0.00	5.96	11.63	
P3	5.67	0.00	5.67	6.25	0.00	6.25	17.89	
P4	5.67	0.00	5.67	6.57	0.00	6.57	24.45	
P5	5.67	0.00	5.67	6.90	0.00	6.90	31.35	
P6	5.67	0.00	5.67	7.24	0.00	7.24	38.59	25.08
P7	5.67	0.00	5.67	7.60	0.00	7.60	46.19	
P8	5.67	0.00	5.67	7.98	0.00	7.98	54.18	
P9	5.67	0.00	5.67	8.38	0.00	8.38	62.56	
P10	5.67	0.78	6.46	8.80	0.78	9.59	72.14	
P11	5.67	0.78	6.46	9.24	0.82	10.07	82.21	32.64
P12	5.67	0.78	6.46	9.70	0.86	10.57	92.78	
P13	5.67	0.78	6.46	10.19	0.91	11.10	103.87	
P14	5.67	0.78	6.46	10.70	0.95	11.65	115.53	
P15	5.67	0.78	6.46	11.23	1.00	12.23	127.76	
P16	5.67	0.78	6.46	11.79	1.05	12.85	140.81	44.49
P17	5.67	0.78	6.46	12.38	1.10	13.49	154.09	
P18	5.67	0.78	6.46	13.00	1.16	14.16	168.26	
P19	5.67	0.78	6.46	13.65	1.22	14.87	183.13	
P20	5.67	0.78	6.46	14.34	1.28	15.61	198.74	
P21	5.67	0.78	6.46	15.05	1.34	16.39	215.14	56.78
P22	5.67	0.78	6.46	15.81	1.41	17.21	232.35	
P23	5.67	0.78	6.46	16.60	1.48	18.08	250.43	
P24	5.67	0.78	6.46	17.43	1.55	18.98	269.40	

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

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हजारीबाग / Hazaribag

Revised Mining Plan (1st Revision) – Pakri Barwadih Coal Block

P25	5.67	0.78	6.46	18.30	1.63	19.93	289.33	
P26	5.67	0.78	6.46	19.21	1.71	20.92	310.26	72.47
P27	5.67	0.78	6.46	20.17	1.80	21.97	332.23	
P28	5.67	0.78	6.46	21.18	1.89	23.07	355.30	
P29	5.67	0.78	6.46	22.24	1.98	24.22	379.52	
P30	5.67	0.78	6.46	23.35	2.08	25.43	404.95	
P31	5.67	0.78	6.46	24.52	2.19	26.71	431.66	92.50
P32	5.67	0.78	6.46	25.75	2.29	28.04	459.70	
P33	5.67	0.78	6.46	27.03	2.41	29.44	489.14	
P34	5.67	0.78	6.46	28.39	2.53	30.91	520.06	
P35	5.67	0.78	6.46	29.80	2.66	32.46	552.52	
P36	5.67	0.78	6.46	31.29	2.79	34.08	586.60	118.05
P37	5.67	0.78	6.46	32.86	2.93	35.79	622.39	
P38	5.67	0.78	6.46	34.50	3.08	37.58	659.97	
P39	5.67	0.78	6.46	36.23	3.23	39.46	699.42	
P40	5.67	0.00	5.67	38.04		38.04	737.46	
P41	5.67	0.00	5.67	39.94		39.94	777.40	147.96
P42	5.67	0.00	5.67	41.94		41.94	819.34	
P43	5.67	0.00	5.67	44.03		44.03	863.37	
P44	5.67	0.00	5.67	46.24		46.24	909.61	
P45	5.67	0.00	5.67	48.55		48.55	958.16	
P46	5.67	0.00	5.67	50.98		50.98	1009.13	176.56
P47	5.67	0.00	5.67	53.52		53.52	1062.66	
P48	5.67	0.00	5.67	56.20		56.20	1118.86	
P49	5.67	0.00	5.67	59.01		59.01	1177.87	
P50	5.67	0.00	5.67	61.96		61.96	1239.83	
P51	5.67	0.00	5.67	65.06		65.06	1304.89	225.34
P52	5.67	0.00	5.67	68.31		68.31	1373.20	
End of Mine Closure								381.34
Total Cost	295.02	23.53	318.55	1321.09	52.12	1373.20		1373.20

Note:

- The above estimated closure cost is based on WPI for "All commodities" as on November '2015. The WPI value for "All Commodities" as downloaded from website of "Office of Economic Advisor" is enclosed as **Annexure XX**.
- Escrow Account has already been opened for area of 4626 ha corresponding mine closure cost is Rs. 799.19 Crores. (Copy of Approval of Mine Closure Plan (MoC) is enclosed at **Annexure-XIII** and the copy of Approved Mine Closure Plan (Report) is enclosed at **Annexure XIII.A**.

Chapter -XI Mine Closure Plan

RQP No. 34011/(15)/2009-CPAM dated 27.09.10.

Page XI - 65


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 हजारीबाग / Hazaribag

11.6 Financial Assurance

As per guidelines for Mine Closure Plan, NTPC shall take following actions for ensuring the financial assurance to complete the mine closure activities:

11.6.1 Opening of an Escrow Account

The proponent has already opened an escrow Account with the Scheduled Bank. The beneficiary of this account is Coal Controller Organization (on behalf of central Government). The proponent shall deposit the amount detailed in previous chapter, on yearly basis into this Escrow account.

11.6.2 Condition for operating the Escrow Account

An agreement, outlining detailed terms and conditions of operating the Escrow account, has been finalized and executed amongst the project owners, concerned Bank and the Coal Controller.

11.6.3 Release of Funds from Escrow Account

Mining shall be carried out in a phased manner initiating afforestation/ work in the mined out area of the first phase while commencing the mining in the second phase i.e. continuation of mining activities from one phase to other indicating the sequence of operations depending on the geo mining condition of the mine. Up to 80% of the total deposited amount including interest accrued in the escrow account shall be released after every five years in line with the periodic examination of the Closure Plan as per Clause 3.1 of the Annexure of the Guidelines.

The amount released shall be equal to the expenditure incurred in the Progressive Mine Closure in past five years or 80% whichever is less. The balance amount at the end of the Final Mine Closure shall be released to mine owner / lease holder on compliance of all provisions of closure plan duly signed by the lessee. It shall be certified that said closure of mine complied all statutory rules, regulations, orders made by the Central or State Govt, statutory organizations, court etc and duly certified by the Coal Controller.

11.7 Responsibilities of the owner

NTPC shall ensure that protective measures contained in the Mine Closure Plan including reclamation and rehabilitation works are carried out in accordance with the approved Mine Closure Plan and Final Mine Closure Plan.

NTPC shall submit to the coal controller a yearly report before 1st July every year setting forth the extent of protective and rehabilitative works carried out as envisaged in the approved Mine Closure Plans. (Progressive and Final Closure Plans). Details of physical progress of the closure activities and expenses incurred shall be included in the yearly report.

11.8 Provision for Mine Closure

NTPC shall obtain a mine closure certificate from Coal Controller to the effect that the protective, reclamation and rehabilitation works have been carried out in accordance with the Mine Closure Plan/Final Mine Closure Plan for surrendering the reclaimed land to the State Government concerned.

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

The balance amount at the end of the final Mine Closure shall be released to NTPC on compliance of all provisions of Closure Plan duly signed by the mine owner to the effect that said closure of mine complied with all statutory rules, regulations, orders made by the Central or State Government, statutory organisations, court etc. and duly certified by the Coal Controller. This should also indicate the estimated extractable coal reserves and coal actually mined out.

If the Coal Controller has reasonable grounds for believing that the protective, reclamation and rehabilitation measures as envisaged in the approved mine closure plan in respect of which financial assurance was given has not been or will not be carried out in accordance with mine closure plan, either fully or partially, the Coal controller shall give the mine owner a written notice of his intention to issue the orders for forfeiting the sum assured at least thirty days prior to the date of the order to be issued after giving an opportunity to be heard.

Sanjay
Sanjay SINGH
Authorized Person
No. 34011/(15)/2009-CPAM
Ministry of Coal, Govt. of India

झारखण्ड सरकार
राजस्व एवं भूमि सुधार विभाग।

::संकल्प::

सं0-10/डी.एल.ए./एन.टी.पी.सी. (को.) पुन.-16/09 /रा., राँची, दिनांक-

राजस्व एवं भूमि सुधार विभाग, झारखण्ड, राँची के संकल्प सं0-630/रा. दिनांक-23.07.08 द्वारा स्वीकृत 'झारखण्ड पुनर्स्थापन एवं पुनर्वास नीति-2008' राज्य गजट के प्रकाशन की तिथि-25.07.08 से झारखण्ड में लागू है। एन.टी.पी.सी. लि0 द्वारा हजारीबाग जिलान्तर्गत पकरी बरवाडीह कोल माईन्स प्रोजेक्ट में non coal Bearing Area में पड़ने वाली रैयती भूमि के भू-अर्जन हेतु झारखण्ड सरकार के साथ दिनांक-12.05.2011 को एकरारनामा किया गया। उक्त एकरारनामा में एन.टी.पी.सी. लि0 द्वारा भू-अर्जन से प्रभावित परिवारों/व्यक्तियों के पुनर्वास हेतु बचनबद्धता दी गई है।

2. झारखण्ड पुनर्स्थापन एवं पुनर्वास नीति-2008 के अध्याय-IV के आलोक में एन.टी.पी.सी. लि0 द्वारा पकरी बरवाडीह कोल माईन्स प्रोजेक्ट के नन कोल बीयरिंग एरिया एवं कोल बीयरिंग एरिया में भू-अर्जन से प्रभावित परिवारों का सामाजिक-आर्थिक सर्वे (Socio-Economic Survey) I.I.T., खड़गपुर एवं क्षेत्रीय NGO 'अभिज्ञान' से कराया गया है। समर्पित प्रतिवेदन के अनुसार सर्वेक्षण का सार निम्नवत् है :-

क्र.	विवरण	भू-अर्जन अधिनियम से प्रभावित	C.B. Act से प्रभावित	कुल प्रभावित
(i)	Homestead oustees (HSO's)	0	4276	4276
(ii)	Project Affected families (PAF's)			
	(क) अनुसूचित जन जाति	0	0	0
	(ख) अनुसूचित जाति	191	648	839
	(ग) ओ बी.सी.	699	5886	6585
	(घ) सामान्य श्रेणी	178	737	915
	कुल-	1068	7271	8339
(iii)	BPL Families	303	1993	2296
(iv)	विधवा	53	21	74
(v)	अविवाहित पुरुष	2	1	3
(vi)	अविवाहित महिला	0	0	0
(vii)	विकलांग	2	1	3
(viii)	नाबालिन अनाथ	0	0	0
(ix)	Vulnerable Person	0	0	0
(x)	कृषि मजदूर	4	4	8
(xi)	गैर कृषि मजदूर	0	0	0
(xii)	Artisons	0	5	5

Sec10/adhisuchna/R&R 23.02.2013 (latit)


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N-K
नवीन कुमार / NAVIN KUMAR
उप-प्रकारक (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
एन.टी.पी.सी. लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
हजारीबाग / Hazaribag

3. सर्वेक्षण प्रतिवेदन के अनुसार इस परियोजना में अनुसूचित जन जाति का कोई भी परिवार HSO's अथवा PAF's के अन्तर्गत नहीं है।

4. परियोजना से प्रभावित होनेवाली जन सुविधाओं और सरकारी भवनों की सूची जो प्रभावित है अथवा जिनके प्रभावित होने की संभावना है, निम्नवत है :-

1. सरकारी विद्यालय - 24
2. पंचायत भवन - 03
3. प्राथमिक स्वास्थ्य केन्द्र - 01
4. आँगनबाड़ी केन्द्र - 19
5. उप डाकघर - 01
6. महिला प्रशिक्षण केन्द्र - 01
7. कृषि उत्पाद हेतु भंडारगृह - 01

5. परियोजना से प्रभावित होनेवाली सार्वजनिक एवं सामुदायिक संपत्तियों, परिसंपत्तियों और संरचनाओं का विवरण, जो प्रभावित हो रही है, निम्नवत है :-

1. मंदिर - 32
2. मस्जिद - 06
3. खेल मैदान - 02
4. तालाब - 15
5. कुँआ - 08
6. कब्रगाह - 19
7. हाट बाजार - 02
8. पहुँच पथ - 03

6. परियोजना से प्रभावित भूमि एवं PAF's की विवरण निम्नवत है :-

मौजो की संख्या	क्षेत्र (रैयती एकड़ में)	PAF's की संख्या	अभ्युक्ति
7	1711	2221	पूर्ण सर्वे के अनुसार DLAO, कार्यालय में रक्षित अभिलेख के आधार पर
10	2360	5050	
13	690	1068	
कुल- 30	4761	8339	

7. उपर्युक्त प्रभावित परिवारों/व्यक्तियों को पुनर्वासित करने हेतु पुनर्स्थापन क्षेत्र के रूप में अर्जित की जा रही भूमि की विस्तृत विवरणी निम्नवत है :-

अंचल का नाम	ग्राम/मौजा	थाना नं.	रकबा (एकड़ में)		
			रैयती	गैरमजरूआ	कुल
बड़कागाँव	ढेंगा	127	170.14	4.1.10	211.24
बड़कागाँव	लकुरा	128	9.52	1.77	11.29
			179.66	42.87	222.53

8. एन.टी.पी.सी. लि० द्वारा कोल बियरिंग एरिया एवं नैन कोल बियरिंग एरिया दोनों के भू-अर्जन से प्रभावित विस्थापितों के लिये एक संयुक्त 'पुनर्स्थापन एवं पुनर्वास योजना' समर्पित की गई है।

9. झारखण्ड पुनर्स्थापन एवं पुनर्वास नीति की कंडिका-4.4.1 के अनुसार स्वतंत्र बहुविध विशेषज्ञ समूह का वर्तमान में अस्तित्व में नहीं होने के फलस्वरूप एन. टी.पी.सी. लि० द्वारा समर्पित "पुनर्स्थापन एवं पुनर्वास योजना" को परामर्शी परिषद के समक्ष उपस्थापित किया गया। परामर्शी परिषद द्वारा गहन समीक्षोपरान्त दिनांक-12.02.2013 को मद संख्या-12 में स्वीकृति प्रदान की गई है जो कि निम्नवत् है :-

SI No.	Jharkhand R&R Policy Clause	Jharkhand R&R Policy Provisions	Proposed R&R Package to be given by NTPC
1	2	3	4
1	Land compensation	As per circle rate varying from 1.4 to 3.6 lacs per acre plus solatium and interest etc. Financial implication:3.81 Rs lacs/acres	Land compensation@Rs.15 lacs/acre inclusive of award amount of the land(value of land+ solatium+ statutory interest) +cash value of 300 days minimum assured wages for a year + cash value of 600 days minimum wages as subsistence allowance in lieu of employment +cash value of 1/10th of the land acquired from the land looser(maximum 50 decimal).
2	7.1	R&R benefit shall be extended to all the affected families on the date of publication of the declaration any division of assets in the family after said date may not be taken into account	NTPC will comply the provisions of Jharkhand R & R
3	7.2	Any PAP who losses his/her house due to LA will be allocated house site equivalent to the actual area of house lost limited to maximum of 10 decimal in rural area and 5 decimal in urban area a pucca house of 100 sqm carpet area on the allotted site shall be constructed by acquiring body which should consists of 2 bedrooms, 1 Drawing room,1 kitchen & 1 toilet.	A:-NTPC shall allocate house site equivalent to the actual area of house lost limited to maximum of 10 decimal which is equivalent to 400sqmt land. NTPC shall construct a house of 100 sqm carpet area on the said plot of 400 sqm consisting of 2 bedrooms,1 Drawing room,1 kitchen & 1 toilet with the roof right.

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4	7.2	Affected family losing house on land less than 10 decimal area in rural area & 5 decimal in urban area shall be allotted 150 sqm land for construction of house. pucca house of equal carpet area or carpet area of minimum 55 sqm which ever is more shall be constructed by acquiring body.it will be limited to a maximum of 100 sqm.	B:- In case of affected family losing house on land less than 10 decimal area in rural area NTPC shall allocate house site of 150 sqmt land. NTPC shall construct house of 55 sqm on said plot consisting of 1 bedrooms, 1 Drawing room,1 kitchen & 1 toilet with the roof right.
5		If affected family opts not to take the house offered then the PAF shall get one time financial assistance for construction of house @ Rs 3.00 Lakhs	c:- NTPC shall allocate house to all the persons who loses their house.
6	7.3	Each BPL family residing in affected area for a period not less than 15 years in non scheduled area & 30 years in scheduled area shall be entitled to get a constructed house of 55sqm carpet area in rural as well as urban area	NTPC will provide house in R&R Colony
7		If affected BPL family opts not to take the house offered then the BPL family shall get one time financial assistance for construction of house @ Rs 2.00 Lakhs	NTPC will comply the provisions of Jharkhand R & R
8	7.4	Each affected family to whom Govt land can not be settled or if they do not opt to get Govt land,they will be entitled to get 1/10th of land lost due to LA subject to a maximum of 50 decimal land in proposed township or at a place in the proximity .This will be calculated by deducting land allotted for homestead purpose	not providing land .the cost of the proposed land to be given is included in the consolidated package mentioned in SI.No 1.
9	7.5	Stamp duty and other fees payable for registration of land or house allotted to the affected family shall be borne by acquiring body	NTPC will bear the stamp duty & other fees for registration of allocated house site & constructed house.
10	7.6	land & houses allotted to PAF shall be free from all encumbrances	NTPC will comply the provisions of Jharkhand R & R
11	7.7	Land and house allotted to affected families shall be in joint name of wife and husband.monetary amount shall be disbursed through bank account opened in the joint name	NTPC will comply the provisions of Jharkhand R & R
12	7.8	Each displaced family having cattles shall get one time financial assistance of Rs 35000 for construction of cattle shed	Rs 35,000 as mentioned in Jharkhand R & R

13	7.9	Each displaced family shall get one time financial assistance of Rs 15000 for shifting of family, belongings, cattle & building materials	Rs 15,000 as mentioned in Jharkhand R & R
14	7.10	Each affected trader who has been displaced having pucca shop or gumti shall get one time financial assistance of Rs 50000	NTPC will comply the provisions of Jharkhand R & R
15	7.11.1(a)	Employment to one eligible persons from each nuclear family who has lost their agriculture land or homestead land due to LA. If more jobs are available then priority to be given to the displaced persons priority in the employment to be decided by Administrator(concerned DC) in consultation with gram sabha & requiring body	This will be largely taken care by NTPC by way of enhanced compensation mentioned in forgoing para 1 and enhanced annuity mentioned in para 26 below.
16	7.11.1(b)	Technical/vocational training to the affected persons to make them suitable for the jobs	NTPC will ensure completion & operation of ITI at Barkagaon immediately.
17	7.11.1 (C)	requiring body to provide Scholarship and skill development opportunities to eligible persons from the affected families as per criteria fixed by State government	ITI training is being provided on NTPC cost to affected persons. Modular employable scheme course arranged for wards of PAP's
18	7.11.1(d)	requiring body to give preference to affected persons or their groups or cooperatives in allotment of outsourced contracts,shops etc coming up in the project.	NTPC will comply the provisions of Jharkhand R & R
19	7.11.1(e)	requiring body to give preference to willing landless labour & unemployed affected persons in labour jobs during construction phase	NTPC will comply the provisions of Jharkhand R & R
20	7.11.1(f)	Age of Nominees of the PAF for employment shall be relaxed by 10 years	not providing employment
21	7.11.1(g)	All unskilled and semi skilled direct employment created in the project shall be provided to the members of affected families subject to availability and suitability	NTPC will comply the provisions of Jharkhand R & R
22	7.11.1(ग)	Preference to local people in all levels of employment as far as possible	not providing employment
23	7.11.1(i)	Each affected family will nominate one member for employment	not providing employment
24	7.11.1(j)	Demise of person of affected family during service ,his dependent will be provided employment on compassionate ground	not providing employment

Sec10/adhisuchna/R&R 23.02.2013 (latit)

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नवीन कुमार / NAVIN KUMAR
एन.ए.डी.सी. (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
एन.टी.पी.सी. लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
हजारीबाग / Hazaribag

25	7.11.2	affected persons to be offered the necessary training facilities for development of entrepreneurship, technical & professional skills for self development.	NTPC will comply the provisions of Jharkhand R & R
26	7.12	If employment is not provided by the requiring body to the PAFs then Annuity @ Rs.12000/- per acre per annum for 30 years which is to be escalated by Rs.500 /acre/annum every two years from the date of displacement. maximum amount of annuity shall be limited to Rs 10000/- per month i.e. Rs.12000 per year for 30 years which is to be increased by Rs.500 in every two years. If PAF losses less the one acre of land then minimum Rs.1000 per month is to be paid.	In lieu of employment annuity @ Rs. 36,000 per acre per annum for 30 years for those losing one acre or more land which is to be escalated by Rs.1,000 every two years (Limited to maximum for 5 acres). Those losing land less than 1 acre then annuity @ Rs 30,000 per annum for 30 years which is to be escalated by Rs. 750 every two years
27	7.13.1	1% annual profit to be distributed in PAP's for companies other than PSU's	As per GOI policy for central PSUs engaged in mining
28	7.13.2	Distribution of profit	As per GOI policy for central PSUs engaged in mining
29	7.14	each affected family shall get Subsistence allowance equivalent to 25 minimum agriculture wages per month for one year i.e. 300 MAW	This benefit is included in land compensation at s. No. 1.
30		Affected families not getting employment from requiring body shall get amount equal to 600 days of agriculture wages.	This benefit is included in land compensation at s. No. 1.
31	7.15	Requiring body to pay Pension for life to vulnerable affected persons @ Rs 1500/- per month for life. Vulnerable means disabled, destitutes, orphans, widows, unmarried girls, abandoned women or persons above 50 yrs of age who are not provided or can not immediately be provided with alternative livelihood & who are not otherwise covered as part of a family. (clause 6.4.v)	As per the Jharkhand State R & R Policy comprehensive Re-survey will be conducted by DC Hazaribagh to ascertain such vulnerable persons.
32	7.16	Except Cl 7.13.1 and 7.15 other benefits can be paid in lumpsum	NTPC will comply the provisions of Jharkhand R & R
33	7.18.1	if project involves displacement of 100 STs then tribal development plan to be prepared.	not applicable in the instant case
34	7.18.2	1/3 of compensation amount due to be paid as first instalment rest at time of taking over possession	NTPC will comply the provisions of Jharkhand R & R

35	7.18.3	Schedule tribes to be resettled in same schedule area in the compact block	not applicable in the instant case
36	7.18.4	in the resettlement areas predominantly inhabited by STs land to be given for community and religious gatherings free of cost	not applicable in the instant case
37	7.18.5	if PAFs belonging to SC, ST, OBC categories are resettled outside the district then 25% higher R & R benefits of clause 7.8,7.9 7.10 is to be paid	not applicable in the instant case
38	7.18.6	any alocation of tribal land in violation of laws of land then it will be treated as null & void. R & R benefits to be paid to the original tribal owner.	NTPC will comply the provisions of Jharkhand R & R
39	7.18.7	in hydel projects, PAFs to get fishing rights in the reservoirs	not applicable in the instant case
40	7.18.8	Affected ST/SC/other forest dweller families who are in possession of forest land in the affected area prior to 13th December, 2005 shall be eligible for R & R Benefits	NTPC will comply as per provisions of FRA 2006.
41	7.19.1 to 7.19.6	Amenities and infrastructural facilities to be provided by the requiring body in the Resettlement areas	Roads, public Transport, drainage, sanitation, drinking water, community pond, plantation, public utilities (panchayat Ghar, electric supply, healthcare facilities, playground, community centre, school, place of worship, burial/cremation ground, grazing land etc, will be part of R&R colony.
42	7.20	Indexation of Rehabilitation Grant and other benefits shall be indexed as per CPI(consumer price index) except annuity.	NTPC will comply the provisions of Jharkhand R & R
43	7.21	Periphery development: requiring body to earmark 1% of their annual net profit for development within 15 Km periphery. commissioner to coordiante & State Govt. may frame rules & guidelines for this purpose.	NTPC will comply the provisions of Jharkhand R & R

उपर्युक्त वर्णित प्रावधानों के अतिरिक्त अन्य देय कोई भी लाभों/सुविधाओं का भुगतान/विवरण झारखण्ड पुनर्स्थापन एवं पुनर्वास नीति-2008 के आलोक में किया जायेगा।

झारखण्ड राज्यपाल के आदेश से,

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(ए0 के0 रस्तोगी)
सरकार के विशेष सचिव

ज्ञापांक-

दिनांक-

प्रतिलिपि :-अधीक्षक, राजकीय मुद्रणालय, डोरण्डा, राँची को सूचना एवं झारखण्ड राजपत्र के असाधारण अंक में प्रकाशनार्थ प्रेषित।

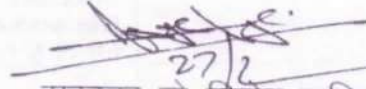
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सरकार के विशेष सचिव

ज्ञापांक-

116/रा० दिनांक- 27-2-13

प्रतिलिपि :-महामहिम राज्यपाल के प्रधान सचिव/मुख्य सचिव के सचिव/विकास आयुक्त, झारखण्ड, राँची/सभी प्रधान सचिव/सचिव, झारखण्ड, राँची/सभी विभागाध्यक्ष/सभी प्रमंडलीय आयुक्त/सभी उपायुक्त/महाप्रबंधक, एन.टी. पी.सी. लि०, पकरी बरवाडीह कोल माईनिंग प्रोजेक्ट, हजारीबाग को सूचना एवं आवश्यक कार्रवाई हेतु प्रेषित।


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सरकार के विशेष सचिव
को०


नवीन कुमार / NAVIN KUMAR
उप महाप्रबंधक (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
एनटीपीसी लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
हजारीबाग / Hazaribag

Salient features of the R&R Plan PB-North West in line with Pakri Barwadih Coal Mining Project.

Sl.No.	Description of Benefits	Provision of R&R package
1	Land compensation	Land compensation @ Rs.24 lacs/acre inclusive of award amount of the land (value of land + solatium + statutory interest) + cash value of 300 days minimum assured.
2	Eligibility	R&R benefit shall be extended to all the affected families as per definition of the RFCTLAR Act, i.e. "All adult members of either gender with or without spouse or children shall be considered separate families", based on the cutoff date for the purpose of displacement.
3	Resettlement in R&R colony	A: - NTPC shall allocate house site equivalent to the actual area of house lost limited to maximum of 10 decimal which is equivalent to 400 sqmt land. NTPC shall construct a house of 100 sqms carpet area on the said plot of 400 sqm consisting of 2 bedrooms, 1 drawing room, 1 kitchen and 1 toilet with the roof right. B: - In case of affected family losing house on land, less than 10 decimal area in rural area, NTPC shall allocate house site of 150 sqmt land. NTPC shall construct house of 55 sqm on said plot consisting of 1 bedroom, 1 Drawing room, 1 kitchen & 1 toilet with the roof right. C: - Roads, public Transport, drainage, sanitation, drinking water, community pond, plantation, public utilities (Panchyat Ghar, electric supply, healthcare facilities, playground, community Centre, school, place of worship, burial/cremation ground, grazing land etc. will be part of R&R colony.
4	Stamp duty & Registration charges	Land & house allotted to the displaced family shall be free from all encumbrances. NTPC will bear the stamp duty & other fees for registration of allocated house site & constructed house.
5	Self-Resettlement	Any displaced family, not opting to take the house offered, a one-time financial assistance of Rs.10 Lac per family for construction of House shall be provided by NTPC.
6	Cattle Shed Assistance	Each displaced family having cattle's shall get one time financial assistance of Rs.35,000/- for construction of cattle shed.
7	Transportation Allowance	Each displaced family shall get one-time financial assistance of Rs.50,000/- for shifting of family, belongings, cattle & building materials.
8	Assistance to small Traders	Each affected trader who has been displaced having pucca shop or gumti shall get one-time financial assistance of Rs.50,000/-
9	Employment	As the coal mining operations shall be done on MDO mode, for unskilled and semi-skilled jobs generated by MDO for the Mining and allied operation of the project, PAP's would be given preference for employment, subject to availability and suitability.


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 एनटीपीसी लिमिटेड / NTPC Limited
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 हजारीबाग / Hazaribag

	<p>Technical/vocational training shall be given to the affected persons to make them suitable for the jobs. An ITI at Barkagaon has already been established by NTPC and currently it is in operation. The same ITI will be facilitated to cater to the skill development needs.</p> <p>In lieu of employment, Annuity @ Rs.36,000/- per acre per annum for 30 years for those losing one acre or more which is to be escalated by Rs.1,000/- per annum every two years (Limited to maximum for 5 acres) shall be paid. Those losing land less than one acre then Annuity @ Rs.30,000/- per annum for 30 years which is to be escalated by Rs.750/- per annum. Every two years shall be paid.</p> <p>NTPC shall pay pension for life to vulnerable affected persons @ Rs.1,500/- per month for life. Vulnerable means disabled, destitute, orphans, widows, unmarried girls, abandoned women or persons above 50 years of age who are not provided or cannot immediately be provided with alternative livelihood & who are not otherwise covered as part of a family. The list shall be made available to NTPC after comprehensive survey by the District Administration.</p>
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हजारीबाग / Hazaribag

Ref. No: 1040/PBCMP/Min/2017/114

Date: 20.04.2017

OFFICE ORDER No 23A / 2017

Further to the office order regarding the reconstitution of Environment Management Cell for Pakribarwadih Coal Mining Project, the following enclosed structure shall function for the Environment Management with immediate effect for the Pakribarwadih Coal Mining Project.

The cell is responsible for

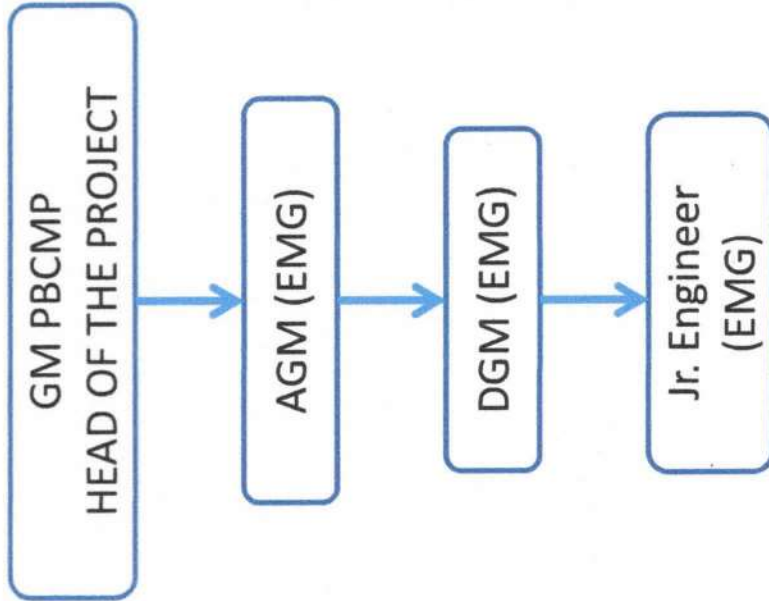
1. Compliance of statutory conditions given in the Environment , Forest Clearance groundwater clearance etc.
2. Organize the visit of various officials and implementing the suggestions for betterment of the environment.
3. Submit the statutory compliance reports.
4. Organize Environment awareness programs.
5. Implement the innovative measures for the environment protection
6. Documentation etc.

This issues with the approval of the competent authority.


T. Gopalakrishna
Group General Manager,

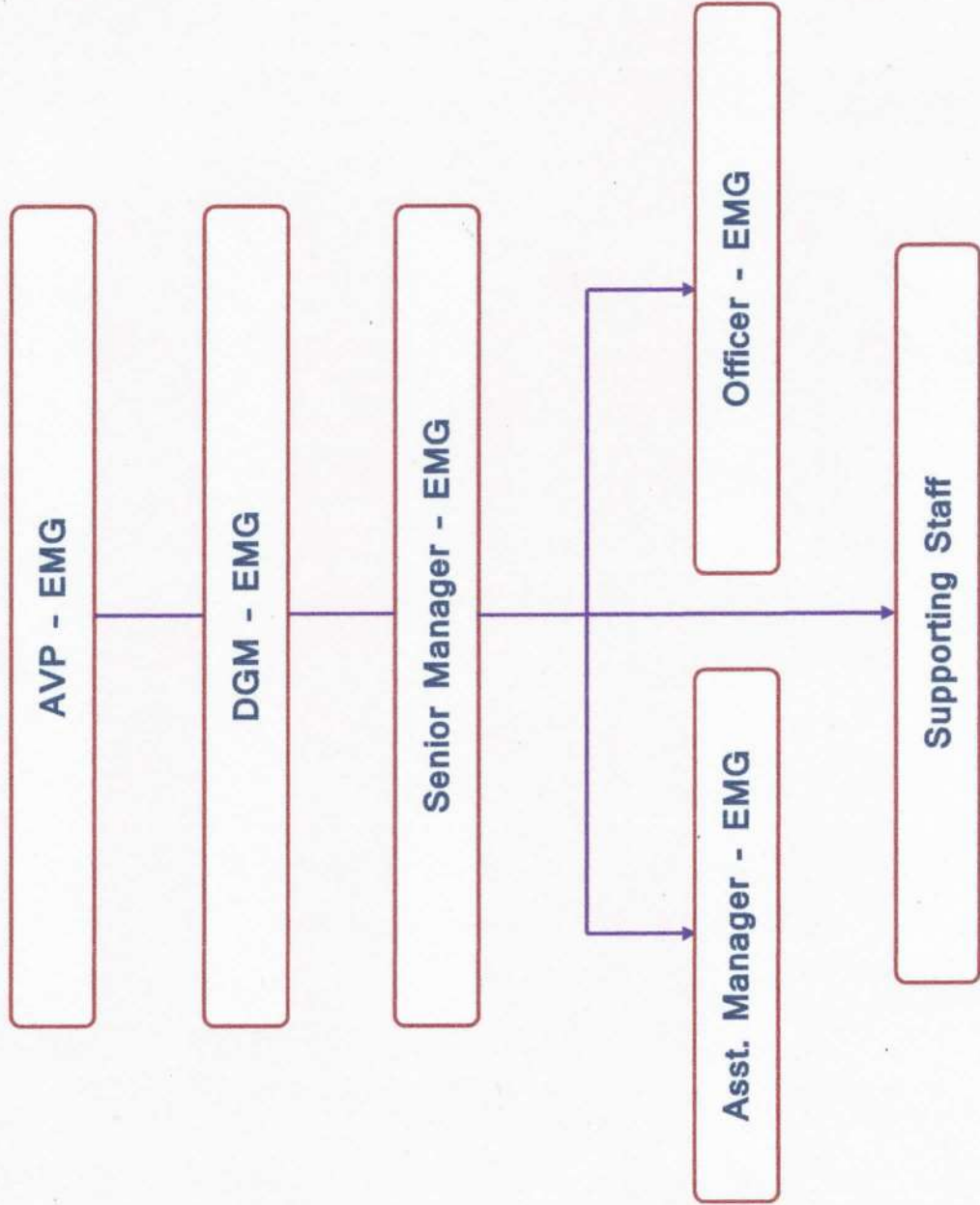
CC:
All HODs – For Kind information please.
Concerned executives.

ENVIRONMENT MANAGEMENT CELL AT NTPC - PBCMP



Navin K
नवीन कुमार / NAVIN KUMAR
उप महाप्रबंधक (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
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हजारीबाग / Hazaribag

ENVIRONMENT MANAGEMENT CELL
THRIVENI SAINIK MINING PVT. LTD.
PAKRI BARWADIH COAL MINING PROJECT



Navin K
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ज्य. महाप्रबंधक (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
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हजारीबाग / Hazaribag

हजारीबाग में किसानों की संख्या ढाई लाख है, राज्य फसल राहत योजना

फसल राहत में 27,183 कि

हि पड़ताल

हजारीबाग, हमारे प्रतिनिधि। सरकार ने किसानों को कच खरिद होने से खरीक फसल के दौरान हुए नुकसान को भरपाई के लिए झारखंड राज्य फसल राहत योजना शुरू की है। इस योजना का लाभ लेने के लिए आवेदन करने की अंतिम तिथि 15 अक्टूबर निर्धारित थी।

15 अक्टूबर को तक 27,183 किसानों का रजिस्ट्रेशन हो चुका था। आवेदन पत्रों की खंटी का काम चल रहा था। योजना के तहत फसल क्षति होने पर प्रति एकड़ मुआवजा के रूप में 4000 रुपये तक की सहायता राशि देने का प्रावधान है। किसानों को इसके लिए किसी भी तरह की फसल बीमा प्रीमियम देने की जरूरत नहीं होगी। धान, मकई, जिलहन, दलहन जैसी फसल की क्षति होने की स्थिति में किसानों को दी जाने वाली क्षतिपूर्ति योजना है। जो सुखाड़ और अकाल की स्थिति में किसानों को आर्थिक सहायता प्रदान करना था। जिला सहकारिता प्रशासक मनीष कुमार

किसानों ने कहा- कम लोगों को है फसल राहत योजना की जानकारी



फसल राहत योजना के तहत आवेदन देने की तिथि बढ़ानी चाहिए, क्योंकि बहुत से किसान अभी तक आवेदन जमा नहीं कर पाए थे। तिथि समाप्त हो गई ऐसे में अधिकांश किसान निराश हो जाएंगे, क्योंकि जिले में ज्यादातर क्षेत्रों में सुखाड़ की स्थिति है।

- धनु महतो, किसान, कटकमसाडी



फसल राहत योजना की जानकारी बहुत से किसानों को नहीं मिली है। इसलिए इसके प्रचार प्रसार के साथ आवेदन जमा करने की तिथि बढ़ानी चाहिए। ताकि ज्यादा से ज्यादा किसानों को इसका नुक़ मिल सके। तिथि नहीं बढ़ने से लाखों किसान वंचित रह जाएंगे।

- रामकुमार मेहता, किसान, कटकमसाडी

ने बताया कि योजना के तहत योजना का लाभ लेने के लिए कोई लक्ष्य निर्धारित नहीं था। उन्होंने बताया कि फसल राहत योजना के तहत गत वर्ष लाभ लेने के लिए एक लाख 17 हजार किसानों ने रजिस्ट्रेशन कराया था। इसमें

लगभग 80 हजार किसानों को इसका लाभ मिला था। जिले में प्रधानमंत्री किसान योजना अंतर्गत लाभ लेने के लिए 2,14,000 किसान रजिस्टर्ड हैं। जबकि ढाई लाख से अधिक किसान खेती-बाड़ी के कामों से जुड़े हैं।

एनटीपीसी लिमिटेड

(भारत सरकार का उद्यम)

पकरी बरवाडीह नाथ वेस्ट कोयला खनन परियोजना, हजारीबाग

सूचना

पकरी बरवाडीह नाथ वेस्ट कोयला खनन परियोजना, हजारीबाग, एनटीपीसी लिमिटेड को वन एवं पर्यावरण एवं जलवायु परिवर्तन मंत्रालय (राज्य पर्यावरण प्रभाव आकलन प्राधिकरण) द्वारा जारी किया गया स्वीकृति की प्रति झारखण्ड राज्य प्रदूषण नियंत्रण बोर्ड में उपलब्ध है। जिसे वन एवं पर्यावरण एवं जलवायु परिवर्तन मंत्रालय की वेबसाइट <https://environmentclearance.nic.in> पर देखा जा सकता है।

एनटीपीसी लिमिटेड

(A Govt. of India Enterprise)

North West Query of Pakri Barwadih Coal Mining Project Hazaribag

NOTICE

North West Query of Pakri Barwadih Coal Mining Project, Hazaribag, NTPC Limited has been accorded environment clearance from Ministry of Environment & Forests and Climate Change (Issued by the State Environment Impact Assessment Authority) a copy of Environment clearance is available with the Jharkhand State Pollution Control Board and may also be seen at the website of the Ministry of Environment & Forests at <https://environmentclearance.nic.in>

सूर्यकुंड को किया जाएगा विकसित

बरकड़ा। बरकड़ा स्थित सूर्यकुंड को विकसित करने के लिए जिला प्रशासन डीपीआर तैयार करेगा। सूर्यकुंड पर्यटन स्थल के कैटेगरी वन में रिस्ट प्लेस सरकार के लिस्ट में है इसे लेकर हजारीबाग उपविकास आयुक्त प्रेरणा दीक्षित ने स्थानीय विधायक अमित यादव की पहल पर सूर्यकुंड का भौतिक निरीक्षण किया है। निरीक्षण के बाद उप विकास आयुक्त ने बताया कि बहुत जल्द सूर्यकुंड को विकसित किया जाएगा। विधायक अमित यादव ने कहा कि सूर्यकुंड के आसपास पेयजल व नदी है। वहीं जो नए भवन बनाए गए हैं, वहां भी पेयजल नहीं पहुंच पा रहा है। ऐसे में जिला प्रशासन ने आश्वस्त किया कि पेयजल की समस्या दूर होगी। साथ ही शौचालय में भी पहुंच पाएगा। उन्होंने कहा कि सूर्यकुंड विकास के लिए जिला प्रशासन सज्ज है।

नवीन कुमार / NAVIN KUMAR
उप महासंचालक (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)
एनटीपीसी लिमिटेड / NTPC Limited
कोयला खनन परियोजनाएँ / COAL MINING PROJECTS
हजारीबाग / Hazaribag

दैनिक जागरण

YOU CAN BOOK CLASSIFIED ADVT. OVER PHONE in Ranchi

(For More Details Contact)

90884-84290/267

90884-84290/267

ताराटांड में दिखेगा पशुपतिनाथ मंदिर का प्रारूप

सकाद राखीगंजी, झुमरीगंजीया जिला के ताराटांड में दुर्गा पूजा के अवसर पर दिखेगा पशुपतिनाथ मंदिर का प्रारूप।

पशुपतिनाथ मंदिर का प्रारूप दिखाने के लिए एक आर्कितेक्चरल ड्राइंग तैयार की गई है। इस ड्राइंग में मंदिर का आकार, आकार और स्थिति का विवरण दिया गया है।

मंदिर का आकार 15 मीटर चौड़ा और 10 मीटर गहरा होगा। मंदिर में एक बड़ा मूर्ति स्थान होगा, जहाँ पशुपतिनाथ की मूर्ति स्थापित की जाएगी।

मंदिर के आसपास एक बगीचा और एक कुतिया भी बनाई जाएगी।



पंडाल निर्माण में एक लाख 75 हजार रुपये होंगे खर्च।

पंडाल निर्माण के लिए एक लाख 75 हजार रुपये खर्च होंगे।

पंडाल में एक बड़ा मूर्ति स्थान होगा, जहाँ पशुपतिनाथ की मूर्ति स्थापित की जाएगी।

पंडाल के आसपास एक बगीचा और एक कुतिया भी बनाई जाएगी।

पंडाल में एक बड़ा मूर्ति स्थान होगा, जहाँ पशुपतिनाथ की मूर्ति स्थापित की जाएगी।

पंडाल के आसपास एक बगीचा और एक कुतिया भी बनाई जाएगी।

एंटी कर्रप्शन ब्यूरो से डीएमएफटी फंड घोटाले की जांच करने की मांग

राजधानी रांची (16 अक्टूबर) - राज्य सरकार के एंटी कर्रप्शन ब्यूरो (ए.सी.बी.) से डीएमएफटी (डीएमएफटी) फंड घोटाले की जांच करने की मांग की गई है।

ए.सी.बी. के अध्यक्ष डॉ. ए.पी. सिंह ने कहा कि डीएमएफटी फंड घोटाले में करोड़ों रुपये का नुकसान हुआ है।

ए.सी.बी. को जांच करने के लिए कहा गया है।

ए.सी.बी. के अध्यक्ष डॉ. ए.पी. सिंह ने कहा कि डीएमएफटी फंड घोटाले में करोड़ों रुपये का नुकसान हुआ है।

ए.सी.बी. को जांच करने के लिए कहा गया है।

एनटीपीसी NTPC
(A Govt. of India Enterprise)

NOTICE

North West Quarry Of Pakri Barwadh Coal Mining Project, Hazaribagh

North West Quarry of Pakri Barwadh Coal Mining Project, Hazaribagh. NTPC Limited has been accorded environment clearance from Ministry of Environment & Forests and Climate Change (issued by the State Environment Impact Assessment Authority) a copy of Environmental clearance is available with the Jharkhand State Pollution Control Board and may also be seen at the website of the Ministry of Environmental & Forests At <https://environmentclearance.nic.in>

एनटीपीसी NTPC
(A Govt. of India Enterprise)

सूचना

पक्की बरवाडीह नार्थ वेस्ट कोयला खान परियोजना हजारीबाग एनटीपीसी लिमिटेड को वन एवं पर्यावरण एवं जलवायु परिवर्तन मंत्रालय (राज्य पर्यावरण प्रभाव आकलन प्राधिकरण द्वारा जारी किया गया) स्वीकृति की प्रती झारखण्ड राज्य प्रदूषण नियंत्रण बोर्ड ने उपलब्ध है। (जिसे वन एवं पर्यावरण एवं जलवायु परिवर्तन मंत्रालय की वेबसाइट <https://environmentclearance.nic.in> पर देखा जा सकता है।)

N-K

राज्य पर्यावरण प्रभाव आकलन (पर्यावरण प्रबंधन) / DGM (ENVT. MGMT.)

एनटीपीसी लिमिटेड / NTPC Limited

कोयला खनन परियोजनाएँ / COAL MINING PROJECTS

हजारीबाग / Hazaribagh



एनटीपीसी लिमिटेड
(भारत सरकार का उद्यम)

NTPC Limited
(A Govt. of India Enterprise)

कोयला खनन परियोजनाएँ, हजारीबाग
Coal Mining Projects, Hazaribag

Ref. No. NTPC/PB-NW/2023/172

Date: 28.10.2023

To,
✓ Deputy Commissioner,
Hazaribagh, Jharkhand – 825301

Sub: Information regarding grant of Environment Clearance (EC) to Pakri Barwadih North-West Coal Mining Project.

Respected Madam,

कार्यालय अर्थात्क
हजारीबाग
30/10/23
to inform your good office that Pakri Barwadih North-West Coal Mining Project of NTPC Limited has been granted Environment clearance by SEIAA (State level Environment impact assessment authority) vide its letter no. EC/SEIAA/2023-24/2916/2023/309 on 11.10.2023.

As per condition (ii) of Misc. conditions "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." In this regard a copy of EC is shared with this letter for your reference please.

30.10.23 Thanking you,

Yours sincerely

Neeraj Jalota

Head of Project (PB, PB-NW CMP)

Encl.: As above

Copy to:

1. The Member Secretary, Jharkhand State Pollution Control Board, Ranchi, Jharkhand
2. Regional Officer, Jharkhand State Pollution Control Board, Hazaribagh, Jharkhand
3. Regional Officer, Integrated Regional Office of MOEF&CC, Ranchi, Jharkhand
4. District Industry Centre, Hazaribagh
5. Chief Municipal Officer, Municipal Corporation, Hazaribagh
6. The Circle Officer, Keredari Block, Hazaribagh
7. The Circle Officer, Barkagaon Block, Hazaribagh
8. Mukhiya, Kandaber village Panchayat, Hazaribagh
9. Mukhiya, Bariatu village Panchayat, Hazaribagh
10. Mukhiya, Beltu village Panchayat, Hazaribagh

कोयला खनन परियोजनाएँ, सिकरी साईट कार्यालय, बड़कागाँव, हजारीबाग – 825311
Coal Mining Projects, Sikri Site Office, Barkagaon, Hazaribag - 825311

पंजीकृत कार्यालय : एनटीपीसी भवन, स्कोप कॉम्प्लेक्स, 7, इंस्टिट्यूशनल एरिया, लोधी रोड, नई दिल्ली – 110 003. टेलीफोन नं./Tel: 011-24387333, फैक्स नं./Fax: 011-24361018
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