



एन टी पी सी खनन लिमिटेड  
(एनटीपीसी की एक पूर्ण सहायक कंपनी)  
**NTPC Mining Limited**  
(A Subsidiary of NTPC Limited)

TALAIPELLI

Ref: 1071/TLCMP/EMG/2024/1094

Date: 13.11.2024

To,  
**Regional Officer,**  
Integrated Regional Office, MoEF&CC,  
Aranya Bhawan, North Block, Sector-19,  
Naya Raipur, Atal Nagar, Chhattisgarh.  
E-mail: iro.raipur-mefcc@gov.in

**Sub: Submission of Six-Monthly Compliance Report on the status of compliance of the environmental clearance conditions stipulated in the Environment Clearance granted to Talaipalli Coal Mining Project for the period 1<sup>st</sup> April 2024 to 30th September 2024.**

Ref-1 : EC Ltr No. J-11015/279/2009-IA. II(M) Dated 02.01.2013.

Ref-2 : Revalidation of EC Vide Ltr No J-11015/279/2009-IA-II(M) Dated 28.10.2015

Ref 3 : Amendment in EC Ltr No. J-11015/279/2009-IA. II(M) Dated 06.11.2019.

Sir,

Please find enclosed the Six-Monthly Compliance Report on the status of compliance of the Environmental clearance conditions stipulated in the Environment Clearance granted to Talaipalli Coal Mining Project for the period 1st April 2024 to 30th September 2024.

Submitted for your kind perusal please.

Thanking you Sir,

Yours faithfully

**A S Yadav**  
**General Manager**

Encl.: A/a.

CC:

1. Regional Officer, Chhattisgarh Environment Conservation Board, T.V. Tower Road, Raigarh, Chhattisgarh. PIN 496001.

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एनटीपीसी लिमिटेड, गिन्नी प्लाजा, चुटिया थाना के सामने, चुटिया, राँची 834001 (झारखण्ड)  
NTPC Limited, Ginni Plaza, Opposite Chutia Police Station, Chutia, Ranchi-834001 (Jharkhand)  
**Registered Office** : NTPC Bhawan, SCOPE Complex, 7, Institutional Area, Lodi Road, New Delhi-110003  
www.ntpc.co.in

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A Maharatna Company



# Half Yearly Environment Clearance Compliance Report

April(2024) to September (2024)

for  
Talaipalli Coal Mining Project,  
NTPC Limited,  
Gharghoda, Raigarh, Chhattisgarh  
PIN 496111



**EC Letter No:** J-11015/279/2009-IA. II (M).

**Submission to:** Ministry of Environment, Forest &  
Climate Change (MoEF & CC)

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# **CHAPTER 1**

# **Introduction and Project Description**

## **INTRODUCTION AND PROJECT DESCRIPTION**

### **➤ NTPC Overview**

NTPC is India's largest energy conglomerate with roots planted way back in 1975 to accelerate power development in India. Since then, it has established itself as the dominant power major with presence in the entire value chain of the power generation business with a capacity of approximately 68 GW. From fossil fuels it has forayed into generating electricity via hydro, nuclear and renewable energy sources.

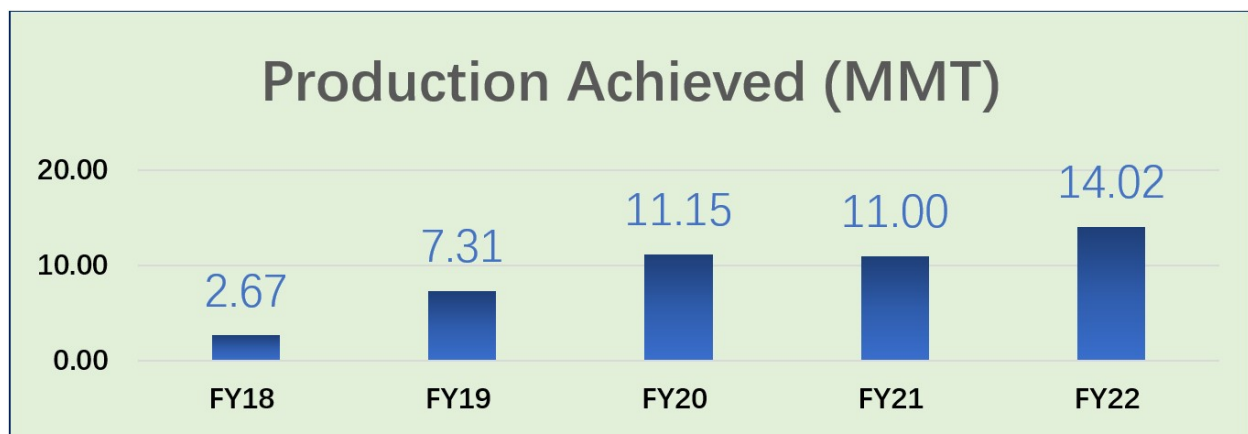
To strengthen its core business and a step towards reliable fuel security, NTPC entered in the fields of Coal mining as well. NTPC is developing 6 coal blocks allocated directly to it and one coal block of PVUNL, a JV of NTPC with Govt. of Jharkhand, for captive consumption of the coal. The total peak rated annual production capacity of these coal blocks estimated to be 71 MMT to fuel approximately 15 GW of NTPC.

NTPC has started coal production from its three coal blocks i.e Pakri Barwadih in Jharkhand, Dulanga in Odisha and Talaipalli in Chhattisgarh. NTPC has declared commercial operation of its two mines i.e. Pakri Barwadih and Dulanga Coal Block. During FY 2021-22, NTPC achieved 14.02 MMT coal production from its three operating mines. Mining operations in Chatti Bariatu mine started in April'22. Other mines are in development stage and expected to start coal production in near future.

NTPC incorporated a wholly-owned subsidiary company named as "NTPC Mining Limited" (NML) on 29th Aug'19 for carrying out its mining business by creating a dedicated workforce with focused approach.

As a part of backward integration, NTPC forayed into the coal mining sector, and so far, its operational mines have delivered more than 48

Million MT of coal to more than 22 thermal plants of NTPC. The coal, from captive coal mines, is much sought after in NTPC power stations because of its consistent quality, size and absence of any shale/boulder etc. So far, NTPC Coal Mining has delivered against all odds and shall continue to ensure sustainable coal supply to its power plants for delivery of cheap and uninterrupted power to the stakeholders.



#### ➤ **About Talaipalli CMP**

- ❖ Block allocation => Coal Block allotted by Ministry of Coal, Government of India vide letter o.13016/29/2003-CA-I dated 25th January, 2006 to NTPC.
- ❖ Linkage => Linked to LARA Power Project (4000MW), of NTPC in Chhattisgarh about 60 km southwards of the coal block.
- ❖ Area of Block => 2355.75 ha (Approx).
- ❖ Villages in Block => Total 8 villages: Talaipalli, Salepalli, Nayarampur, Kudurmahua, Raikera, Chotigudah, Ajjigarh & Bichhinara.
- ❖ Coal dispatch => MGR corridor 60 Km (Approx.) from Coal block to Kotralia Rly station (Falling in 23 villages) of TLCMP project. The primary cause of delay in the commissioning of the MGR is the issues related to land acquisition due to which complete site is not

available for construction activities. The enactment of new Land Acquisition Act has also contributed towards delay in implementation. The corridor identified for the siding also passes through forest area for which obtaining forest clearance took considerable time. The commissioning of MGR completed on 21st November 2022.

- ❖ Gross Geological Reserves in the block => 1407.94 MT.
- ❖ Average Quality of OC coal => GCV 4214 Kcal/kg, Average Grade 'G-11'
- ❖ Method of Mining => Opencast (Shovel-Dumper combination)
- ❖ Life of the Mine => 31 years.

## **CHAPTER- 2**

**“Compliance of the conditions  
stipulated in “Environmental Clearance”  
granted to Talaipalli CMP”**





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(एनटीपीसी की एक पूर्ण सहायक कंपनी)

**NTPC Mining Limited**  
(A Subsidiary of NTPC Limited)

**Talaipalli**

**Six Monthly Compliance Report on the status of compliance of the conditions stipulated in Environment Clearance granted to Talaipalli Coal Mining Project Vide Ltr No J-11015/279/2009-IA. II(M) Dated 02.01.2013, Revalidation of EC Vide Ltr No J-11015/279/2009-IA. II(M) Dated 28.10.2015, Amendment in EC vide Ltr No J-11015/279/2009-IA. II(M) Dated 06.11.2019. for the Period: April 2024 to September 2024.**

1. Environment Clearance granted to Talaipalli Coal Mining Project Vide Ltr No J-11015/279/2009-IA. II(M) Dated 02.01.2013.


**A. SPECIFIC CONDITIONS**

Sl.	Specific Conditions	Present Status as on 30.09.2024
i.	The maximum production capacity shall not exceed 18 MTPA for opencast mining and 0.72 MTPA for underground mining.	Noted. Mining in excess to 18.72 MTPA will not be done.
ii.	The Plan for diversion of Kurra nala shall be modified to include a major stream flowing through the ML towards the north side. The diversion channel shall be designed taking into consideration the realignment of the channel to join with River Kelo to its original path. Approval of the Flood & Irrigation Department, Govt. Of Chhattisgarh shall be obtained for plan for diversion of Kurra Nala and the stream. The proposed embankment along the diverted channel shall be stabilised with plantation using a mix of native species. Stone pitching shall be done towards forest area.	Area drainage study for diversion of Kurra nala was approved by Water Resources Dept., Govt. of Chhattisgarh vide letter no 3289 dated 03.11.2015.  The work of construction of Garland Drains is under progress in phased manner depending upon the extent of mining activity work will be completed by March 2026.  Work of tree plantation on embankment and stone pitching work will start from FY 25-26.
iii.	Top soil of an estimated 25.32 Mm <sup>3</sup> generated during initial 9 years shall be stacked properly within the mineralised area with proper slope at earmarked site(s) and shall be used concurrently for reclamation and development of green belt within a year of its generation.	Topsoil is being stacked separately and will be used for reclamation. Topsoil quantity stacked till 30.09.2024 is 4.63 Mcum.
iv.	During the initial 4 years of opencast mining, an estimated 264.52 Mm <sup>3</sup> of OB generated to be accommodated in temporary external dumps of 60m height in a coal bearing area of 446 ha within the mine lease, shall be re-handled during the 5th year of mine operation when backfilling begins. In addition, 80 ha of an isolated patch of ext. OB dump shall also be re-handled back into the mine void. At the post mining stage, there shall be no permanent external dump outside the coal block.	Total Over Burden (OB) generated till 30.09.2024 is 76.71 Mcum. The height of external OB dump is 60 m(approx.).  Noted, no permanent external dump outside the coal block will be present post mining stage.
v.	Reclamation of areas after re-handling of temporary external OB dumps and backfilled de-	Reclamation will be done as per approved mine plan using 3-tier native

Sl.	Specific Conditions	Present Status as on 30.09.2024
	coaled voids and habitat restoration of the mined out area shall be carried out by developing a 3-tier native forest ecosystem using native species found in the pre-mining forest ecosystem. A nursery of native species found in pre-mining eco-system shall be developed for reclamation and for habitat eco-restoration. Afforestation plan shall also include reintroduction of species on which the tribal's are dependent for minor forest produce for their livelihoods.	forest species found in the pre-mining forest ecosystem. A nursery is being developed for reclamation and for habitat eco-restoration.
vi.	Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilised for watering the mine area, roads, green belt development, etc. The drains shall be regularly de-silted and maintained properly.	Catch drains are being provided in the garland drains to arrest silt and sediments.  The water so collected is being used for sprinkling in the mine premises.
vii.	Garland drains (size, gradient and length) and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity shall also be provided for adequate retention period to allow proper settling of silt material.	Noted.  Garland drain constructed as per design provided in the plan for diversion of Kurra Nala.Regular desilting of garland drains and sump is being ensured.
viii.	Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.	Presently height of external OB dump is 60 m (approx.). To check runoff and siltation, garland drains are being maintained along overburden dump with catch pits.
ix.	No groundwater shall be used for the mine operations except for drinking purpose and during the initial years of mine operation. Any additional water requirement envisaged for mine operations shall be obtained from mine pit water, by recycle/reuse to the maximum extent and from rainwater harvesting measures.	NOC for ground water withdrawal in respect of Talaipalli coal mining project has been accorded by the Central Ground Water Authority, New Delhi vide Ref No CGWA/NOC/MIN/REN/2/2020/5621 dated 30 <sup>th</sup> Jan 2020 which is valid up-to 18 <sup>th</sup> Dec 2024. Ground water is being used as per permission obtained from the Ground Water Authority.
x.	Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality including TDS and TSS in May and in monsoon. Data thus collected shall be submitted to the Ministry of Environment & Forests and to the	Regular monitoring of groundwater level and quality is being monitored by M/s Vardan Envirolab. (NABL Accredited lab). Monitoring details being submitted to RO, MOEF & CC and CPCB offices regularly. All the observed parameters are within the prescribed limits. Two Nos of Piezometer installed at Nayarampur village and 132 KV Substation at Raikera village for regular



Sl.	Specific Conditions	Present Status as on 30.09.2024
	Central Pollution Control Board quarterly within one month of monitoring.	monitoring of ground water level as per stipulation.
xi.	A Plan for recharging and monitoring of ground water in the impact zone and implemented in consultation with the State Ground Water Board, which includes creation of ponds and wells in impact zone and check dams in River Kelo, Pajhar Nadi in consultation with concerned Government Dept. A suitable scheme for supply of drinking water to 8 surrounding villages shall also be prepared in consultation with State Government, particularly where village wells go dry in the Impact zone.	Eleven (11) numbers of ground water recharge borewells have been constructed at village Nayarampur at dipside end of block. 05 ground water recharge structure at various location installed at admin building, substation, driver shed & Coal Lab etc. Presently there is no problem of drinking water in villages in core zone. Safe drinking water shall be supplied to villages in surrounding core zone where wells go dry due to impact of mining activities if required.
xii.	ETP shall also be provided for workshop, and CHP. Effluents shall be treated to confirm prescribed standards, particularly for pH and TSS in case of discharge into any watercourse within or outside the lease.	02 numbers of ETP constructed at workshop area one each in West Pit and South Pit Extension contract along with provision of oil and grease trap. 01 ETP is under construction at East Pit. The treated water is again used for washing of vehicles. ETP effluent is being tested regularly and test results are within prescribed limit. M/s. Vardan Envirolab an NABL accredited Lab is monitoring and submitting the report.
xiii.	An STP shall be provided for the township/colony to treat the domestic effluents to prescribed standards and for their re-use in project activities and in development of green belt in the colony.	STP conforming to prescribed standard, is being provided in township which is under construction. STP of 15 KLD has been installed and commissioned at administrative building. The treated sewage water shall be used in plantation and horticulture.
xiv.	Industrial wastewater (workshop and wastewater) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 <sup>th</sup> May 1993 and 31 <sup>st</sup> December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed for treatment of workshop effluents.	Industrial wastewater is properly collected and treated in installed ETP at workshop and the results of treated effluents conform to the standard prescribed under GSR 422 (E). Oil and grease trap installed for treatment of workshop effluents.
xv.	No fly ash from the linked TPPs shall be used in backfilling of the de-coaled void without undertaking an environmental feasibility study and without prior approval of this Ministry under EIA Notification, 2006.	Noted & agreed. Presently, safety and feasibility study for mine void filling with ash and mixing the same maximum up-to 25% with OB is being carried out through M/s. CIMFR at TLCMP as per direction of state pollution control board. Based on results of study application for mine void filling with ash will be submitted to MoEF&CC for grant of permission.





Sl.	Specific Conditions	Present Status as on 30.09.2024
xvi.	Controlled blasting shall be practiced only during daytime with use of delay electric detonators. Drills shall be wet operated. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.	Controlled blasting is being followed. 04 nos of Drill machines are deployed with wet drilling operations. Blasting is being done during daytime with electric detonators only.
xvii.	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. Hoppers of the coal crushing unit shall be fitted with high efficiency bag filters and mist spray water sprinkling system shall be installed and operated effectively at all times of operation to check fugitive emissions from crushing operations, transfer points, stockyards.	Presently, coal transportation from pit to wharf wall is being carried out using high-capacity dumpers. Water sprinkling on haulage road with truck mounted sprinkler is being done. Design, drawings and geotechnical studies have already been conducted for award of CHP package which is under tendering stage. All measures to check fugitive emission & dust control have been incorporated in the design of CHP.
xviii.	All approach roads shall be black topped and swept regularly with mechanical sweepers and internal roads and major haul roads shall be black topped or concreted and provided with mobile and fixed type sprinklers. A 3-tier avenue plantation using local species shall be developed along the main roads, and approach roads to the mine. In addition, green belt shall be developed using local species all along the periphery of the site, along the areas such as crushing unit, and stockyards, which shall be properly maintained. Water sprinkling arrangements shall be established and functional during transfer and loading of coal.	All major internal approach roads have been black topped. The roads are swept daily. Sprinkling along all approach and haul road is being done round the clock. Further, fog canon is deployed for dust suppression. Avenue plantation (8000 nos) using local species carried out along both sides of approach roads to the mine from township through M/s. CGRVN.
xix.	A Conservation Plan for the endangered faunal species reported in the study area and for the medicinal plants found in and around the project area shall be implemented in consultation with the State Forest and Wildlife Departments. An in-situ conservatory of species found in the pre mining original ecosystem and rare and endangered plant species including medicinal plants species found in the study area during, pre-mining phase shall be established, and species reintroduced during mine reclamation and habitat restoration. The Conservation Plan shall include conservation of areas within the project boundary to be left undisturbed as free passageways for the wildlife to reach the forests in the study area. The Conservation Plan shall also include activities of mine reclamation and wildlife habitat restoration of mined out areas	Wildlife Conservation Plan as approved by State PCCF(WL), Raipur on 12.04.12 shall be implemented. As per approval, Rs. 5.2 crores have been deposited in the CAMPA fund on 15.02.13.  Expenditure incurred on implementation of Conservation plan shall be collected from Forest Department and will be submitted to MoEF&CC, Delhi and Regional Office, Nagpur.  Further, NTPC shall participate in RWLCP & contribute financially, if required and directed.

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Sl.	Specific Conditions	Present Status as on 30.09.2024
	within the core zone and project area using native species representative of the forest ecosystem during the pre-mining phase. Separate funds of Rs. 5 crores as capital costs shall be earmarked for implementation of the various activities under the Conservation Plan. The status of the Conservation Plan including expenditure (capital and revenue) shall be reported once a year as part of the monitoring report to this Ministry and to the MOEF Regional Office, Bhopal. The proponent shall also participate in the Regional Wildlife Conservation Plan (RWLCP) for the study area prepared by the State Wildlife Dept. and in addition to the above funds shall also contribute financially for implementation of the RWLCP. Habitat development / conservation measures along the migratory route / habitats of elephants found / visiting the area shall form a part of the Regional Action Plan.	
xx.	The proponent shall ensure that the 70 km stretch of MGR which includes a part of the elephant migratory corridor provides safe passageway for the elephants, the number and locations of which shall be finalised after a detailed study in consultation with the State Forest and Wildlife Departments, Govt. of Chhattisgarh and inputs from Dr Raman Sukumar, Professor and Chairman, Centre for Ecological Sciences, Indian Institute of Science, Bangalore. Adequate number of over/under passes shall be constructed along the MGR route, visited / reported / inhabited by elephants in the area in consultation with PCCF (WL), and at least 5 under/over passes shall be created particularly along the 7km stretch of the 70km MGR route, which forms a part of the elephant migratory corridor. In the rest of the route wherever required, similar under / overpasses shall be created. The WL Plan shall include measures for awareness for conservation of wildlife training to the drivers of MGR for use of siren, horn, fire crackers to move animals away from railway tracks, avoiding use of MGR during time of maximum animal movement.	07 numbers of underpass have been constructed along MGR track for elephant migration which provide safe passageway for the elephants in consultation with state forest and wildlife departments, Govt of Chhattisgarh. The amount of Rs. 5.2 Crore has been deposited for implementation of wildlife Conservation plan to the state forest department under CAMPA. Training to locomotive drivers is imparted for use of siren, horn, firecrackers to move animals away from railway tracks.
xxi.	An Environment Cell / Panel of experts consisting of WL expert, ecologist, sociologist and hydrology shall be created to verse the implementation of the WL Conservation Plan and Plan for Habitat/eco-restoration. No cacti species shall be	Services of experts i.e. WL expert, ecologist and hydrologist shall be hired in due course during implementation of conservation plan. Sociologist is already on roll of Talaipalli Coal Mining Project.

Sl.	Specific Conditions	Present Status as on 30.09.2024
	used in reclamation and eco-restoration of the mine.	
xxii.	Area brought under afforestation shall be not less than 1876.04 ha which includes, backfilled area (1848.38 ha), which includes area reclaimed after re-handling of temporary external OB dumps and topsoil dump, embankment (15 ha) along ML boundary, infrastructure area (5 ha), along roads, green belt (7.66 ha), and in undisturbed areas / safety zone and in colony outside the ML by planting native species in consultation with the local DFO / Agriculture Department. The density of the trees shall be around 2500 plants per ha.	Noted. The tree density of about around 2500 plants / ha will be maintained. Till date 17500 saplings in approx. 7.0 ha land have been planted through M/s. Chhattisgarh Rajaya Van Vikas Nigam at area behind Raikera Substation. Native species are given preference for plantation. Around 8000 saplings have been planted along both side of roads connecting township to mine.
xxiii.	A Progressive Mine Closure Plan shall be implemented by reclamation of 1848.38 ha of the total quarry area of 2079.34 ha by backfilling and reclamation and by afforestation, to create a 3-storey forest ecosystem, by planting native species in consultation with the local DFO / Agriculture Department / relevant institution. The density of the trees shall be around 2500 plants per ha. The balance 230.96 ha void left as a water body of a max. depth of 60m which shall be gently sloped and the upper benches stabilised with grass and plantation.	Noted. A Mine closure plan as per revised mining plan which was approved by MoC on 16.09.2023 and shall be implemented as per stipulations.
xxiv.	R&R Plan prepared for the 8 villages in the core zone - Talaipalii, Bichinara, Nayampur, Kudurmoha, Raikera, Chotiguda, Ajigarh and Salhepali with 635 land and homestead losers and 960 land losers shall be implemented within an agreed time-frame of 3-5 years and shall be not less than the norms laid down/approval by the State Government and shall not be inferior than that in the National R&R Policy and shall be completed within the agreed time-frame. R&R shall include specific income generation schemes and setting up of SHGs and cooperatives and activities and assistance under the Tribal Development Plan for the tribal being displaced and provision of annuities for the under-privileged sections. The provision also includes a Corpus Fund for the maintenance of the Resettlement site. The status of the implementation of the R&R Plan along with financial status of the activities undertaken shall be uploaded on the company website and updated at least once in a year.	Resettlement and Rehabilitation Plan of Talaipalli coal block has been prepared in line with the provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 & Chhattisgarh State R&R policy and the same has been approved by Commissioner, Bilaspur CG. As per the R&R Plan, various programmes are in implementation for the improvement of Health, Education, Skill Development of the communities and basic infrastructures/amenities like drinking water facilities, drainage, CC Road and connecting roads and etc as per the need and requirement of the villagers and as per the direction of District Administration.
xxv	The Project cost shall include a Tribal Development Plan for a minimum cost of Rs 10 crores. The activities for Tribal Development	Under CD / CSR and R&R activities, emphasis is given on tribal development, training/ capacity





Sl.	Specific Conditions	Present Status as on 30.09.2024
	<p>under CSR and R&amp;R shall be dovetailed with the District Tribal Welfare Plan being prepared annually by the State Government which should be used to prepare and dovetail the activities. Training / capacity development and skill development shall form an integral part of CSR and R&amp;R Action Plan, wherein project affected youth are given training in it is for enhancing their skill for direct/indirect employment. A colony for outsourced personnel shall be provided. The R&amp;R Action Plan shall also provide for annuities to vulnerable persons of the society as per R&amp;R Policy of Govt. of Chhattisgarh. A female social scientist shall also be included for implementation of R&amp;R and CSR.</p>	<p>development and skill development. The activities are being planned in consultation with State Govt. Under CSR activities, Training for capacity development / skill enhancement were organised like training on vehicle driving, Godna painting (painting on cloth), wood crafting, cloth weaving, tailoring, basic computer training, training on goat farming, poultry, sericulture (thread making from kosa), etc. There is provision for annuity payment to vulnerable persons of the society in approved R&amp;R Plan for mining area.</p>
xxvi	<p>The proponent shall implement activities undertaken under CSR for neighbouring village in the study area for the life of the project. The activities shall include establishing / strengthening of school roads, drainage and sanitation, community halls, drinking water in the villages and skill development of the local communities. The CSR Plan shall also include Tribal Welfare activities for the tribals and their skill development for alternate livelihood and addressing issues such as availability of minor forest produce for the tribal/local communities. The details of the activities and expenditure made thereon in each of the villages taken up under CSR shall be displayed on the company's website and updated at least once in six months. The socio-economic development of the villages shall be monitored over the life of the project using indices such as the UNDP Human Development Index.</p>	<p>1. Under R&amp;R-Community Development activities emphasis is given on tribal development in the fields of training/capacity development and skill development. 2. Trainings like Godna painting, Kosa Sarees &amp; Handloom making, LMV driving, HEMM driving, Mushroom cultivation, tailoring training, Bag making and agri based Value added products were provided to the women SHGs &amp; youth as per the consultation with District Administration. 3. Since, the villagers have opted for Self-resettlement and NTPC is creating various basic amenities like drinking water facilities through hand pumps and solar operated pumps, installation of solar streetlights, construction of CC roads at new settlements, construction of community buildings like school buildings, community halls, Anganwadi centres Panchayat offices and other infrastructure as per the need/requirement in consultation with District Administration. Expenditure of <b>Rs.2,88,74,350.00</b> has been incurred during the period 01.04.2024 to 30.09.2024. (details placed at <b>Annexure-1</b> along with the photographs.). Till date total expenses incurred on CD activities is approx. <b>Rs.46.00 Crores.</b></p>
xxvii.	<p>For monitoring land use pattern and for post mining land use, a time series of land use maps</p>	<p>Land Use Land Cover study post mining activity at NTPC TLCMP has been</p>

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**NTPC Mining Limited**  
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Sl.	Specific Conditions	Present Status as on 30.09.2024
	based on satellite imagery (on a scale of 1:5000) of the core zone and buffer zone, from the start of the project until the end of mine life shall be prepared once 3 years (for anyone particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhopal.	conducted through GURU GHASIDAS UNIVERSITY.LULC study reports was submitted to MoEF&CC and its Regional Office.
xxviii	A Final Mine Closure Plan along with details Corpus Fund shall be submitted to the Ministry of Environment & Forests for approval 5 years in advance of final mine closure for approval. The Plan shall include habitat restoration of the project area consisting of a 3-storey forest ecosystem, using a mix of native species found in the pre-mining ecosystem in the study area.	A Final Mine Closure Plan with corpus fund details will be submitted to MOEF&CC for approval well in advance as per stipulation.
xxix.	The approved Mining Plan shall be modified to integrate Specific Conditions No. (iv), (v) and (xxiii) and approval obtained prior to start of mining operations.	Specific condition no. iv, v & xxiii already covered in approved mining plan.

#### B. GENERAL CONDITIONS

S.No	General Conditions	Present Status as on 30.09.2024
i.	No change in technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.	Any change in plan and mining technology will be submitted to MoEF&CC well in advance for approval.
ii	No change in the calendar plan including quantum of mineral coal and waste being produced shall be made.	Noted for adherence & compliance.
iii	Four ambient air quality monitoring stations shall be established in the core zone as well as the buffer zone for monitoring PM10, PM2.5, SO2 and NOx. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally & ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, in the particulate matter etc. shall be earned out at least once in six months.	Four nos. of ambient air quality monitoring stations are established in consultation with the Chhattisgarh State Pollution Control Board at different locations in the core zone as well as in the buffer zone for monitoring of air quality parameters, as stipulated. Environment Monitoring is being carried out by M/s. Vardan Envirolab and monitoring data enclosed.
iv	Data on ambient air quality (PM10, PM2.5 SO2 and NOx.) and heavy metals (such as. Hg, As, Ni, Cr, etc) and other monitoring data shall be regularly submitted to the Ministry including its Regional Office at Bhopal and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognised under the	Monitored data on ambient air quality and heavy metals are collected in core and buffer zone stations. The data/report is being submitted (half yearly) to the concerned statutory authority of MoEF&CC/SPCB/ CPCB.



	EP Rules, 1986 shall be furnished as part of the compliance report.	
v	Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.	Adequate measures are being taken for control of noise levels below 85 dB(A) in the work environment during the operation phase of mining block. Workers in high noise areas are being provided ear plugs/muffs along with other PPEs.
vi	Industrial wastewater (workshop and wastewater from the mine) shall be properly collected and treated so as to conform to the standards including for heavy metals before discharge prescribed under GSR 422 (E) dated 19 May 1993 and 31 December 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.	Oil and grease trap installed at workshop area in vehicle washing area and is operation for effective treatment of industrial effluents conforming to prescribed standards before final discharge.
vii	Vehicular emissions shall be kept under control and regularly monitored.	Regular Pollution monitoring of all vehicles involved in the mining project is being carried out to keep emissions under control.
viii	Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analysed through a laboratory recognised under EP Rules, 1986.	Adequate numbers and type of pollution monitoring, and analysis equipment have been installed in core and buffer zone of the mine area by project environment management cell in consultation with the Chhattisgarh Environment & Conservation Board and monitoring is being conducted through NABL accredited M/s. Vardan Envirolab and monitoring data is being shared with CECB regularly.
ix	Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects. Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.	Protective respiratory devices are available in sufficient quantity for personnel working in dusty areas. All such personnel are provided with adequate training and information on safety & health aspects. Schedule being followed for implementation of Occupational health surveillance programme of workers during operation of the Mine Block to determine the impact due to exposure to dust and corrective measures being taken up for the same. Compliances regarding environment quality, health issues of outsourced manpower are also taken care. Mandatory Initial & periodical medical examination of workers is being carried



		out as per provisions of Mines Rules 1955.
x	A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.	Separate Environmental Management Cell with suitable qualified personnel has been already functional at Corporate Level. At site Deputy General Manager & Senior Manager level executives have been posted under Environment Management Cell who is directly reporting to the head of the company.
xi	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhopal.	Noted for compliance.  The expenditure report will be sent to MoEF&CC & its Regional Office on yearly basis. The requisite funds for environmental mitigation measures have been included in the project cost.
xii	The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution control Board and may also be seen at the website of the ministry of Environment & Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a>	Copy of the clearance letter has been already marked by MoEF&CC to CPCB, State Pollution Control Board and District Administration. The receipt of the Environment Clearance was advertised in two local newspapers widely circulated around the project. Vide Istpat times dated 06.01.2013, Raigarh edition Jankarm dated 06.01.2013, Raigarh edition. Copy of Environment Clearance is available on MoEF&CC website.
xiii	A copy of the environmental clearance letter shall be marked to concerned Panchayat / Zilla Parishad, Municipal Corporation or Urban Local Body and local NGO, if any, from whom any suggestion /representation has been received while processing the proposal. A copy of the clearance letter shall all so be displayed on the company's website.	While processing the proposal, no suggestion/ representation has been received from Panchayat/ Zilla Parishad, Municipal Corporation, Urban Local Body and local NGO. The copy of EC was marked by the MoEF&CC to the District Administration. Copy of environment clearance letter is available on company's website.
xiv	A copy of the clearance letter shall be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Centre and Collector's Office / Tehsildar's Office for 30 days.	Copy of Environmental Clearance (EC) letter was sent to office of District Industry Centre vide letter dated 09/01/2013; Tehsildars office vide letter dated 09/01/2013. A copy of the EC is marked to CECB on dated 04/01/2013 for display at the Regional Office for a period of 30 days.
xv	The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their	The Environmental Clearance has been uploaded on the Company's website. The six monthly compliance status of the stipulated EC conditions is uploaded





	website and updated at least once every six months so as to bring the same in the public domain. The monitoring data of environmental quality parameters (air, water, noise and soil) and critical pollutants such as PM10 PM2.5, SO2 and NOx (ambient and stack if any) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.	in company website <a href="https://www.ntpc.co.in/en/status-hyc-reports">https://www.ntpc.co.in/en/status-hyc-reports</a> . Monitoring data of environment quality parameters of critical parameters such as PM10, PM 2.5, SO2, NOx & CO is displayed at project premises.
xvi	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the MOEF, the respective Zonal offices of CPCB and the SPCB.	Noted and being complied as per the requirements of MoEF&CC.
xvii	The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Noted and will be complied as per the requirements of MoEF&CC.
xviii	The environmental statement for each financial year ending 31st March in Form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MOEF by E-mail.	Environmental statement for each financial year ending 31st March in Form-V is submitted to CECB. Last Environmental statement for year ending 31.03.2024 submitted on 25.09.2024.

*(Handwritten signature)*



<b>C. Revalidation of Environment Clearance, Vide Ltr. No. J-11015/279/2009-IA-II(M) Pt. file, Dated:28<sup>th</sup> October, 2015.</b>		
<b>S.No</b>	<b>Specific Condition</b>	<b>Present Status as on 30.09.2024</b>
i	Any Change in scope of work will attract the provisions of the Environment (Protection) Act, 1986 and Environmental Impact Assessment Notification, 2006 in conjunction with the subsequent amendments/ circulars.	Noted and agreed.
ii	All conditions stipulated in the EC letter No. J-11015/279/2009-IA.II(M) Dated 02nd January 2013 shall remain unchanged.	Noted and agreed.
iii	The allottee shall be liable, if any, for any act of violation of the EP Act, 1986 / EIA Notification 2006 / Subsequent amendments and circulars which it has inherited during the revalidation/ transfer.	Noted and agreed.
iv	Allottee shall be liable for compliance of all Court directions, if any.	Noted and agreed.
<b>D. Amendment in Environment Clearance" Vide Ltr. No J-11015/279/2009-IA. II(M) Dated 06.11.2019</b>		
<b>S.No</b>	<b>Specific Condition</b>	<b>Present Status as on 30.09.2024</b>
i	No changes in technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.	Any change in plan and mining technology will be submitted to MoEF&CC well in advance for approval.
ii	No changes in calendar plan including quantum of mineral coal and waste being produced shall be made.	Noted and agreed
iii	Adequate dust suppression measures shall be taken along transportation route.	Water tankers and mobile fog cannon are being deployed along transportation route to suppress dust.
iv	The PP shall expedite the commissioning of the MGR as early as possible.	MGR (Merry Go Round Railway) System constructed and put in use since 21 November 2022.
v	No transportation of Coal by road is allowed after commencement of the MGR.	Noted and agreed
vi	All the mitigation measures proposed in Traffic Impact Assessment study shall be complied.	All the mitigation measures proposed in Traffic Impact Assessment study are being complied.
vii	All other terms and conditions stipulated in environment clearance dated 2nd January, 2013 and subsequent revalidation of EC dated 28th October, 2015, shall remain unchanged.	Noted and agreed.

Yours Faithfully

**A S Yadav**  
**General Manager**

**ANNEXURE-1**

<b>Community Development Activities taken in and around Talaipalli Coal Mining Project for the period 01.04.2024 to 30.09.2024.</b>				
<b>Si. No.</b>	<b>Head</b>	<b>Activity Details</b>	<b>Area</b>	<b>Amount in Rs.</b>
<b>1.</b>	<b>Health &amp; Sanitation</b>	Medical Camps at Project affected Villages.	CBA	21,000.00
<b>2.</b>	<b>Education</b>	Providing Tent, Light & Saund System for Gem Programme-2024	CBA	4,79,080.00
		Flex & All Printing Works for Gem Programme. -2024	CBA	64,407.00
		Procurement of Uniform for Gem Programme. - 2024	CBA	3,80,295.00
		Procurement of Housekeeping item for Gem Programme. -2024	CBA	41,745.00
		Procurement of Stationary item for GEM Programme. -2024	CBA	90,209.00
		Procurement of Mementos for GEM Programme. -2024	CBA	63,239.00
		Payment for food Arrangement for GEM Programme. -2024	CBA	12,04,298.00
		Procurement of Sports item for GEM Programme-2024	CBA	73,000.00
		Payment for Arrangement of Photo Videography and Documentary work for GEM Programme-2024	CBA	2,54,000.00
		Payment for House Keeping and Laundry Service at GEM Programme-2024	CBA	40,000.00
		Payment for Miscellaneous item Arrangement GEM Programme. (Contingency)	CBA	37,128.00
<b>3.</b>	<b>Skill Development</b>	Nil		
<b>4.</b>	<b>Roads &amp; Infra Structure</b>	Renovation of Residential quarter of SDM, Construction of Toilet block at Tahsil office, Boundary wall and Construction of shed for staff quarter of SDM Gharghoda.	SDM Gharghoda	4,85,909.00
		Construction Pavilion and Associated Works at Gharghoda Stadium. (2 <sup>nd</sup> Payment)	Gharghoda Stadium	16,97,600.00
		Construction of Various CC Roads in Gram Panchayat Chotiguda on Deposit Basis Under CD-CSR activity of TLCMP.	Chotiguda	40,20,000.00
		Construction of Various CC Roads and new pond construction in Nayarampur Village on deposit basis though CEO Janpad Panchayat Gharghoda.	Nayarampur	28,34,000.00
		Construction of Toilet Block at Bhalumar	Bhalumar	3,89,990.00

**Details Community Development Activities**

		Middle & Primary School Under CD Activity at Talaipalli		
		Construction of School and Aanganwadi Building in relocated Nayarampur Village Under CD Activity of TLCMP.	Nayarampur	30,57,200.00
		Construction of Various CC Road, Drains, Boundary wall, Kitchen Shed, Beautification works in Salhepali Village of Gram Panchayat Kotrimal.	Salhepali	87,19,920.00
		Construction of Parking Shed at Gharghoda Police Station Permisses Under CD-Works of NTPC Talaipalli.	Gharghoda	11,78,508.00
		Renovation of female ward buildings, toilets water Harvesting system of CHC Gharghoda.	CHC Gharghoda	3,00,000.00
5.	Drinking Water	Installation of 2 No. Borewell Pumps with Water tanks in Talaipalli Village.	Talaipalli	1,84,673.00
		Deployment of tractor mounted water tanker for providing drinking water in the surrounding villages of TLCMP.	Raikera	19,000.00
6.	Women's Empowerment	Provided Supply Erection of Paper Plate Making Machine at Gulab SHG Group Raikera.	Raikera	1,60,000.00
7.	Sports & Cultural	Installation and Commission of 6 no. Solar Based high mast Light and 01 Nos Solar Pump set at Gharghoda Cricket Stadium Premises Under CD-CSR Works. (2 <sup>nd</sup> Payment)	Gharghoda Stadium	15,63,713.00
		Chakradhar Samaroh-Raigarh	Raigarh	11,80,000.00
8.	Others Works	Providing tent Saund System Facilities at Talaipalli Village on Cultural Events. (Jatra Programme)	Talaipalli	71,000.00
		Providing tent, chair, table, Sound System Facilities at Bichchinara Village. (Ramayan Programme.)	Bichchinara	35,000.00
		CC TV Installation at Teram Village	Teram	33,000.00
		Deployment of JCB and tractors with trolley for filling and levelling of Kutcha Road in Chotiguda Gram panchayat (Saraijhorkha)	Chotiguda	19,000.00
		Payment for providing tent, sound system, facilities at Kanchanpur Village to Organize Cultural Event on the Occasion of Word Adivasi Diwas.	Kanchapur	22,986.00
		Providing tent sound system facilities at raikera gram panchayat to Organize cultural event to the Occasion of Barjhariya yatra.	Raikera	48,100.00
		Providing Light, Tent and Sound System Facilities at Kudhurmauha Village (Ramayan Programme.)	Kudhurmauha	19,000.00
		Providing Light, Tent and Sound System Facilities at Ambedkar Jayanti Gharghoda.	Gharghoda	19,950.00

**Details Community Development Activities**

		Providing Light, Tent and Sound System Facilities at Inauguration of High Mast Light Gharghoda.	Gharghoda	13,000.00
		Providing Tent Sound System Facilities at Raikera Gram Ganesh Chaturthi.	Raikera	20,000.00
		Providing Tent Sound System Facilities at Raikera Gram Ganesh Chaturthi.	Raikera	34,400.00
9.	Miscellaneous	Nil		
<b>Total expenditure on CD Activities of TLCMP From 01.04.2024 to 30.09.2024</b>				<b>2,88,74,350.00</b>



Medical Camp at Project Affected Villages.



Construction of CC Road at Nayarampur Village.





**Inauguration of High mast Light at Gharghoda Stadium.**

## **CHAPTER 3**

**“Details of Environmental Monitoring”**

# Details of Environmental Monitoring

Post Project Environment Monitoring Schedule has been prepared, and the Monitoring work is being carried out by M/s Vardan EnviroLab. The results of different parameters are enclosed below:

## 1. Ambient Air Quality Monitoring



# Vardan EnviroLab

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Hr)  
ISO 9001 | ISO 14001 | ISO 45001



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**Test Report**

Sample Number: VEL/A/01  
Name & Address of the Party: NTPC Ltd.  
1071 Talaipalli Coal Mining Project,  
Lailunga Road, Gharghoda Raigarh  
Chhattisgarh (496111).

Report No.: VEL/AP/2404130009  
Format No.: 7.8 F-03  
Party Reference No.: 4000327460-108-1071  
Date:- 05.03.2024  
Reporting Date: 16/04/2024  
Period of Analysis: 13/04/2024 - 16/04/2024  
Receipt Date: 13/04/2024

Sample Description: AMBIENT AIR QUALITY MONITORING

**General Information**

Sampling Location : Chotiguda (Village)  
Sample Collected By : VEL Representative  
Sampling Instrument Used : Respirable Dust Sampler & Fine Particulate Sampler  
Instrument Code : VEL/INS/ENV/RDS/40 & VEL/INS/ENV/FPS/01  
Instrument Calibration Status : Calibrated  
Meteorological Condition During Monitoring : Cloudy Sky  
Date of Monitoring : 10/04/2024 to 11/04/2024  
Time of Monitoring : 10:40 A.M. To 10:40 A.M.  
Ambient Temperature (°C) : Min.26°C, Max.38°C  
Surrounding Activity : Human & Vehicular Activities  
Scope of Monitoring : Regulatory Requirement  
Sampling & Analysis Protocol : CPCB Guidelines & IS: 5182  
Sampling Duration : 24 Hours  
Parameter Required : As Per Work Order

**TEST RESULTS**

S. No.	Parameters	Test Method	Results	Units	Limits As Per NAAQS
1.	Particulate Matter 2.5 (as PM <sub>2.5</sub> )	IS: 5182 (P-24)	43.23	µg/m <sup>3</sup>	60
2.	Particulate Matter 10 (as PM <sub>10</sub> )	IS: 5182 (P-23)	61.39	µg/m <sup>3</sup>	100
3.	Sulphur Dioxide (as SO <sub>2</sub> )	IS: 5182 (P-2)	12.30	µg/m <sup>3</sup>	80
4.	Nitrogen Dioxide (as NO <sub>2</sub> )	IS: 5182 (P-6)	27.23	µg/m <sup>3</sup>	80



Reviewed By  
Amitabh



Authorized Signatory  
16/04/2024  
Prakash Singh

**Terms & Conditions**

- The results reported herein only in the samples tested. In case sample is not drawn the results apply to the sample as received.
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- To confirm the authenticity of this certificate of analysis, please contact us through email at lab@vardan.co.in
- Laboratory is not responsible for the authenticity of photocopied test report. The test samples will be retained only for specific period.
- This report is with Self-Audited Report.
- This test report will not be used for publicly or advertising or media purpose without prior written permission on the laboratory.
- Giving opinion does not imply endorsement of the tested sample by the lab. Under no circumstances, the lab accepts any liability caused by the use or misuse of the test report.

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# Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample Number:	VEL/A/01	Report No.:	VEL/AP/2405220001
Name & Address of the Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:	05.03.2024
		Reporting Date:	27/05/2024
		Period of Analysis:	22/05/2024 - 27/05/2024
		Receipt Date:	22/05/2024

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information

Sampling Location	: Chotiguda (Village)
Sample Collected By	: VEL Representative
Sampling Instrument Used	: Respirable Dust Sampler & Fine Particulate Sampler
Instrument Code	: VEL/INS/ENV/RDS/40 & VEL/INS/ENV/FPS/01
Instrument Calibration Status	: Calibrated
Meteorological Condition During Monitoring	: Clear Sky
Date of Monitoring	: 15/05/2024 to 16/05/2024
Time of Monitoring	: 10:40 A.M. To 10:40 A.M.
Ambient Temperature (°C)	: Min.27°C, Max.41°C
Surrounding Activity	: Human & Vehicular Activities
Scope of Monitoring	: Regulatory Requirement
Sampling & Analysis Protocol	: CPCB Guidelines & IS: 5182
Sampling Duration	: 24 Hours
Parameter Required	: As Per Work Order

### TEST RESULTS

S. No.	Parameters	Test Method	Results	Units	Limits As Per NAAQS
1.	Particulate Matter 2.5 (as PM <sub>2.5</sub> )	IS: 5182 (P-24)	43.02	µg/m <sup>3</sup>	60
2.	Particulate Matter 10 (as PM <sub>10</sub> )	IS: 5182 (P-23)	61.32	µg/m <sup>3</sup>	100
3.	Sulphur Dioxide (as SO <sub>2</sub> )	IS: 5182 (P-2)	12.74	µg/m <sup>3</sup>	80
4.	Nitrogen Dioxide (as NO <sub>2</sub> )	IS: 5182 (P-6)	25.65	µg/m <sup>3</sup>	80



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# Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample Number:	VEL/A/01	Report No.:	VEL/AP/2406190001
Name & Address of the Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project, Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
		Reporting Date:	24/06/2024
		Period of Analysis:	19/06/2024 - 24/06/2024
		Receipt Date:	19/06/2024

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information

Sampling Location	: Chotiguda (Village)
Sample Collected By	: VEL Representative
Sampling Instrument Used	: Respirable Dust Sampler & Fine Particulate Sampler
Instrument Code	: VEL/INS/ENV/RDS/40 & VEL/INS/ENV/FPS/01
Instrument Calibration Status	: Calibrated
Meteorological Condition During Monitoring	: Cloudy Sky
Date of Monitoring	: 12/06/2024 to 13/06/2024
Time of Monitoring	: 10:40 A.M. To 10:40 A.M.
Ambient Temperature (°C)	: Min.31°C, Max.45°C
Surrounding Activity	: Human & Vehicular Activities
Scope of Monitoring	: Regulatory Requirement
Sampling & Analysis Protocol	: CPCB Guidelines & IS: 5182
Sampling Duration	: 24 Hours
Parameter Required	: As Per Work Order

### TEST RESULTS

S. No.	Parameters	Test Method	Results	Units	Limits As Per NAAQS
1.	Particulate Matter 2.5 (as PM2.5)	IS: 5182 (P-24)	45.87	µg/m <sup>3</sup>	60
2.	Particulate Matter 10 (as PM10)	IS: 5182 (P-23)	64.61	µg/m <sup>3</sup>	100
3.	Sulphur Dioxide (as SO <sub>2</sub> )	IS: 5182 (P-2)	14.12	µg/m <sup>3</sup>	80
4.	Nitrogen Dioxide (as NO <sub>2</sub> )	IS: 5182 (P-6)	27.96	µg/m <sup>3</sup>	80



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- To confirm the authenticity of this certificate of analysis, please contact us through email at lab@vardan.co.in
- Laboratory is not responsible for the authenticity of photocopied test report. The test samples will be retained only for specific period.
- The report no. with Suffix A-Annexed Report.
- This test report will not be used for publicity or advertising or media purpose without prior written permission on the laboratory.
- Giving opinions does not imply endorsement of the tested sample by the lab. Under no circumstances, the lab accepts any liability caused by the use or misuse of the test report.

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# Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample Number:	VEL/A/01	Report No.:	VEL/AP/2407190001
Name & Address of the Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
		Reporting Date:	24/07/2024
		Period of Analysis:	19/07/2024 - 24/07/2024
		Receipt Date:	19/07/2024

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information

Sampling Location	: Chotiguda (Village)
Sample Collected By	: VEL Representative
Sampling Instrument Used	: Respirable Dust Sampler & Fine Particulate Sampler
Instrument Code	: VEL/INS/ENV/RDS/40 & VEL/INS/ENV/FPS/01
Instrument Calibration Status	: Calibrated
Meteorological Condition During Monitoring	: Intermittent Rain
Date of Monitoring	: 12/07/2024 to 13/07/2024
Time of Monitoring	: 10:40 A.M. To 10:40 A.M.
Ambient Temperature (°C)	: Min.26°C, Max.30°C
Surrounding Activity	: Human & Vehicular Activities
Scope of Monitoring	: Regulatory Requirement
Sampling & Analysis Protocol	: CPCB Guidelines & IS: 5182
Sampling Duration	: 24 Hours
Parameter Required	: As Per Work Order

### TEST RESULTS

S. No.	Parameters	Test Method	Results	Units	Limits As Per NAAQS
1.	Particulate Matter 2.5 (as PM <sub>2.5</sub> )	IS: 5182 (P-24)	23.92	µg/m <sup>3</sup>	60
2.	Particulate Matter 10 (as PM <sub>10</sub> )	IS: 5182 (P-23)	43.32	µg/m <sup>3</sup>	100
3.	Sulphur Dioxide (as SO <sub>2</sub> )	IS: 5182 (P-2)	8.54	µg/m <sup>3</sup>	80
4.	Nitrogen Dioxide (as NO <sub>2</sub> )	IS: 5182 (P-6)	21.08	µg/m <sup>3</sup>	80



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# Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample Number:	VEL/A/01	Report No.:	VEL/AP/2408140001
Name & Address of the Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
		Reporting Date:	20/08/2024
		Period of Analysis:	14/08/2024 - 20/08/2024
		Receipt Date:	14/08/2024

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information

Sampling Location	: Chotiguda (Village)
Sample Collected By	: VEL Representative
Sampling Instrument Used	: Respirable Dust Sampler & Fine Particulate Sampler
Instrument Code	: VEL/INS/ENV/RDS/40 & VEL/INS/ENV/FPS/01
Instrument Calibration Status	: Calibrated
Meteorological Condition During Monitoring	: Intermittent Rain
Date of Monitoring	: 09/08/2024 to 10/08/2024
Time of Monitoring	: 10:40 A.M. To 10:40 A.M.
Ambient Temperature (°C)	: Min.24°C, Max.29°C
Surrounding Activity	: Human & Vehicular Activities
Scope of Monitoring	: Regulatory Requirement
Sampling & Analysis Protocol	: CPCB Guidelines & IS: 5182
Sampling Duration	: 24 Hours
Parameter Required	: As Per Work Order

## TEST RESULTS

S. No.	Parameters	Test Method	Results	Units	Limits As Per NAAQS
1.	Particulate Matter 2.5 (as PM <sub>2.5</sub> )	IS: 5182 (P-24)	25.15	µg/m <sup>3</sup>	60
2.	Particulate Matter 10 (as PM <sub>10</sub> )	IS: 5182 (P-23)	39.48	µg/m <sup>3</sup>	100
3.	Sulphur Dioxide (as SO <sub>2</sub> )	IS: 5182 (P-2)	6.96	µg/m <sup>3</sup>	80
4.	Nitrogen Dioxide (as NO <sub>2</sub> )	IS: 5182 (P-6)	20.35	µg/m <sup>3</sup>	80



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## Test Report

Sample Number:	VEL/A/01	Report No.:	VEL/AP/2409170001
Name & Address of the Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
		Reporting Date:	21/09/2024
		Period of Analysis:	17/09/2024 - 21/09/2024
		Receipt Date:	17/09/2024

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information

Sampling Location	: Chotiguda (Village)
Sample Collected By	: VEL Representative
Sampling Instrument Used	: Respirable Dust Sampler & Fine Particulate Sampler
Instrument Code	: VEL/INS/ENV/RDS/40 & VEL/INS/ENV/FPS/01
Instrument Calibration Status	: Calibrated
Meteorological Condition During Monitoring	: Intermittent Rain
Date of Monitoring	: 11/09/2024 to 12/09/2024
Time of Monitoring	: 10:40 A.M. To 10:40 A.M.
Ambient Temperature (°C)	: Min.24°C, Max.29°C
Surrounding Activity	: Human & Vehicular Activities
Scope of Monitoring	: Regulatory Requirement
Sampling & Analysis Protocol	: CPCB Guidelines & IS: 5182
Sampling Duration	: 24 Hours
Parameter Required	: As Per Work Order

### TEST RESULTS

S. No.	Parameters	Test Method	Results	Units	Limits As Per NAAQS
1.	Particulate Matter 2.5 (as PM <sub>2.5</sub> )	IS: 5182 (P-24)	27.31	µg/m <sup>3</sup>	60
2.	Particulate Matter 10 (as PM <sub>10</sub> )	IS: 5182 (P-23)	36.52	µg/m <sup>3</sup>	100
3.	Sulphur Dioxide (as SO <sub>2</sub> )	IS: 5182 (P-2)	7.89	µg/m <sup>3</sup>	80
4.	Nitrogen Dioxide (as NO <sub>2</sub> )	IS: 5182 (P-6)	22.59	µg/m <sup>3</sup>	80



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## 2. FUGITIVE DUST MONITORING



# Vardan Envirolab LLP

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ISO 9001 | ISO 14001 | ISO 45001



### Test Report

Sample Number:	VEL/F/01	Report No.:	VEL/F/2409280001
Name & Address of the Project:-	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
		Reporting Date:	03/10/2024
		Period of Analysis:	28/09/2024 to 03/10/2024
		Receipt Date:	28/09/2024

### FUGITIVE DUST MONITORING REPORT

General Information:-	
Sample collected by	: VEL Representative
Sampling Location	: Workshop
Date of Monitoring	: 24/09/2024
Instrument Used	: HVS & RDS
Instrument ID	: VEL/RDS & HVS/01
Timing of Monitoring	: 09:35 AM to 05:35 PM
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Intermittent Rain
Ambient Temperature (°C)	: Min.24°C Max. 32°C
Surrounding Activity	: Human, Vehicular, & Other Plant Activities
Scope of Monitoring	: Regulatory Requirement
Duration of Monitoring	: 8 Hours
Control measure if Any	: No
Sampling & Analysis Protocol	: IS-5182 & CPCB Guidelines
Parameter Required	: As Per Work Order

### TEST RESULTS

S. No.	Parameter	Units	Result	Test Method
1.	Particulate Matter 2.5 (as PM2.5)	µg/m <sup>3</sup>	37.35	IS: 5182 (P-24)
2.	Particulate Matter 10 (as PM10)	µg/m <sup>3</sup>	54.76	IS: 5182 (P-23)
3.	Sulphur Dioxide (as SO <sub>2</sub> )	µg/m <sup>3</sup>	18.79	IS: 5182 (P-2)
4.	Nitrogen Dioxide (as NO <sub>2</sub> )	µg/m <sup>3</sup>	27.16	IS: 5182 (P-6)

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## Test Report

Sample Number:	VEL/ F/01	Report No.:	VEL/F/2409280001
Name & Address of the Project:-	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
		Reporting Date:	03/10/2024
		Period of Analysis:	28/09/2024 to 03/10/2024
		Receipt Date:	28/09/2024

### FUGITIVE DUST MONITORING REPORT

#### General Information:-

Sample collected by	: VEL Representative
Sampling Location	: Haul Road
Date of Monitoring	: 24/09/2024
Instrument Used	: HVS & RDS
Instrument ID	: VEL/RDS & HVS/01
Timing of Monitoring	: 09:35 AM to 05:35 PM
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Intermittent Rain
Ambient Temperature (°C)	: Min.24°C Max. 32°C
Surrounding Activity	: Human , Vehicular, & Other Plant Activities
Scope of Monitoring	: Regulatory Requirement
Duration of Monitoring	: 8 Hours
Control measure if Any	: No
Sampling & Analysis Protocol	: IS-5182 & CPCB Guidelines
Parameter Required	: As Per Work Order

### TEST RESULTS

S. No.	Parameter	Units	Result	Test Method
1.	Particulate Matter 2.5 (as PM2.5)	µg/m <sup>3</sup>	39.79	IS: 5182 (P-24)
2.	Particulate Matter 10 (as PM10)	µg/m <sup>3</sup>	51.12	IS: 5182 (P-23)
3.	Sulphur Dioxide (as SO <sub>2</sub> )	µg/m <sup>3</sup>	17.03	IS: 5182 (P-2)
4.	Nitrogen Dioxide (as NO <sub>2</sub> )	µg/m <sup>3</sup>	22.15	IS: 5182 (P-6)

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## Test Report

Sample Number:	VEL/F/01	Report No.:	VEL/F/2409280001
Name & Address of the Project:-	NTPC Ltd. 1071 Talaipalli Coal Mining Project, Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
		Reporting Date:	03/10/2024
		Period of Analysis:	28/09/2024 to 03/10/2024
		Receipt Date:	28/09/2024

### FUGITIVE DUST MONITORING REPORT

General Information:-	
Sample collected by	: VEL Representative
Sampling Location	: PSS
Date of Monitoring	: 24/09/2024
Instrument Used	: HVS & RDS
Instrument ID	: VEL/RDS & HVS/01
Timing of Monitoring	: 09:35 AM to 05:35 PM
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Intermittent Rain
Ambient Temperature (°C)	: Min.24°C Max. 32°C
Surrounding Activity	: Human , Vehicular, & Other Plant Activities
Scope of Monitoring	: Regulatory Requirement
Duration of Monitoring	: 8 Hours
Control measure if Any	: No
Sampling & Analysis Protocol	: IS-5182 & CPCB Guidelines
Parameter Required	: As Per Work Order

### TEST RESULTS

S. No	Parameter	Units	Result	Test Method
1.	Particulate Matter 2.5 (as PM <sub>2.5</sub> )	µg/m <sup>3</sup>	34.52	IS: 5182 (P-24)
2.	Particulate Matter 10 (as PM <sub>10</sub> )	µg/m <sup>3</sup>	52.02	IS: 5182 (P-23)
3.	Sulphur Dioxide (as SO <sub>2</sub> )	µg/m <sup>3</sup>	21.13	IS: 5182 (P-2)
4.	Nitrogen Dioxide (as NO <sub>2</sub> )	µg/m <sup>3</sup>	26.38	IS: 5182 (P-6)

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## Test Report

Sample Number:	VEL/ F/01	Report No.:	VEL/F/2409280001
Name & Address of the Project:-	NTPC Ltd. 1071 Talaipalli Coal Mining Project, Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
		Reporting Date:	03/10/2024
		Period of Analysis:	28/09/2024 to 03/10/2024
		Receipt Date:	28/09/2024

### FUGITIVE DUST MONITORING REPORT

General Information:-	
Sample collected by	: VEL Representative
Sampling Location	: Excavation Area
Date of Monitoring	: 25/09/2024
Instrument Used	: HVS & RDS
Instrument ID	: VEL/RDS & HVS/01
Timing of Monitoring	: 09:35 AM to 05:35 PM
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Intermittent Rain
Ambient Temperature (°C)	: Min. 24°C Max. 30°C
Surrounding Activity	: Human, Vehicular, & Other Plant Activities
Scope of Monitoring	: Regulatory Requirement
Duration of Monitoring	: 8 Hours
Control measure if Any	: No
Sampling & Analysis Protocol	: IS-5182 & CPCB Guidelines
Parameter Required	: As Per Work Order

### TEST RESULTS

S. No.	Parameter	Units	Result	Test Method
1.	Particulate Matter 2.5 (as PM <sub>2.5</sub> )	µg/m <sup>3</sup>	41.89	IS: 5182 (P-24)
2.	Particulate Matter 10 (as PM <sub>10</sub> )	µg/m <sup>3</sup>	57.91	IS: 5182 (P-23)
3.	Sulphur Dioxide (as SO <sub>2</sub> )	µg/m <sup>3</sup>	25.23	IS: 5182 (P-2)
4.	Nitrogen Dioxide (as NO <sub>2</sub> )	µg/m <sup>3</sup>	29.17	IS: 5182 (P-6)

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### 3. GROUND WATER QUALITY MONITORING



# Vardan EnviroLab

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Hr)  
 ISO 9001 | ISO 14001 | ISO 45001



## Test Report

**Sample Number:** VEL/W/01  
**Name & Address of Party:** NTPC Ltd.  
 1071 Talaipalli Coal Mining Project,  
 Lailunga Road, Gharghoda Raigarh  
 Chhattisgarh (496111).

**Report No.:** VEL/W/240426008  
**Format No.:** 7.8 F-03  
**Party Reference No.:** 4000327460-108-1071  
**Date:-** 05.03.2024

**Sample Description:** Ground Water Sample  
**Sample Location:** Chotiguda Village  
**Sample Collected by:** Vardan EnviroLab Representative  
**Sampling and Analysis Protocol:** APHA 23<sup>rd</sup> Edition 2017& IS 3025

**Reporting Date:** 30/04/2024  
**Period of Analysis:** 26/04/2024 to 30/04/2024  
**Receipt Date:** 26/04/2024  
**Sampling Date:** 24/04/2024  
**Preservation:** Refrigerated  
**Sampling Quantity:** 2.0 Ltr + 250 ml  
**Sampling Type:** Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS 3025 (P-11)	7.50	--	6.5 to 8.5	No Relaxation
2.	Colour	IS 3025 (P-4)	7.0	Hazen	5	15
3.	Turbidity	IS 3025 (P-10)	1.0	NTU	1	5
4.	Odour	IS 3025 (P-5)	Agreeable	--	Agreeable	Agreeable
5.	Taste	IS 3025 (P-8)	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness (as CaCO <sub>3</sub> )	IS 3025 (P-21)	71.90	mg/L	200	600
7.	Calcium (as Ca)	IS 3025 (P-40)	18.30	mg/L	75	200
8.	Alkalinity (as CaCO <sub>3</sub> )	IS 3025 (P-23)	37.28	mg/L	200	600
9.	Chloride (as Cl)	IS 3025 (P-32)	6.89	mg/L	250	1000
10.	Residual free Chlorine	IS:3025 (P-26)	*BLQ(**LOQ- 0.15)	mg/L	0.2	1
11.	Cyanide (as CN)	IS 3025 (P-27)	*BLQ(**LOQ-0.02)	mg/L	0.05	No Relaxation
12.	Magnesium (as Mg)	APHA, 3500 Mg B, Calculation Method	6.37	mg/L	30	100
13.	Total Dissolved Solids	IS 3025 (P-16)	163.00	mg/L	500	2000
14.	Sulphate (as SO <sub>4</sub> )	IS 3025 (P-24)	6.89	mg/L	200	400
15.	Fluoride (as F)	APHA, 4500 F D, SPADNS Method	0.40	mg/L	1.0	1.5
16.	Nitrate (as NO <sub>3</sub> )	IS 3025 (P-34)	5.12	mg/L	45	No Relaxation
17.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.45	mg/L	1.0	No relaxation

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ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample No.: VEL/W/01			Report No: VEL/W/2404260008			
S. No	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
18.	Aluminium (as Al)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ-0.002)	mg/L	0.03	0.2
19.	Boron	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*DLQ(**LOQ 0.01)	mg/L	0.5	2.1
20.	Total Chromium (as Cr)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ-0.002)	mg/L	0.05	No Relaxation
21.	Phenolic Compounds	IS 3025 (P-43)	*BLQ(**LOQ 0.0004)	mg/L	0.001	0.002
22.	Anionic Detergents (as MBAS)	IS 3025 (P-68)	*BLQ(**LOQ-0.05)	mg/L	0.2	1.0
23.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.45	mg/L	5	15
24.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.002)	mg/L	0.05	1.5
25.	Manganese (as Mn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ- 0.01)	mg/L	0.1	0.3
26.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.002)	mg/L	0.003	No Relaxation
27.	Lead (as Pb)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.002)	mg/L	0.01	No Relaxation
28.	Selenium (as Se)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.001)	mg/L	0.01	No Relaxation
29.	Arsenic (as As)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.005)	mg/L	0.01	No Relaxation
30.	Mercury (as Hg)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.0005)	mg/L	0.001	No Relaxation
31.	Total Coliform	IS 15185:2016	Absent	Per100ml	Shall not be detectable in any 100 ml sample	-
32.	Ecoli	IS 15185:2016	Absent	Per 100ml		-

\*BLQ-Below Limit of Quantification, \*\*LOQ- Limit of Quantification. Remarks - All Parameters are within the Permissible Limits.  
 \*Amendment No.1 in June 2015 (Limits of Iron & Arsenic) and Amendment No.1 in Sept. 2018(Limit of Boron & IS method of Total Coliform & E.coli)

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# Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample Number: VEL/W/01  
Name & Address of Party: NTPC Ltd.  
1071 Talaipalli Coal Mining Project.  
Lailunga Road, Gharghoda Raigarh  
Chhattisgarh (496111).

Report No.: VEL/W/2405200001  
Format No.: 7.8 F-03  
Party Reference No.: 4000327460-108-1071  
Date:- 05.03.2024

Reporting Date: 27/05/2024  
Period of Analysis: 20/05/2024 to 27/05/2024  
Receipt Date: 20/05/2024  
Sampling Date: 15/05/2024  
Preservation: Refrigerated  
Sampling Quantity: 2.0 Ltr + 250 ml

Sample Description: Ground Water Sample  
Sample Location: Chotiguda Village  
Sample Collected by: Vardan Envirolab Representative  
Sampling and Analysis Protocol: APHA 23<sup>rd</sup> Edition 2017& IS 3025

Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS 3025 (P-11)	7.23	--	6.5 to 8.5	No Relaxation
2.	Colour	IS 3025 (P-4)	7.0	Hazen	5	15
3.	Turbidity	IS 3025 (P-10)	2.0	NTU	1	5
4.	Odour	IS 3025 (P-5)	Agreeable	--	Agreeable	Agreeable
5.	Taste	IS 3025 (P-8)	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness (as CaCO <sub>3</sub> )	IS 3025 (P-21)	73.25	mg/L	200	600
7.	Calcium (as Ca)	IS 3025 (P-40)	18.65	mg/L	75	200
8.	Alkalinity (as CaCO <sub>3</sub> )	IS 3025 (P-23)	35.45	mg/L	200	600
9.	Chloride (as Cl)	IS 3025 (P-32)	8.02	mg/L	250	1000
10.	Residual free Chlorine	IS 3025 (P-26)	*BLQ**LOQ- 0.15)	mg/L	0.2	1
11.	Cyanide (as CN)	IS 3025 (P-27)	*BLQ**LOQ-0.02)	mg/L	0.05	No Relaxation
12.	Magnesium (as Mg)	APHA, 3500 Mg B, Calculation Method	6.49	mg/L	30	100
13.	Total Dissolved Solids	IS 3025 (P-16)	151.00	mg/L	500	2000
14.	Sulphate (as SO <sub>4</sub> )	IS 3025 (P-24)	8.01	mg/L	200	400
15.	Fluoride (as F)	APHA, 4500 F D, SPADNS Method	0.45	mg/L	1.0	1.5
16.	Nitrate (as NO <sub>3</sub> )	IS 3025 (P-34)	5.47	mg/L	45	No Relaxation
17.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.45	mg/L	1.0	No relaxation



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## Test Report

Sample No.: VEL/W/01			Report No: VEL/W/2405200001			
S. No	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
18.	Aluminium (as Al)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ-0.002)	mg/L	0.03	0.2
19.	Boron	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.01)	mg/L	0.5	2.4
20.	Total Chromium (as Cr)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ-0.002)	mg/L	0.05	No Relaxation
21.	Phenolic Compounds	IS 3025 (P-43)	*BLQ(**LOQ 0.0004)	mg/L	0.001	0.002
22.	Anionic Detergents (as MBAS)	IS 3025 (P-68)	*BLQ(**LOQ-0.05)	mg/L	0.2	1.0
23.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.63	mg/L	5	15
24.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.002)	mg/L	0.05	1.5
25.	Manganese (as Mn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ- 0.01)	mg/L	0.1	0.3
26.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.002)	mg/L	0.003	No Relaxation
27.	Lead (as Pb)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.002)	mg/L	0.01	No Relaxation
28.	Selenium (as Se)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.001)	mg/L	0.01	No Relaxation
29.	Arsenic (as As)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.005)	mg/L	0.01	No Relaxation
30.	Mercury (as Hg)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.0005)	mg/L	0.001	No Relaxation
31.	Total Coliform	IS 15185:2016	Absent	Per 100ml	Shall not be detectable in any 100 ml sample	--
32.	E.coli	IS 15185:2016	Absent	Per 100ml		

\*BLQ-Below Limit of Quantification, \*\*LOQ- Limit of Quantification. Remarks: - All Parameters are within the Permissible Limits.  
 \*Amendment No.1 in June 2015 (Limits of Iron & Arsenic) and Amendment No.2 in Sept. 2018(Limit of Boron & IS method of Total Coliform & E.coli)



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## Test Report

Sample Number:	VEL/W/01	Report No.:	VEL/W/2407030001
Name & Address of Party:	NTPC Ltd. 1071 Talalpalli Coal Mining Project, Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
Sample Description:	Ground Water Sample	Reporting Date:	08/07/2024
Sample Location:	Chotiguda Village	Period of Analysis:	03/07/2024 to 08/07/2024
Sample Collected by:	Vardan EnviroLab Representative	Receipt Date:	03/07/2024
Sampling and Analysis Protocol:	APHA 23 <sup>rd</sup> Edition 2017& IS 3025	Sampling Date:	28/06/2024
		Preservation:	Refrigerated
		Sampling Quantity:	2.0 Ltr + 250 ml
		Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS 3025 (P-11)	7.84	--	6.5 to 8.5	No Relaxation
2.	Colour	IS 3025 (P-4)	8.1	Hazen	5	15
3.	Turbidity	IS 3025 (P-10)	3.0	NTU	1	5
4.	Odour	IS 3025 (P-5)	Agreeable	--	Agreeable	Agreeable
5.	Taste	IS 3025 (P-8)	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness (as CaCO <sub>3</sub> )	IS 3025 (P-21)	76.43	mg/L	200	600
7.	Calcium (as Ca)	IS 3025 (P-40)	20.35	mg/L	75	200
8.	Alkalinity (as CaCO <sub>3</sub> )	IS 3025 (P-23)	37.28	mg/L	200	600
9.	Chloride (as Cl)	IS 3025 (P-32)	10.21	mg/L	250	1000
10.	Residual free Chlorine	IS-3025 (P-26)	*BLQ(**LOQ- 0.15)	mg/L	0.2	1
11.	Cyanide (as CN)	IS 3025 (P-27)	*BLQ(**LOQ-0.02)	mg/L	0.05	No Relaxation
12.	Magnesium (as Mg)	APHA, 3500 Mg B, Calculation Method	6.23	mg/L	30	100
13.	Total Dissolved Solids	IS 3025 (P-16)	153.00	mg/L	500	2000
14.	Sulphate (as SO <sub>4</sub> )	IS 3025 (P-24)	9.08	mg/L	200	400
15.	Fluoride (as F)	APHA, 4500 F D, SPADNS Method	0.49	mg/L	1.0	1.5
16.	Nitrate (as NO <sub>3</sub> )	IS 3025 (P-34)	6.86	mg/L	45	No Relaxation
17.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.51	mg/L	1.0	No relaxation



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## Test Report

Sample No.: VEL/W/01			Report No: VEL/W/2407030001			
S. No	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
18.	Aluminium (as Al)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ-0.002)	mg/L	0.03	0.2
19.	Boron	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.01)	mg/L	0.5	2.4
20.	Total Chromium (as Cr)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ-0.002)	mg/L	0.05	No Relaxation
21.	Phenolic Compounds	IS 3025 (P-43)	*BLQ(**LOQ 0.0004)	mg/L	0.001	0.002
22.	Anionic Detergents (as MBAS)	IS 3025 (P-68)	*BLQ(**LOQ-0.05)	mg/L	0.2	1.0
23.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.72	mg/L	5	15
24.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.002)	mg/L	0.05	1.5
25.	Manganese (as Mn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ-0.01)	mg/L	0.1	0.3
26.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.002)	mg/L	0.003	No Relaxation
27.	Lead (as Pb)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.002)	mg/L	0.01	No Relaxation
28.	Selenium (as Se)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.001)	mg/L	0.01	No Relaxation
29.	Arsenic (as As)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.005)	mg/L	0.01	No Relaxation
30.	Mercury (as Hg)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.0005)	mg/L	0.001	No Relaxation
31.	Total Coliform	IS 15185:2016	Absent	Per 100ml	Shall not be detectable in any 100 ml sample	--
32.	E.coli	IS 15185:2016	Absent	Per 100ml		

\*BLQ-Below Limit of Quantification, \*\*LOQ- Limit of Quantification. Remarks: - All Parameters are within the Permissible Limits.  
\*Amendment No.1 in June 2015 (Limits of Iron & Arsenic) and Amendment No.2 in Sept. 2018(Limit of Boron & IS method of Total Coliform & E.coli)



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## Test Report

Sample Number: VEL/W/01  
Name & Address of Party: NTPC Ltd.  
1071 Talaipalli Coal Mining Project,  
Lailunga Road, Gharghoda Raigarh  
Chhattisgarh (496111).

Report No.: VEL/W/2409280001  
Format No.: 7.8 F-03  
Party Reference No.: 4000327460-108-1071  
Date: 05.03.2024

Sample Description: Ground Water Sample  
Sample Location: Chotiguda Village  
Sample Collected by: Vardan EnviroLab Representative  
Sampling and Analysis Protocol: APHA 23<sup>rd</sup> Edition 2017& IS 3025

Reporting Date: 04/10/2024  
Period of Analysis: 28/09/2024 to 04/10/2024  
Receipt Date: 28/09/2024  
Sampling Date: 24/09/2024  
Preservation: Refrigerated  
Sampling Quantity: 2.0 Ltr + 250 ml

Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS 3025 (P-11)	7.48	--	6.5 to 8.5	No Relaxation
2.	Colour	IS 3025 (P-4)	6.9	Hazen	5	15
3.	Turbidity	IS 3025 (P-10)	4.0	NTU	1	5
4.	Odour	IS 3025 (P-5)	Agreeable	--	Agreeable	Agreeable
5.	Taste	IS 3025 (P-8)	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness (as CaCO <sub>3</sub> )	IS 3025 (P-21)	84.31	mg/L	200	600
7.	Calcium (as Ca)	IS 3025 (P-40)	23.16	mg/L	75	200
8.	Alkalinity (as CaCO <sub>3</sub> )	IS 3025 (P-23)	40.16	mg/L	200	600
9.	Chloride (as Cl)	IS 3025 (P-32)	7.14	mg/L	250	1000
10.	Residual free Chlorine	IS:3025 (P-26)	*BLQ(**LOQ- 0.15)	mg/L	0.2	1
11.	Cyanide (as CN)	IS 3025 (P-27)	*BLQ(**LOQ-0.02)	mg/L	0.05	No Relaxation
12.	Magnesium (as Mg)	APHA, 3500 Mg B, Calculation Method	6.45	mg/L	30	100
13.	Total Dissolved Solids	IS 3025 (P-16)	162.00	mg/L	500	2000
14.	Sulphate (as SO <sub>4</sub> )	IS 3025 (P-24)	8.43	mg/L	200	400
15.	Fluoride (as F)	APHA, 4500 F D, SPADNS Method	0.57	mg/L	1.0	1.5
16.	Nitrate (as NO <sub>3</sub> )	IS 3025 (P-34)	6.52	mg/L	45	No Relaxation
17.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.56	mg/L	1.0	No relaxation



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## Test Report

Sample No.: VEL/W/01			Report No: VEL/W/2409280001			
S. No	Parameter	Test-Method	Result	Unit	Limits of IS:10590-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
18.	Aluminium (as Al)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ-0.002)	mg/L	0.03	0.2
19.	Boron	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.01)	mg/L	0.5	2.4
20.	Total Chromium (as Cr)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ-0.002)	mg/L	0.05	No Relaxation
21.	Phenolic Compounds	IS 3025 (P-43)	*BLQ(**LOQ 0.0004)	mg/L	0.001	0.002
22.	Anionic Detergents (as MBAS)	IS 3025 (P-68)	*BLQ(**LOQ-0.05)	mg/L	0.2	1.0
23.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.85	mg/L	5	15
24.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.002)	mg/L	0.05	1.5
25.	Manganese (as Mn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ- 0.01)	mg/L	0.1	0.3
26.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.002)	mg/L	0.003	No Relaxation
27.	Lead (as Pb)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.002)	mg/L	0.01	No Relaxation
28.	Selenium (as Se)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.001)	mg/L	0.01	No Relaxation
29.	Arsenic (as As)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.005)	mg/L	0.01	No Relaxation
30.	Mercury (as Hg)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.0005)	mg/L	0.001	No Relaxation
31.	Total Coliform	IS 15185:2016	Absent	Per100ml	Shall not be detectable in any 100 ml sample	..
32.	Ecoli	IS 15185:2016	Absent	Per 100ml		

\*BLQ-Below Limit of Quantification, \*\*LOQ- Limit of Quantification. Remarks - All Parameters are within the Permissible Limits.  
\*Amendment No.1 in June 2015 (Limits of Iron & Arsenic) and Amendment No.2 in Sept. 2018(Limit of Boron & IS method of Total Coliforms & E.coli)



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## 4. SURFACE WATER QUALITY MONITORING



# Vardan EnviroLab

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Hr)  
ISO 9001 | ISO 14001 | ISO 45001



### Test Report

Sample Number:	VEL/W/01	Report No.:	VEL/W/2404260005
Name & Address of Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project, Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
Sample Description:	Surface Water Sample	Party Reference No.:	4000327460-108-1071
Sampling Location:	Kelo River Down stream	Date:	05.03.2024
Sample Collected by:	Vardan Enviro Lab Representative	Reporting Date:	30/04/2024
Preservation:	Refrigerator	Period of Analysis:	26/04/2024 to 30/04/2024
Sampling and Analysis Protocol:	APHA 23 <sup>rd</sup> Edition 2017	Receipt Date:	26/04/2024
		Sampling Date:	24/04/2024
		Sampling Quantity:	2.0 Ltr
		Sampling Type:	Composite
		Parameter Required:	As Per Work Order

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	IS 3025 (P-11)	7.21	--
2.	Colour	IS 3025 (P-4)	*BLQ**LOQ 5.0)	Hazen
3.	Turbidity	IS 3025 (P-10)	7.2	NTU
4.	Odour	IS 3025 (P-5)	Agreeable	--
5.	Taste	IS 3025 (P-8)	Agreeable	Agreeable
6.	Total Hardness (as CaCO <sub>3</sub> )	IS 3025 (P-21)	127.30	mg/L
7.	Calcium (as Ca)	IS 3025 (P-40)	45.10	mg/L
8.	Alkalinity (as CaCO <sub>3</sub> )	IS 3025 (P-23)	124.65	mg/L
9.	Chloride (as Cl)	IS 3025 (P-32)	37.97	mg/L
10.	Residual free Chlorine	IS:3025 (P-26)	*BLQ**LOQ 0.20)	mg/L
11.	Cyanide (as CN)	IS 3025 (P-27)	*BLQ**LOQ 0.02)	mg/L
12.	Magnesium (as Mg)	APHA, 3500 Mg B, Calculation Method	3.59	mg/L
13.	Total Dissolved Solids	IS 3025 (P-16)	242.00	mg/L
14.	Total Suspended solids	IS: 3025 (P-17)	22.00	mg/L
15.	Dissolved Oxygen	IS:3025 (P-38)	4.56	mg/L
16.	Sulphate (as SO <sub>4</sub> )	IS 3025 (P-24)	15.02	mg/L
17.	Fluoride (as F)	APHA, 4500 F B & D	0.85	mg/L



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# Vardan Envirolab

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Haryana)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample No.: VEL/CSPGCL/W/01			VEL/W/2404260005	
S. No.	Parameter	Test-Method	Result	Unit
18.	Conductivity	IS 3025 (P-14)	447	µS/cm
19.	Nitrate (as NO <sub>3</sub> )	IS 3025 (P-34) Chromotropic Method	16.96	mg/L
20.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.15	mg/L
21.	Aluminium (as Al)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.03)	mg/L
22.	Boron	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.20	mg/L
23.	Chromium (as Cr)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.01)	mg/L
24.	Phenolic Compounds	IS-3025 Part-43	*BLQ(**LOQ 0.001)	mg/L
25.	Anionic Detergents (as MBAS)	IS 3025 (P-68)	*BLQ(**LOQ 0.02)	mg/L
26.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.43	mg/L
27.	Mercury (as Hg)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.0005)	mg/L
28.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.23	mg/L
29.	Manganese (as Mn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.10)	mg/L
30.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.001)	mg/L
31.	Total Coliform	IS 15185:2016	Absent	Per 100ml
32.	Fecal Coliform	IS 1622	40	MPN/100ml

Note: -\*BLQ-Below Limit of Quantification, \*\*LOQ- Limit of Quantification.



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# Vardan EnviroLab

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Hr)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample Number:	VEL/W/01	Report No.:	VEL/W/2405200017
Name & Address of Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
Sample Description:	Surface Water Sample	Party Reference No.:	4000327460-108-1071
Sampling Location:	Kelo River Down stream	Date:-	05.03.2024
Sample Collected by:	Vardan Enviro Lab Representative	Reporting Date:	27/05/2024
Preservation:	Refrigerator	Period of Analysis:	20/05/2024 to 27/05/2024
Sampling and Analysis Protocol:	APHA 23 <sup>rd</sup> Edition 2017	Receipt Date:	20/05/2024
		Sampling Date:	15/05/2024
		Sampling Quantity:	2.0 Ltr
		Sampling Type:	Composite
		Parameter Required:	As Per Work Order

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	IS 3025 (P-11)	7.63	--
2.	Colour	IS 3025 (P-4)	*BLQ(**LOQ 5.0)	Hazen
3.	Turbidity	IS 3025 (P-10)	6.8	NTU
4.	Odour	IS 3025 (P-5)	Agreeable	--
5.	Taste	IS 3025 (P-8)	Agreeable	Agreeable
6.	Total Hardness (as CaCO <sub>3</sub> )	IS 3025 (P-21)	127.58	mg/L
7.	Calcium (as Ca)	IS 3025 (P-40)	45.34	mg/L
8.	Alkalinity (as CaCO <sub>3</sub> )	IS 3025 (P-23)	124.91	mg/L
9.	Chloride (as Cl)	IS 3025 (P-32)	37.08	mg/L
10.	Residual free Chlorine	IS:3025 (P-26)	*BLQ(**LOQ 0.20)	mg/L
11.	Cyanide (as CN)	IS 3025 (P-27)	*BLQ(**LOQ 0.02)	mg/L
12.	Magnesium (as Mg)	APHA, 3500 Mg B, Calculation Method	3.51	mg/L
13.	Total Dissolved Solids	IS 3025 (P-16)	242.00	mg/L
14.	Total Suspended solids	IS: 3025 (P-17)	22.00	mg/L
15.	Dissolved Oxygen	IS:3025 (P-38)	6.7	mg/L
16.	Sulphate (as SO <sub>4</sub> )	IS 3025 (P-24)	15.65	mg/L
17.	Fluoride (as F)	APHA, 4500 F B & D	0.84	mg/L



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# Vardan EnviroLab

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Hr)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample No.: VEL/CSPGCL/W/01			VEL/W/2405200017	
S. No.	Parameter	Test-Method	Result	Unit
18.	Conductivity	IS 3025 (P-14)	446	µS/cm
19.	Nitrate (as NO <sub>3</sub> )	IS 3025 (P-34) Chromotropic Method	14.02	mg/L
20.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.12	mg/L
21.	Aluminium (as Al)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.03)	mg/L
22.	Boron	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.25	mg/L
23.	Chromium (as Cr)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.01)	mg/L
24.	Phenolic Compounds	IS:3025 Part-43	*BLQ(**LOQ 0.001)	mg/L
25.	Anionic Detergents (as MBAS)	IS 3025 (P-68)	*BLQ(**LOQ 0.02)	mg/L
26.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.51	mg/L
27.	Mercury (asHg)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.0005)	mg/L
28.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.34	mg/L
29.	Manganese (as Mn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.10)	mg/L
30.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.001)	mg/L
31.	Total Coliform	IS 15185:2016	Absent	Per 100ml
32.	Fecal Coliform	IS 1622	60	MPN/100ml

Note: \*BLQ-Below Limit of Quantification, \*\*LOQ- Limit of Quantification.



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# Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample Number:	VEL /W/01	Report No.:	VEL/W/2407030017
Name & Address of Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:	05.03.2024
Sample Description:	Surface Water Sample	Reporting Date:	08/07/2024
Sampling Location:	Kelo River Down stream	Period of Analysis:	03/07/2024 to 08/07/2024
Sample Collected by:	Vardan Enviro Lab Representative	Receipt Date:	03/07/2024
Preservation:	Refrigerator	Sampling Date:	28/06/2024
Sampling and Analysis Protocol:	APHA 23 <sup>rd</sup> Edition 2017	Sampling Quantity:	2.0 Ltr
		Sampling Type:	Composite
		Parameter Required:	As Per Work Order

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	IS 3025 (P-11)	7.45	--
2.	Colour	IS 3025 (P-4)	*BLQ(**LOQ 5.0)	Hazen
3.	Turbidity	IS 3025 (P-10)	7.01	NTU
4.	Odour	IS 3025 (P-5)	Agreeable	--
5.	Taste	IS 3025 (P-8)	Agreeable	Agreeable
6.	Total Hardness (as CaCO <sub>3</sub> )	IS 3025 (P-21)	129.47	mg/L
7.	Calcium (as Ca)	IS 3025 (P-40)	44.18	mg/L
8.	Alkalinity (as CaCO <sub>3</sub> )	IS 3025 (P-23)	127.83	mg/L
9.	Chloride (as Cl)	IS 3025 (P-32)	38.10	mg/L
10.	Residual free Chlorine	IS:3025 (P-28)	*BLQ(**LOQ 0.20)	mg/L
11.	Cyanide (as CN)	IS 3025 (P-27)	*BLQ(**LOQ 0.02)	mg/L
12.	Magnesium (as Mg)	APHA, 3500 Mg B, Calculation Method	4.67	mg/L
13.	Total Dissolved Solids	IS 3025 (P-16)	245.00	mg/L
14.	Total Suspended solids	IS: 3025 (P-17)	23.08	mg/L
15.	Dissolved Oxygen	IS:3025 (P-38)	7.2	mg/L
16.	Sulphate (as SO <sub>4</sub> )	IS 3025 (P-24)	17.39	mg/L
17.	Fluoride (as F)	APHA, 4500 F B & D	0.95	mg/L



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# Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample No.: VEL/CSPGCL/W/01			VEL/W/2407030017	
S. No.	Parameter	Test-Method	Result	Unit
18.	Conductivity	IS 3025 (P-14)	447	µS/cm
19.	Nitrate (as NO <sub>3</sub> )	IS 3025 (P-34) Chromotropic Method	16.30	mg/L
20.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.17	mg/L
21.	Aluminium (as Al)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ (**LOQ 0.03)	mg/L
22.	Boron	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.31	mg/L
23.	Chromium (as Cr)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ (**LOQ 0.01)	mg/L
24.	Fluoride Compounds	IS 3025 (P-14)	*BLQ (**LOQ 0.001)	mg/L
25.	Anionic Detergents (as MBAS)	IS 3025 (P-68)	*BLQ (**LOQ 0.02)	mg/L
26.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.59	mg/L
27.	Mercury (as Hg)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ (**LOQ 0.0005)	mg/L
28.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.42	mg/L
29.	Manganese (as Mn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ (**LOQ 0.10)	mg/L
30.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ (**LOQ 0.001)	mg/L
31.	Total Coliform	IS 15185:2016	Absent	Per 100ml
32.	Fecal Coliform	IS 1622	50	MPN/100ml

Note: - \*BLQ-Below Limit of Quantification, \*\*LOQ- Limit of Quantification.



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# Vardan EnviroLab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample Number:	VEL/W/01	Report No.:	VEL/W/2408280017
Name & Address of Party:	NTPC Ltd. 1071 Talajpalli Coal Mining Project, Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	400327460-108-1071
		Date:	05.03.2024
Sample Description:	Surface Water Sample	Reporting Date:	02/09/2024
Sampling Location:	Kelo River Down stream	Period of Analysis:	28/08/2024 to 02/09/2024
Sample Collected by:	Vardan Enviro Lab Representative	Receipt Date:	28/08/2024
Preservation:	Refrigerator	Sampling Date:	23/08/2024
Sampling and Analysis Protocol:	APHA 23 <sup>rd</sup> Edition 2017	Sampling Quantity:	2.0 Ltr
		Sampling Type:	Composite
		Parameter Required:	As Per Work Order

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	IS 3025 (P-11)	7.69	--
2.	Colour	IS 3025 (P-4)	*BLQ (**LOQ 5.0)	Hazen
3.	Turbidity	IS 3025 (P-10)	9.26	NTU
4.	Odeur	IS 3025 (P-5)	Agreeable	--
5.	Taste	IS 3025 (P-8)	Agreeable	Agreeable
6.	Total Hardness (as CaCO <sub>3</sub> )	IS 3025 (P-21)	134.28	mg/L
7.	Calcium (as Ca)	IS 3025 (P-40)	44.07	mg/L
8.	Alkalinity (as CaCO <sub>3</sub> )	IS 3025 (P-23)	126.58	mg/L
9.	Chloride (as Cl)	IS 3025 (P-32)	43.59	mg/L
10.	Residual free Chlorine	IS 3025 (P-26)	*BLQ (**LOQ 0.20)	mg/L
11.	Cyanide (as CN)	IS 3025 (P-27)	*BLQ (**LOQ 0.02)	mg/L
12.	Magnesium (as Mg)	APHA, 3500 Mg B, Calculation Method	3.15	mg/L
13.	Total Dissolved Solids	IS 3025 (P-16)	251.00	mg/L
14.	Total Suspended solids	IS 3025 (P-17)	24.68	mg/L
15.	Dissolved Oxygen	IS 3025 (P-30)	7.9	mg/L
16.	Sulphate (as SO <sub>4</sub> )	IS 3025 (P-24)	21.92	mg/L
17.	Fluoride (as F)	APHA, 4500 F B & D	0.64	mg/L



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# Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample No.: VEL/CSPGCL/W/01			VEL/W/2408280017	
S. No.	Parameter	Test-Method	Result	Unit
18.	Conductivity	IS 3025 (P-14)	456	µS/cm
19.	Nitrate (as NO <sub>3</sub> )	IS 3025 (P-34) Chromotropic Method	16.81	mg/L
20.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.31	mg/L
21.	Aluminium (as Al)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ**LOQ 0.03)	mg/L
22.	Boron	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.46	mg/L
23.	Chromium (as Cr)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ**LOQ 0.01)	mg/L
24.	Phenolic Compounds	IS-3025 Part-43	*BLQ**LOQ 0.001)	mg/L
25.	Aromatic Detergents (as MBAS)	IS 3025 (P-68)	*BLQ**LOQ 0.02)	mg/L
26.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.67	mg/L
27.	Mercury (as Hg)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ**LOQ 0.0005)	mg/L
28.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.72	mg/L
29.	Manganese (as Mn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ**LOQ 0.10)	mg/L
30.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ**LOQ 0.001)	mg/L
31.	Total Coliform	IS 15185:2016	Absent	Per 100ml
32.	Ferric Sulfide	IS 15185	= 2	MPN/100ml

Note: \*BLQ-Below Limit of Quantification, \*\*LOQ- Limit of Quantification.



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ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample Number:	VEL /W/01	Report No.:	VEL/W/2409280017
Name & Address of Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project, Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
		Reporting Date:	04/10/2024
Sample Description:	Surface Water Sample	Period of Analysis:	28/09/2024 to 04/10/2024
Sampling Location:	Kelo River Down stream	Receipt Date:	28/09/2024
Sample Collected by:	Vardan Enviro Lab Representative	Sampling Date:	24/09/2024
Preservation:	Refrigerator	Sampling Quantity:	2.0 Ltr
Sampling and Analysis Protocol:	APHA 23 <sup>rd</sup> Edition 2017	Sampling Type:	Composite
		Parameter Required:	As Per Work Order

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	IS 3025 (P-11)	7.52	--
2.	Colour	IS 3025 (P-4)	*BLQ(**LOQ 5.0)	Hazen
3.	Turbidity	IS 3025 (P-10)	8.72	NTU
4.	Odour	IS 3025 (P-5)	Agreeable	--
5.	Taste	IS 3025 (P-8)	Agreeable	Agreeable
6.	Total Hardness (as CaCO <sub>3</sub> )	IS 3025 (P-21)	137.11	mg/L
7.	Calcium (as Ca)	IS 3025 (P-40)	41.35	mg/L
8.	Alkalinity (as CaCO <sub>3</sub> )	IS 3025 (P-23)	129.63	mg/L
9.	Chloride (as Cl)	IS 3025 (P-32)	46.38	mg/L
10.	Residual free Chlorine	IS:3025 (P-26)	*BLQ(**LOQ 0.20)	mg/L
11.	Cyanide (as CN)	IS 3025 (P-27)	*BLQ(**LOQ 0.02)	mg/L
12.	Magnesium (as Mg)	APHA, 3500 Mg B, Calculation Method	4.26	mg/L
13.	Total Dissolved Solids	IS 3025 (P-16)	254.00	mg/L
14.	Total Suspended solids	IS: 3025 (P-17)	22.38	mg/L
15.	Dissolved Oxygen	IS:3025 (P-38)	6.5	mg/L
16.	Sulphate (as SO <sub>4</sub> )	IS 3025 (P-24)	20.73	mg/L
17.	Fluoride (as F)	APHA, 4500 F B & D	0.53	mg/L



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## Test Report

Sample No.: VEL/CSPGCL/W/01			VEL/W/2409280017	
S. No.	Parameter	Test-Method	Result	Unit
18.	Conductivity	IS 3025 (P-14)	461	µS/cm
19.	NITRITE (as NO <sub>2</sub> )	IS 3025 (P-34) Chromotropic Method	18.83	mg/L
20.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.47	mg/L
21.	Aluminium (as Al)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.03)	mg/L
22.	Boron	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.61	mg/L
23.	Chromium (as Cr)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.01)	mg/L
24.	Phenolic Compounds	IS:3025 Part-43	*BLQ(**LOQ 0.001)	mg/L
25.	Anionic Detergents (as MBAS)	IS 3025 (P-68)	*BLQ(**LOQ 0.02)	mg/L
26.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.54	mg/L
27.	Mercury (asHg)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.0005)	mg/L
28.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	0.85	mg/L
29.	Manganese (as Mn)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.10)	mg/L
30.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	*BLQ(**LOQ 0.001)	mg/L
31.	Total Coliform	IS 15185:2016	Absent	Per 100ml
32.	Fecal Coliform	IS 1622	< 2	MPN/100ml

Note: \*BLQ-Below Limit of Quantification, \*\*LOQ- Limit of Quantification.



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## 5. GROUND WATER LEVEL MONITORING (PRE MONSOON)



# Vardan Envirolab LLP

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### Test Report

#### Depth to Ground Water Level Report

Name & Address of the Project: -  
NTPC Ltd.  
1071 Talaipalli Coal Mining Project.  
Lailunga Road, Gharghoda Raigarh  
Chhattisgarh (496111).

Sample Description: Ground Water Level Monitoring

#### DEPTH TO GROUND WATER LEVEL OF CORE ZONE (May 2024)

S. No	Location/Village	Latitude	Longitude	Water Level (mbgl*) Pre Monsoon May-24
1.	Near Village-Chotiguda (Dug Well)	22°14'57.43" N	83°26'0.48" E	03.05
2.	Near Village-Talaipalli (Dug Well)	22°14'30.57" N	83°28'51.55" E	05.37
3.	Near Village-Kudhurmoha (Dug Well)	22°14'51.96" N	83°29'0.57" E	08.38
4.	Near Village-Naya Rampur (Dug Well)	22°13'51.35" N	83°28'11.68" E	04.38

\*mbgl- Meter Below Ground Level

#### DEPTH TO GROUND WATER LEVEL OF BUFFER ZONE (May 2024)

S. No	Location/Village	Latitude	Longitude	Water Level (mbgl*) Pre Monsoon May-24
1.	Near Village-Chitmtapani (Dug Well)	22°16'30.53" N	83°24'59.91" E	05.35
2.	Near Village-Kotrimal (Dug Well)	22°13'51.76" N	83°23'47.93" E	07.65
3.	Near Village-Pelma (Dug Well)	22°13'37.09" N	83°30'38.25" E	03.39
4.	Near Village-Raikera (Dug Well)	22°13'30.59" N	83°26'39.23" E	08.28

\*mbgl- Meter Below Ground Level

\*\*\*End of Report\*\*\*




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## 6. AMBIENT NOISE MONITORING



# Vardan EnviroLab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)  
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### Test Report

Sample Number:	VEL/N/01	Report No.:	VEL/AP/2405220001
Name & Address of the Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lallunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
		Reporting Date:	24/05/2024
		Period of Analysis:	22/05/2024 - 24/05/2024
		Receipt Date:	22/05/2024

Sample Description: Ambient Noise Level Monitoring

General Information:-


Sample Collected By	: Vardan EnviroLab Representative
Sampling Location	: Chotiguda Village
Sampling Instrument Used	: Sound Level Meter
Instrument Code	: VEL/INS/ENV/SLM/06
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 15/05/2024 to 16/05/2024
Time of Monitoring	: 06:00 AM to 06:00 AM
Surrounding Activity	: Human, Vehicular and Other Activities
Scope of Monitoring	: Regulatory Requirement
Control measure if Any	: No any
Sampling & Analysis Protocol	: IS-9989 & CPCB Guideline
Sampling Duration	: 24.0 Hours
Parameter Required	: As per Work Order


#### TEST RESULTS

S. No.	Parameters	Test Method	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L <sub>eq</sub>	IS 9989	52.62	43.74	dB(A)
Category of Zones		Leq in dB (A)			
		Day	Night		
Industrial		75	70		
Commercial		65	55		
Residential		55	45		
Silence Zone		50	40		

Note "A" "decibel" is a unit in which noise is measured.

\*\*\*End of Report\*\*\*





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## Test Report

Sample Number:	VEL/N/01	Report No.:	VEL/AP/2406190001
Name & Address of the Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lallunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
		Reporting Date:	24/06/2024
		Period of Analysis:	19/06/2024 - 24/06/2024
		Receipt Date:	19/06/2024

Sample Description: Ambient Noise Level Monitoring

### General Information:-

Sample Collected By	: Vardan EnviroLab Representative
Sampling Location	: Chotiguda Village
Sampling Instrument Used	: Sound Level Meter
Instrument Code	: VEL/INS/ENV/SLM/06
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Cloudy Sky
Date of Monitoring	: 12/06/2024 to 13/06/2024
Time of Monitoring	: 06:00 AM to 06:00 AM
Surrounding Activity	: Human, Vehicular and Other Activities
Scope of Monitoring	: Regulatory Requirement
Control measure if Any	: No any
Sampling & Analysis Protocol	: IS-9989 & CPCB Guideline
Sampling Duration	: 24.0 Hours
Parameter Required	: As per Work Order

### TEST RESULTS

S. No.	Parameters	Test Method	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	$L_{eq}$	IS 9989	53.64	42.81	dB(A)
Category of Zones		Leq in dB (A)			
		Day	Night		
Industrial		75	70		
Commercial		65	55		
Residential		55	45		
Silence Zone		50	40		

Note \*A "decibel" is a unit in which noise is measured.

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## Test Report

Sample Number:	VEL/N/01	Report No.:	VEL/AP/2407300011
Name & Address of the Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lallunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:-	05.03.2024
		Reporting Date:	03/08/2024
		Period of Analysis:	30/07/2024 - 03/08/2024
		Receipt Date:	30/07/2024

Sample Description: Ambient Noise Level Monitoring

### General Information:-

Sample Collected By	: Vardan Envirolab Representative
Sampling Location	: Chotiguda Village
Sampling Instrument Used	: Sound Level Meter
Instrument Code	: VEL/INS/ENV/SLM/06
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Intermittent Rain
Date of Monitoring	: 24/07/2024 to 25/07/2024
Time of Monitoring	: 06:00 AM to 06:00 AM
Surrounding Activity	: Human, Vehicular and Other Activities
Scope of Monitoring	: Regulatory Requirement
Control measure if Any	: No any
Sampling & Analysis Protocol	: IS-9989 & CPCB Guideline
Sampling Duration	: 24.0 Hours
Parameter Required	: As per Work Order

### TEST RESULTS

S. No.	Parameters	Test Method	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L <sub>eq</sub>	IS 9989	52.62	42.83	dB(A)
Category of Zones		Leq in dB (A)			
		Day	Night		
Industrial		75	70		
Commercial		65	55		
Residential		55	45		
Silence Zone		50	40		

Note \*A "decibel" is a unit in which noise is measured.

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## Test Report

Sample Number:	VEL/N/01	Report No.:	VEL/AP/2408290011
Name & Address of the Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project, Lallunga Road, Ghargoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:	05.03.2024
		Reporting Date:	03/09/2024
		Period of Analysis:	29/08/2024 - 03/09/2024
		Receipt Date:	29/08/2024

Sample Description: Ambient Noise Level Monitoring

### General Information:-

Sample Collected By	: Vardan EnviroLab Representative
Sampling Location	: Chotiguda Village
Sampling Instrument Used	: Sound Level Meter
Instrument Code	: VEL/INS/ENV/SLM/06
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Intermittent Rain
Date of Monitoring	: 23/08/2024 to 24/08/2024
Time of Monitoring	: 06:00 AM to 06:00 AM
Surrounding Activity	: Human, Vehicular and Other Activities
Scope of Monitoring	: Regulatory Requirement
Control measure if Any	: No any
Sampling & Analysis Protocol	: IS-9989 & CPCB Guideline
Sampling Duration	: 24.0 Hours
Parameter Required	: As per Work Order

### TEST RESULTS

S. No.	Parameters	Test Method	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	$L_{eq}$	IS 9989	51.33	42.29	dB(A)
Category of Zones		Leq in dB (A)			
		Day	Night		
Industrial		75	70		
Commercial		65	55		
Residential		55	45		
Silence Zone		50	40		

Note: "A" "decibel" is a unit in which noise is measured.

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## Test Report

Sample Number:	VEL/N/01	Report No.:	VEL/AP/2409170001
Name & Address of the Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
		Party Reference No.:	4000327460-108-1071
		Date:	05.03.2024
		Reporting Date:	21/09/2024
		Period of Analysis:	17/09/2024 - 21/09/2024
		Receipt Date:	17/09/2024

Sample Description: Ambient Noise Level Monitoring

### General Information:-

Sample Collected By	: Vardan EnviroLab Representative
Sampling Location	: Chotiguda Village
Sampling Instrument Used	: Sound Level Meter
Instrument Code	: VEL/INS/ENV/SLM/06
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Intermittent Rain
Date of Monitoring	: 11/09/2024 to 12/09/2024
Time of Monitoring	: 06:00 AM to 06:00 AM
Surrounding Activity	: Human, Vehicular and Other Activities
Scope of Monitoring	: Regulatory Requirement
Control measure if Any	: No any
Sampling & Analysis Protocol	: IS-9989 & CPCB Guideline
Sampling Duration	: 24.0 Hours
Parameter Required	: As per Work Order

### TEST RESULTS

S. No.	Parameters	Test Method	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	$L_{eq}$	IS 9989	52.20	40.68	dB(A)
Category of Zones		Leq in dB (A)			
		Day	Night		
Industrial		75	70		
Commercial		65	55		
Residential		55	45		
Silence Zone		50	40		

Note \*A "decibel" is a unit in which noise is measured.

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## 7. Industrial Effluent Water Monitoring



# Vardan EnviroLab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)  
ISO 9001 | ISO 14001 | ISO 45001



### Test Report

<b>Sample Number:</b>	VEL/W/01	<b>Report No.:</b>	VEL/PE/2408140011
<b>Name &amp; Address of the Party:</b>	NTPC Ltd. 1071 Talaipalli Coal Mining Project. Lallunga Road, Gharghoda Raigarh Chhattisgarh (496111).	<b>Format No.:</b>	7.8 F-03
<b>Sample Description:</b>	Mine Discharge Water (Seepage)	<b>Party Reference No.:</b>	4000327460-108-1071
<b>Sampling Location:</b>	PC Patel (ETP-1)	<b>Date:-</b>	05.03.2024
<b>Sample Collected By:</b>	Vardan EnviroLab Representative	<b>Reporting Date:</b>	20/08/2024
<b>Parameter Required:</b>	As per Work Order	<b>Period of Analysis:</b>	14/08/2024 to 20/08/2024
<b>Sampling &amp; Analysis Protocol:</b>	APHA 23 <sup>rd</sup> Edition 2017 & IS 3025	<b>Receipt Date:</b>	14/08/2024
		<b>Sampling Date:</b>	09/08/2024
		<b>Sampling Quantity:</b>	2 Ltr.
		<b>Sampling Type:</b>	Grab
		<b>Packing Type:</b>	Temp. Scaled

### TEST RESULTS

S. No.	Parameter	Test Method	Test Result	Unit
1.	PH	IS:3025 (P-11)	7.51	--
2.	Total Suspended Solid (TSS)	IS:3025 (P-17)	197.00	mg/L
3.	Total Dissolved Solid (TDS)	IS: 3025 (P-16)	231.00	mg/L
4.	Chemical Oxygen Demand(COD)	APHA ,5220 B Open Reflux Method	392.00	mg/L
5.	Biological Oxygen Demand ( BOD)	IS 3025 (Part-44)	159.00	mg/L
6.	Oil & Grease	Clause No-5 of IS:3025 (P-39)	5.29	mg/L
7.	Iron (Fe)	VEL/STP/ICP/W-01, Issue No. - 01, Issue date 01/11/2021	8.20	mg/L
8.	Manganese( Mn)	VEL/STP/ICP/W-01, Issue No. - 01, Issue date 01/11/2021	0.271	mg/L
9.	Chloride (Cl)	IS:3025 (P-32)	24.16	mg/L

\*BLQ- Below Limit of Quantification, \*\*LOQ- Below Limit of Quantification.



\*\*\*End of Report\*\*\*



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# Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)  
ISO 9001 | ISO 14001 | ISO 45001



## Test Report

Sample Number:	VEL/W/02	Report No.:	VEL/PE/2408140012
Name & Address of the Party:	NTPC Ltd. 1071 Talaipalli Coal Mining Project, Lailunga Road, Gharghoda Raigarh Chhattisgarh (496111).	Format No.:	7.8 F-03
Sample Description:	Mine Discharge Water (Seepage)	Party Reference No.:	4000327460-108-1071
Sampling Location:	PC Patel (Mine Sump-1)	Date:-	05.03.2024
Sample Collected By:	Vardan Envirolab Representative	Reporting Date:	20/08/2024
Parameter Required:	As per Work Order	Period of Analysis:	14/08/2024 to 20/08/2024
Sampling & Analysis Protocol:	APHA 23 <sup>rd</sup> Edition 2017 & IS 3025	Receipt Date:	14/08/2024
		Sampling Date:	09/08/2024
		Sampling Quantity:	2 Ltr.
		Sampling Type:	Grab
		Packing Type:	Temp. Sealed

## TEST RESULTS

S. No.	Parameter	Test Method	Test Result	Unit
1.	PH	IS:3025 (p-11)	7.34	--
2.	Total Suspended Solid (TSS)	IS:3025 (P-17)	26.21	mg/L
3.	Total Dissolved Solid (TDS)	IS: 3025 (P-16)	284.00	mg/L
4.	Chemical Oxygen Demand(COD)	IS.3013 (F-38)	19.00	mg/L
5.	Biological Oxygen Demand ( BOD)	IS 3025 (Part-44)	5.35	mg/L
6.	Oil & Grease	Clause No-5 of IS:3025 (P-39)	BLQ(LOQ-4.0)	mg/L
7.	Iron (Fe)	VEL/STP/ICP/W-01, Issue No. - 01, Issue date 01/11/2021	BLQ(LOQ-0.01)	mg/L
8.	Manganese( Mn)	VEL/STP/ICP/W-01, Issue No. - 01, Issue date 01/11/2021	BLQ(LOQ-0.01)	mg/L
9.	Chloride (Cl)	IS.3025 (F-32)	18.84	mg/L

\*BLQ- Below Limit of Quantification, \*\*LOQ- Below Limit of Quantification.



\*\*\*End of Report\*\*\*



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## **CHAPTER 4**

**“Environment Clearance Granted to  
Talaipalli Coal Mining Project, NTPC Ltd.”**

NoJ-11015/279/2009 - IA.II(M)  
Government of India  
Ministry of Environment & Forests

Paryavaran Bhawan,  
C.G.O.Complex, Lodi Road New  
New Delhi -110003.  
Dated: 02 January, 2013

To

The General Manager,  
M/s NTPC,  
Engineering complex,  
A-8A, Sector-24,  
NOIDA - 20 130 1.

Sub: Talaipalli Coalmine (OC at 18 MTPA capacity and UG at 0.72 MTPA capacity of a total project area of 2349.35 ha) of M/s NTPC located in villages Talaipalli, Bichinara, Nayarampur, Kudurmoha, Raikera, Chotiguda, Ajiigarh, & Salehpali, Tehsil Gharghoda, district Raigarh, Chhattisgarh - Environmental Clearance - reg.

Sir,

This is with reference to letter No. CC:ESE:7011:2009:GEN: dated 25.09.2009 along with application for Terms of Reference (TOR) for a new Talaipalli Opencast-cum-Underground Coalmine and this Ministry's letter dated 23.11.2009 granting the TOR and your letter No. CC:ESE:7011:2009:GEN: dated 30.03.2011 for environmental clearance and subsequent letters dated 20.09.2011, 21.10.2011, and 22.02.2012 on the aforesaid subject. The Ministry of Environment & Forests has considered the application. It is noted that the proposal is for opening a new Talaipalli Opencast-cum-Underground Coalmine project of 18.72 MTPA production capacity in a total project area of 2349.35 ha located in Tehsil Gahrghoda in district Raigarh, Chhattisgarh. The mine is captive to the company's Lara Super Thermal Power Project (4000MW) located at a distance of 60km. There are no National Parks, WL Sanctuaries, Biosphere Reserves within the 10 km study area. There are 5 blocks of Reserve Forest (RFs) Silot, Rai, Tolgi East, Tolgi West, Deongri found within 10 Km radius of study area. A number of endangered species such as elephant, bear and leopard are reported in the study area. The total project area of 2349.35 ha includes ML of an area of 2113 ha and an area of 236.35 ha of land outside the ML which is required for colony, R&R colony and MGR. The MGR route passes through an elephant migratory corridor. Of the total project area, 1320.99 ha is private land, 261.97 ha is Govt. land, 766.393 ha is forestland. Forestry clearance has been obtained vide letter of the FC Division no. 8-18/2012-FC dated 5<sup>th</sup> November, 2012. The break-up of land use for the project is given below:

<u>S.No.</u>	<u>Particular</u>	<u>Private</u>	<u>Govt.</u>	<u>Forest</u>	<u>Total</u>
1	Mine lease area	1200.90	202.00	710.10	2113
2	Colony	6.317	30.25	-	36.567
3	R&R Colony	-	19.22	-	19.22
4	MGR corridor	113.77	10.50	56.293	180.563
	<b>Total</b>	<b>1320.987</b>	<b>261.97</b>	<b>766.393</b>	<b>2349.35</b>

1.2 River Kelo flows 60m along the eastern boundary of the ML and Pajhar nala at 3.5 km. A number of first order/second order streams originate from the ML. Kurra nala is a seasonal nala originating from the northern side of the block and passes through the block and joins River Kelo. It is proposed to divert Kurra nala flowing through the ML into a Channel (diversion canal) which would be constructed along the northern side of the block and ultimately join River Kelo. A detailed Area Drainage Study comprising run off characterization, flood frequency analysis, etc has been carried out. Based on  
EC-Tallaipalli



the study, the diversion channel has been designed taking into consideration the realignment of the channel with the River to its original path. The Channel Diversion Plan has been submitted to the Flood & Irrigation Dept., Govt. of Chhattisgarh.

1.3 Of the total ML area, 2079.34 ha is for the mine, 26 ha is for infrastructure and an embankment proposed along River Kelo and 7.66 ha is for green belt. It is proposed to leave a 60m wide forestland between River Kelo and quarry area undisturbed due to safety reasons as a study carried out has indicated that the exposure of coal seam left out after mining is prone to catching fire. Grade of coal is E-G with ash content upto 52%. Mining technology for OC mining would be shovel-dumper and Board & Pillar and Continuous Miner for UG mine. There are 21 coal horizons and it would be unsafe to work the top seams by UG mining. The lower 4 seams are planned by UG mining. UG mining would commence 20 years after commencement of OC mining. The parting between OC and OG mining is about 33m-51 m. Ultimate working depth is 404m bgl. The total estimated OB generation from the mine is 3777.07 Mm<sup>3</sup>, of which 264.52 Mm<sup>3</sup> of OB would be stored in external OB dump of 446 ha in northern side of 90m from ground level. During the initial years, 264.52 Mm<sup>3</sup> of OB would be temporarily accommodated in temporary external dumps of 60m-90m height in coal bearing area of 446 ha within the mine lease, which would be re-handled during the 5<sup>th</sup> year of mine operation when backfilling begins and continues upto 20<sup>th</sup> year and concurrent backfilling would implemented beyond 20<sup>th</sup> year and until 52<sup>nd</sup> year of mine operations. As a result, land acquisition of 446 ha of land for external OB dump is not required. At the post mining stage, there would be no permanent external dump outside the coal block. In addition, 80 ha of an isolated patch of backfilled area raised to a height of 60m would be re-handled back into the mine void and the height of the internal dump would be match with nearby topography/ground level. Of the total ML area of 2079.34 ha, 1848.38 ha would be simultaneously backfilled and reclaimed with plantation and the balance 230.96 ha would be left as a void and final void depth of 60m by backfilling into the final pit void.

1.4 The total estimated water requirement of the project is 2390 m<sup>3</sup>/d, of which 750m<sup>3</sup>/d is for domestic use and 1640 m<sup>3</sup>/d is for the mine operation. A detailed hydrological study of the area has been carried out and the falls under "Safe Category" as far as ground water development is concerned. Water table is in the range of 6.10-7.20m bgl (pre-monsoon) and 2.9-12.3 m bgl (post-monsoon). Confined aquifer is at the depth of 200m. Water harvesting measures and monitoring of ground water and surface waters would be implemented.

1.5 A Conservation Plan for endangered wildlife of the area was drawn and submitted to the State Government. The Wild life conservation plan includes provision for the safe passage/corridor for the elephants, creation of underpass along elevated MGR, with passageway for free movement of herds of elephants, reducing speeds of train in elephant passages, development of plantation of fodder, habitat restoration. A budgetary provision of Rs 5 crores has been made for wild life conservation. The Plan for afforestation has been submitted to Chhattisgarh State Forest Department as part of the diversion proposal of 1532 acre land in Dharamanjai garh and Raigarh at the cost of Rs 13.75 crores. An estimated 56, 727 TPD of coal would be transported through an MGR system of 180.54 ha of land upto Kotaraliya Railway Siding to the linked Lara Super Thermal Power Station at a distance of 60km. The MGR would pass through an elephant migratory corridor. It is proposed to create underpass along MGR for the safe passage of elephants as overhead multiple tubed conveyors covering such a long distance is not techno-economically feasible. However, adequate number of over/under passes would be constructed along the MGR route, visited/reported/inhabited by elephants in the area in consultation with PCCF (WL), and at least 5 under/over passes shall be created particularly along the 7km stretch of the 70km MGR route, which forms a part of the elephant migratory corridor. In the rest of the route wherever required, similar under/overpasses shall be created. A detailed study has been initiated.

1.6 The project involves R&R of 1595 PAFs, which includes 635 land and homestead losers and 960 land losers. R&R Plan has been prepared after a detailed survey was carried out and after 10 VDAC meetings and Gram Sabhas and meetings with DC, for a total cost of Rs 677 crores, of which rehabilitation plan is for Rs 214 crores. CSR plan has been prepared for Rs 40 crores. Since the project falls in a notified tribal area, a Plan for Tribal Development for Rs 5 crores has been prepared. Capital costs for EMP is Rs 1018,80 lakhs with an annual recurring budget of Rs 5.66/T of coal. Public Hearing was held on 10.12.2010. Life of the OC mine is 52 years and UG mine is 30 years. Total capital cost of the project is Rs 6000 crores.

2. The Ministry of Environment & Forests hereby accords environmental clearance for the above mentioned **Talaipalli Coalmine (OC at 18 MTPA capacity and UG at 0.72 MTPA capacity of a total project area of 2349.35 ha) of M/s National Thermal Power Corporation**

(NTPC) Ltd. located in Tehsil Gharghoda, district Raigarh, Chhattisgarh under the Environmental Impact Assessment Notification, 2006 and subsequent amendments thereto and Circulars there under subject to the compliance of the terms and conditions mentioned below:

#### A. Specific Conditions

- i. The maximum production capacity shall not exceed 18 MTPA for opencast mining and 0.72 MTPA for underground mining.
- ii. The Plan for diversion of Kurra nala shall be modified to include a major stream flowing through the ML towards the north side. The diversion channel shall be designed taking into consideration the realignment of the channel to join with River Kelo to its original path. Approval of the Flood & Irrigation Department, Govt. Of Chhattisgarh shall be obtained for plan for diversion of Kurra Nala and the stream. The proposed embankment along the diverted channel shall be stabilised with plantation using a mix of native species. Stone pitching shall be done towards forest area.
- iii. Top soil of an estimated 25.32 Mm<sup>3</sup> generated during initial 9 years shall be stacked properly within the mineralised area with proper slope at earmarked site(s) and shall be used concurrently for reclamation and development of green belt within a year of its generation.
- iv. During the initial 4 years of opencast mining, an estimated 264.52 Mm<sup>3</sup> of OB generated to be accommodated in temporary external dumps of 60m height in a coal bearing area of 446 ha within the mine lease, shall be re-handled during the 5<sup>th</sup> year of mine operation when backfilling begins. In addition, 80 ha of an isolated patch of ext. OB dump shall also be rehandled back into the mine void. At the post mining stage, there shall be no permanent external dump outside the coal block.
- v. Reclamation of areas after rehandling of temporary external OB dumps and backfilled decoaled voids and habitat restoration of the mined out area shall be carried out by developing a 3-tier native forest ecosystem using native species found in the pre-mining forest ecosystem. A nursery of native species found in pre-mining eco-system shall be developed for reclamation and for habitat f eco-restoration. Afforestation plan shall also include reintroduction of species on which the tribals are dependent for minor forest produce for their livelihoods.
- vi. Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilised for watering the mine area, roads, green belt development, etc. The drains shall be regularly desilted and maintained properly.
- vii. Garland drains (size, gradient and length) and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity shall also be provided for adequate retention period to allow proper settling of silt material.
- viii. Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.
- ix. No groundwater shall be used for the mine operations except for drinking purpose and during the initial years of mine operation. Any additional water requirement envisaged for mine operations shall be obtained from mine pit water, by recycle/reuse to the maximum extent and from rainwater harvesting measures.
- x. Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality including TDS and TSS in May and in monsoon. Data thus collected shall be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.
- xi. A Plan for recharging and monitoring of ground water in the impact zone and implemented in consultation with the State Ground Water Board, which includes creation of ponds and wells in impact zone and check dams in River Kelo, Pajhar Nadi in consultation with concerned Government Dept. A suitable scheme for supply of drinking water to 8 surrounding villages shall also be prepared in consultation with State Government, particularly where village wells go dry in the impact zone.
- xii. ETP shall also be provided for workshop, and CHP. Effluents shall be treated to conform to

- prescribed standards, particularly for pH and TSS in case of discharge into any watercourse within or outside the lease.
- xiii. An STP shall be provided for the township/colony to treat the domestic effluents to prescribed standards and for their reuse in project activities and in development of green belt in the colony.
  - xiv. Industrial wastewater (workshop and wastewater) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19<sup>th</sup> May 1993 and 31<sup>st</sup> December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed for treatment of workshop effluents.
  - xv. No fly ash from the linked TPPs shall be used in backfilling of the decoaled void without undertaking an environmental feasibility study and without prior approval of this Ministry under EIA Notification, 2006.
  - xvi. Controlled blasting shall be practiced only during daytime with use of delay electric detonators. Drills shall be wet operated. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.
  - xvii. 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. Hoppers of the coal crushing unit shall be fitted with high efficiency bag filters and mist spray water sprinkling system shall be installed and operated effectively at all times of operation to check fugitive emissions from crushing operations, transfer points, stockyards.
  - xviii. All approach roads shall be black topped and swept regularly with mechanical sweepers and internal roads and major haul roads shall be black topped or concreted and provided with mobile and fixed type sprinklers. A 3-tier avenue plantation using local species shall be developed along the main roads, and approach roads to the mine. In addition, green belt shall be developed using local species all along the periphery of the site, along the areas such as crushing unit, and stockyards, which shall be properly maintained. Water sprinkling arrangements shall be established and functional during transfer and loading of coal.
  - xix. A Conservation Plan for the endangered faunal species reported in the study area and for the medicinal plants found in and around the project area shall be implemented in consultation with the State Forest and Wildlife Departments. An in-situ conservatory of species found in the pre-mining original ecosystem and rare and endangered plant species including medicinal plants species found in the study area during pre-mining phase shall be established and species reintroduced during mine reclamation and habitat restoration. The Conservation Plan shall include conservation of areas within the project boundary to be left undisturbed as free passageways for the wildlife to reach the forests in the study area. The Conservation Plan shall also include activities of mine reclamation and wildlife habitat restoration of mined out areas within the core zone and project area using native species representative of the forest ecosystem during the pre-mining phase. Separate funds of Rs. 5 crores as capital costs shall be earmarked for implementation of the various activities under the Conservation Plan. The status of the Conservation Plan including expenditure (capital and revenue) shall be reported once a year as part of the monitoring report to this Ministry and to the MOEF Regional Office, Bhopal. The proponent shall also participate in the Regional Wildlife Conservation Plan (RWLCP) for the study area prepared by the State Wildlife Dept. and in addition to the above funds shall also contribute financially for implementation of the RWLCP. Habitat development/conservation measures along the migratory route/habitats of elephants found/visiting the area shall form a part of the Regional Action Plan.
  - xx. The proponent shall ensure that the 70 km stretch of MGR which includes a part of the elephant migratory corridor provides safe passageway for the elephants, the number and locations of which shall be finalised after a detailed study in consultation with the State Forest and Wildlife Departments, Govt. of Chhattisgarh and inputs from Dr Raman Sukumar, Professor and Chairman, Centre for Ecological Sciences, Indian Institute of Science, Bangalore. Adequate number of over/under passes shall be constructed along the MGR route, visited/reported/inhabited by elephants in the area in consultation with PCCF (WL), and atleast 5 under/over passes shall be created particularly along the 7km stretch of the 70km MGR route, which forms a part of the elephant migratory corridor. In the rest of the route wherever required, similar under/overpasses shall be created. The WL Plan shall include measures for awareness for conservation of wildlife, training to the drivers of MGR for use of siren, horn, fire crackers to move animals away from railway tracks, avoiding use of MGR during time of maximum animal movement.

- xxi. An Environment Cell/Panel of experts consisting of WL expert, ecologist, sociologist and hydrology shall be created to oversee the implementation of the WL Conservation Plan and Plan for Habitat/eco-restoration. No cacti species shall be used in reclamation and eco-restoration of the mine.
- xxii. Area brought under afforestation shall be not less than 1876.04 ha which includes, backfilled area (1848.38 ha), which includes area reclaimed after re-handling of temporary external OB dumps and topsoil dump, embankment (15 ha) along ML boundary, infrastructure area (5 ha), along roads, green belt (7.66ha), and in undisturbed areas/safety zone and in colony outside the ML by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.
- xxiii. A Progressive Mine Closure Plan shall be implemented by reclamation of 1848.38 ha of the total quarry area of 2079.34 ha by backfilling and reclamation and by afforestation, to create a 3-storey forest ecosystem, by planting native species in consultation with the local DFO/Agriculture Department/relevant institution. The density of the trees shall be around 2500 plants per ha. The balance 230.96 ha void left as a water body of a max. depth of 60m which shall be gently sloped and the upper benches stabilised with grass and plantation.
- xxiv. R&R Plan prepared for the 8 villages in the core zone - Talaipalii, Bichinara, Nayarampur, Kudurmoha, Raikera, Chotiguda, Ajigarh and Salehpali with 635 land and homestead losers and 960 land losers shall be implemented within an agreed time-frame of 3-5 years and shall be not less than the norms laid down/approval by the State Government and shall not be inferior than that in the National R&R Policy and shall be completed within the agreed time-frame. R&R shall include specific income generation schemes and setting up of SHGs and cooperatives, and activities and assistance under the Tribal development Plan for the tribals being displaced and provision of annuities for the under-privileged sections. The provision also includes a Corpus Fund for the maintenance of the Resettlement site. The status of the implementation of the R&R Plan along with financial status of the activities undertaken shall be uploaded on the company website and updated at least once in a year.
- xxv. The Project cost shall include a Tribal Development Plan for a minimum costs of Rs 10 crores. The activities for Tribal Development under CSR and R&R shall be dovetailed with the District Tribal Welfare Plan being prepared annually by the State Government which should be used to prepare and dovetail the activities. Training/capacity development and skill development shall form an integral part of CSR and R&R Action Plan, wherein project affected youth are given training in it is for enhancing their skill for direct/indirect employment. A colony for outsourced personnel shall be provided. The R&R Action Plan shall also provide for annuities to vulnerable persons of the society as per R&R Policy of Govt. of Chhattisgarh. A female social scientist shall also be included for implementation of R&R and CSR.
- xxvi. The proponent shall implement activities undertaken under CSR for neighboring villages in the study area for the life of the project. The activities shall include establishing/strengthening of schools roads, drainage and sanitation, community halls, drinking water in the villages and skill development of the local communities. The CSR Plan shall also include Tribal Welfare activities for the tribals and their skill development for alternate livelihood and addressing issues such as availability of minor forest produce for the tribal/local communities. The details of the activities and expenditure made thereon in each of the villages taken up under CSR shall be displayed on the company's website and updated at least once in six months. The socio-economic development of the villages shall be monitored over the life of the project using indices such as the UNDP Human Development Index.
- xxvii. For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for anyone particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhopal.
- xxviii. A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests for approval 5 years in advance of final mine closure for approval. The Plan shall include habitat restoration of the project area consisting of a 3storey forest ecosystem, using a mix of native species found in the pre-mining ecosystem in the study area.
- xxix. The approved Mining Plan shall be modified to integrate Specific Conditions No. (iv), (v) and (xxiii) and approval obtained prior to start of mining operations.



## B. General Conditions

- i. No change in technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.
- ii. No change in the calendar plan including quantum of mineral coal and waste being produced shall be made.
- iii. Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring  $PM_{10}$ ,  $PM_{2.5}$ ,  $SO_2$  and  $NO_x$ . 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. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, in the particulate matter etc. shall be carried out at least once in six months.
- iv. Data on ambient air quality ( $PM_{10}$ ,  $PM_{2.5}$ ,  $SO_2$  and  $NO_x$ .) and heavy metals such as Hg, As, Ni, Cr, etc) and other monitoring data shall be regularly submitted to the Ministry including its Regional Office at Bhopal and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognised under the EP Rules, 1986 shall be furnished as part of the compliance report.
- v. Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.
- vi. Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, and treated so as to conform to the standards including for heavy metals before discharge prescribed under GSR 422 (E) dated 19<sup>th</sup> May 1993 and 31<sup>st</sup> December 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.
- vii. Vehicular emissions shall be kept under control and regularly monitored.
- viii. Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analysed through a laboratory recognised under EP Rules, 1986.
- ix. Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.  
  
Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.
- x. A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.
- xi. The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhopal.
- xii. The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the ministry of Environment & Forests at <http://envfor.nic.in>
- xiii. A copy of the environmental clearance letter shall be marked to concerned Panchayat/Zila Parishad, Municipal Corporation or Urban Local Body and local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on the company's website.
- xiv. A copy of the clearance letter shall be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.

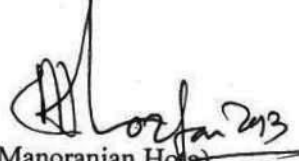


- xv. The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in the public domain. The monitoring data of environmental quality parameters (air, water, noise and soil) and critical pollutants such as PM10, PM2.5, SO2 and NO<sub>x</sub> (ambient and stack if any) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.
- xvi. The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the MOEF, the respective Zonal offices of CPCB and the SPCB.
- xvii. The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.
- xviii. The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MOEF by E-mail.
3. The Ministry or any other competent authority may stipulate any further condition for environmental protection.
4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.
5. The above conditions will be enforced *inter-alia*, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rules. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.

  
(Dr. Manoranjan Hota)  
Director

**Copy to:**

1. Secretary, Ministry of Coal, New Delhi.
2. DG (F) and Special Secretary, Ministry of Environment and Forests, New Delhi.
3. Secretary, Department of Environment & Forests, Government of Chhattisgarh, Secretariat, Raipur.
4. Principal Chief Conservator of Forests and CWLW, Govt. of Chhattisgarh, Raipur.
5. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, E-2/240 Arear Colony, Bhopal - 462016.
6. Chairman, Chhattisgarh State Environment Conservation Board, 1-Tilak Nagar, Shiv Mandir Chowk, Main Road, Avanti Vihar, RAIPUR-Chhattisgarh - 492001.
7. Chairman, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, New Delhi -110032.
8. Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
9. District Collector, Raigarh, Government of Chhattisgarh.
10. Monitoring File 11. Guard File 12. Record File.

  
(Dr. Manoranjan Hota)  
Director

HOD, Env. Engrg : For information please.

  
2/1/13 7

Government of India  
Ministry of Environment, Forest & Climate Change

Indira Paryavaran Bhawan  
Aliganj Road,  
Jor Bagh, New Delhi

No. J-11015/279/2009-IA-II(M) Pt. file

Dated: 28<sup>th</sup> October, 2015

To,

The Managing Director,  
M/s NTPC Limited,  
NTPC Bhawan, Scope Complex,  
7, Institutional Area, Lodhi Road,  
New Delhi -110003  
Email: [partham@ntpc.co.in](mailto:partham@ntpc.co.in)

**Sub: Revalidation/Transfer of Environmental Clearance of Talaipalli Coalmine (OC at 18 MTPA capacity and UG at 0.72 MTPA capacity ) in a project area of 2349.35 ha) in villages Talaipalli, Bichinara, Nayarampur, Kudurmoha, Raikera, Chotiguda, Ajiigarh, & Salehpali, Tehsil Gharghoda, District Raigarh (Chhattisgrah) – reg.**

The Ministry of Environment, Forest and Climate Change (MoEFCC), in accordance with the Environmental Impact Assessment (EIA) Notification, 2006 and subsequent amendment thereto had accorded Environmental Clearance (EC) for **Talaipalli Coalmine (OC at 18 MTPA capacity and UG at 0.72 MTPA capacity ) in a project area of 2349.35 ha) in villages Talaipalli, Bichinara, Nayarampur, Kudurmoha, Raikera, Chotiguda, Ajiigarh, & Salehpali, Tehsil Gharghoda, District Raigarh (Chhattisgrah) to M/s National Thermal Power Corporation Limited** subject to compliance of terms and conditions stipulated therein vide letter No. J-11015/279/2009-IA.II (M) dated 2<sup>nd</sup> January, 2013.

WHEREAS the Hon'ble Supreme Court of India vide judgment dated 25<sup>th</sup> August, 2014 read with the order dated 24<sup>th</sup> September, 2014 has cancelled the allocation of 204 coal blocks and issued directions with regard to such coal blocks wherein the Central Government in pursuance of the said directions has to take immediate action to implement the said order.



WHEREAS in pursuance of the judgment and order of the Hon'ble Supreme Court, the nominated authority has, in accordance with provisions of the Coal Mines (Special Provisions) Second Ordinance, 2014 and the Coal Mines (Special Provisions) Rules, 2014 conducted the auction of the mines.

WHEREAS Ministry of Coal (MOC) vide letter No. **13016/38/2015-CA-III dated 18<sup>th</sup> September, 2015** has informed that, their Ministry has allotted 8 Coal Mines through allotment routes to 3 different allottees. MOC has requested this Ministry to facilitate transfer of the Environment Clearance and Forest Clearance of these blocks to the successful allottees.

WHEREAS Ministry of Coal vide **Allotment Order** under clause (c) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13 and Order No. **103/31/2015/NA dated 8<sup>th</sup> September, 2015** has allotted the **Talaipalli Coalmine (OC at 18 MTPA capacity and UG at 0.72 MTPA capacity ) in a project area of 2349.35 ha** in villages **Talaipalli, Bichinara, Nayarampur, Kudurmoha, Raikera, Chotiguda, Ajiigarh, & Salehpali, Tehsil Gharghoda, District Raigarh (Chhattisgrah) to M/s National Thermal Power Corporation Limited** as the successful allottee.

WHEREAS vide Gazette Notification S.O. 811 (E) Notification dated 23.03.2015, MOEFCC has made amendments to paragraph 11 in the Gazette Notification S.O.1533 (E) dated 14<sup>th</sup> September, 2006. Vide the said amendment; where an allocation of coal block is cancelled in any legal proceeding; or by the Government in accordance with law, the environmental clearance granted in respect of such coal block may be transferred, subject to the same validity period as was initially granted, to any legal person to whom such block is subsequently allocated, and in such case, obtaining of "no objection" from either the holder of environment clearance or from the regulatory authority concerned shall not be necessary and no reference shall be made to the Expert Appraisal Committee or the State Level Expert Appraisal Committee concerned.


WHEREAS in light of the MOC Allotment Order No. **103/31/2015/NA dated 8<sup>th</sup> September, 2015**, transfer of EC may not be warranted as the Successful Allottee **M/s National Thermal Power Corporation Limited** is already in possession of EC letter No. **J-11015/279/2009-IA.II (M) dated 2<sup>nd</sup> January, 2013**.

However, the said EC may be considered for revalidation in favour of **M/s National Thermal Power Corporation Limited for Talaipalli Coalmine (OC at 18 MTPA capacity and UG at 0.72 MTPA capacity ) in a project area of 2349.35 ha** in villages **Talaipalli, Bichinara, Nayarampur, Kudurmoha, Raikera, Chotiguda, Ajiigarh, & Salehpali, Tehsil Gharghoda, District Raigarh (Chhattisgrah)** subject to the following conditions:






- (i) Any change in scope of work will attract the provisions of the Environment (Protection) Act, 1986 and Environmental Impact Assessment Notification, 2006 in conjunction with the subsequent amendments / circulars.
- (ii) All conditions stipulated in the EC letter No. **J-11015/279/2009-IA.II (M) dated 2<sup>nd</sup> January, 2013** shall remain unchanged.
- (iii) The allottee shall be liable, if any, for any act of violation of the EP Act, 1986 / EIA Notification 2006/subsequent amendments and circulars which it has inherited during the revalidation/ transfer.
- (iv) Allottee shall be liable for compliance of all court directions, if any.

  
(P. R. Sakhare)  
Scientist C

Copy to :

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. The Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, E-2/240 Arera Colony, Bhopal – 462016.
3. The Secretary, Department of Environment & Forests, Government of Chhattisgarh, Secretariat, Raipur
4. The Member Secretary, Chhattisgarh State Environment Conservation Board, 1- Tilak Nagar, Shiv Mandir Chowk, Main Road, Avanti Vihar, Raipur – Chhattisgarh – 492001..
5. The Member Secretary, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, Delhi -110 032
6. The Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi
7. The Advisor, Coal India Limited, SCOPE Minar, Core-I, 4<sup>th</sup> Floor, Vikas Marg, Laxmi nagar, New Delhi.
8. The District Collector, **Raigarh**, Government of Chhattisgarh
9. Monitoring File 10. Guard File 11. Record File 12. Notice Board.

  
(P. R. Sakhare)  
Scientist C





सत्यमेव जयते

File No.: J-11015/279/2009-IA-II(M)  
Government of India  
Ministry of Environment, Forest and Climate Change  
IA Division  
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Dated 06/03/2024



To,

The Senior Manager (Env-Mgmt)  
NTPC Mining Limited  
NTPC BHAWAN, CORE-7, 7 INSTITUTIONAL AREA, LODHI ROAD, South East DELHI, NEW  
DELHI - 110003,  
env-mines@ntpcmining.co.in

**Subject:** Transfer of Environmental Clearance dated 02.01.2013, granted to Talaipalli Coal Mining Project, from NTPC Ltd to NTPC Mining Limited under the provision of the EIA Notification 2006 and as amended thereof- regarding.

**Sir/Madam,**

This is in reference to your application submitted to MoEF&CC vide proposal number IA/CG/CMIN/459631/2024 dated 23/01/2024 for grant of transfer of EC to the project under the provision of para 11 of the EIA Notification 2006-and as amended thereof.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC24A0101CG5565842T
(ii) File No.	J-11015/279/2009-IA-II(M)
(iii) Clearance Type	Transfer of EC
(iv) Category	A
(v) Schedule No./ Project Activity	1(a) Mining of minerals
(vi) Sector	Coal Mining
(vii) Name of Project	TALAIPELLI COAL MINING PROJECT
(viii) Location of Project (District, State)	RAIGARH, CHHATTISGARH
(ix) Issuing Authority	MoEF&CC
(x) EC Date	02/01/2013
(xi) Details of Transferee	NTPC Mining Limited, NTPC Bhawan, Core-7, 7 Institutional area, Lodhi Road, South East Delhi, NEW DELHI - 110003
(xii) Details of Transferor	NTPC Limited, NTPC Limited, NTPC Bhawan, SCOPE Complex, Institutional Area, Lodhi Road, New Delhi – 110003

3. Ministry has granted environmental clearance on 02.01.2013 in favour of M/s NTPC Ltd for Talaipalli Coal Mining Project (OC at 18 MTPA capacity and /ug at 0.72 MTPA Capacity) in mine lease area of 2349.35 ha located in villages Talaipalli, Bichinara, Naryampur, Kudurmoha, Raikera, Chotiguda, Ajijgarh, and Salehpalli, in tehsil Gharghoda, district Raigarh (Chhattisgarh). Revalidation / Transfer of EC was accorded by MoEF&CC vide letter dated 28.10.2015 and further amendment of EC for coal transportation through Road was accorded by vide letter dated 06.11.2019.

4. Talaipalli Coal Block was allotted in favour of NTPC through the Allotment Letter No. 103/31/2015/NA dated 08.09.2015 under the Coal Mine Special Provision Act, 2015.

5. It has been informed to the Ministry that NTPC is transferring the allotment of Talaipalli Coal Block including land and rights therein to its wholly owned subsidiary, NTPC Mining Limited ('NML') to have a focused management of the coal mining business, improving efficiency and productivity by leveraging latest technologies, while ensuring safe and reliable operations, through a Business Transfer Agreement ("BTA") dated 17th Aug'2023.

6. The Ministry of Coal vide letter dated January 2nd,2024 has issued Amendment No. 1 to the Allotment Order No. No. 103/31/2015/NA dated 08.09.2015 for transfer of allotment of Talaipalli coal block from NTPC Limited to NTPC Mining Limited. NTPC vide letter dated 17th Jan 2024 submitted the NOC for the transfer of EC of Talaipalli Coal Block from NTPC Limited to NTPC Mining Limited. Further, as per the provision of para 11 of EIA Notification 2006 (as amended) submitted an undertaking dated 17/01/2024 to comply with EC conditions and also NOC dated 17/01/2024 received from transferor i.e. NTPC.

7. The MoEF&CC has examined the requisite information/documents required for the transfer of EC under the provisions contained in the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and hereby accords Transfer of EC dated 02.01.2013 to NTPC MINING LIMITED subject to compliance of EC conditions issued vide EC letter dated 02.01.2013.

8. The Ministry may revoke or suspend the clearance if implementation of any of the EC conditions is not satisfactory. The Ministry reserves the right to stipulate additional conditions if found necessary.

9. This issue with the approval of the Competent Authority.

#### **Copy To**

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi
2. Deputy Director General of Forests (C), Ministry of Environment, Forest and Climate Change, Integrated Regional Office, Ground Floor, Aranya Bhawan, North Block, Sector- 19,, Naya Raipur, Atal Nagar, Chhattisgarh – 492002
3. The Chairman, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi
4. The Regional Director, Central Ground Water Board, Central Ground Water Board, North Central Chhattisgarh Region, Reena Apartment, 2nd Floor, NH 43, Dhamtari Road, Panchpedi Naka, Raipur- 492001, Chattisgarh
5. The Chairman, Chhattisgarh Environment Conservation Board, Paryavas Bhavan, North Block Sector-19, Atal Nagar Dist- Raipur(C.G.)492002.
6. The Member Secretary, Chhattisgarh Environment Conservation Board, Paryavas Bhavan, North Block Sector-19, Atal Nagar Dist- Raipur(C.G.)492002
7. The District Collector, **Raigarh , Chhattisgarh**
8. PARIVESH Portal

#### **Additional EC Conditions**

(i) Project Proponent (M/s NTPC Mining Ltd) to comply with directions, in toto, given by the Hon'ble NGT vide Order dated 15.02.2022 in Original Application No 104/2018 in the matter of Shivpal Bhagat & Ors & UoI .

(ii) The Project Proponent (NTPC Mining Ltd) is under obligation to implement commitments made in the Environment Management Plan and to comply with all EC conditions issued vide letter dated 02.01.2013 & 28.10.2015 and further amendment of EC accorded by vide letter dated 06.11.2019.

Signed by  
Amit Vashishtha  
Date: 06-03-2024 19:41:42  
Reason: Verified and signed

## **CHAPTER 5**

# **General Photographs**

## GENERAL PHOTOGRAPHS



Picture : Oil & Grease Pit at Workshop



Picture: Piezometer Installed at NTPC TLCMP



Picture: Tree Plantation at Township on the Occasion of World Water Day



Picture: Fencing Work Completed along the Plantation Area at Raikera for Protection of Plants



Picture: ENVIRONMENTAL MONITORING BEING CARRIED OUT





**Picture : Safety Pledge to Workers Before Start of Every Shift is Being Followed**



**Picture: Ground Water Harvesting Structure**



**Picture: Underground pit for Medical waste Management**



**Picture: Pond De-siltation work at Salhepali Village**



**Picture: 01 CAAQMS Installed**



**Picture: Roadside Plantation**



**Picture: Safety Zone Fencing work in progress**



**Picture: Construction of Garland Drain along the mine boundary i/p**



**Picture: Construction of Garland Drain & toe wall along dump i/p**



**Picture: Installation of Wind barrier along wharf wall**