

दुलंगा / Dulanga

Ref: 1070/NTPC/DLCMP/EC/HCY/44

Date: 06.06.2024

To

Dy. Director General of Forest (Central),
Govt. of India,
Ministry of Environment, Forests and Climate Change,
Integrated Regional Office, A-3 Chandrashekharpur,
Bhubaneswar-751023, Odisha

Subject: Dulanga Opencast Coal Mining Project (7 MTPA in an area of 785.37Ha. of M/s National Thermal Power Corporation Ltd. (NTPC), Ib Valley Coalfields, Dist: Sundargarh, Odisha - **Submission of Half Yearly Report on the status of compliance of the stipulated Environmental Clearance conditions.**

Ref.: MoEFCC Environmental Clearance Letter Number- J-11015/1140/2007-IA.II (M) dated 03rd March, 2014, J-11015/1140/2007-IA.II (M) dated 9th February, 2016 and subsequent amendments.

Dear Sir,

With reference to the above, we are submitting herewith the Half Yearly Report on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data **for the period from Oct'23 to Mar'24** with reference to the above mentioned EC Order issued by the Ministry of Environment, Forests and Climate Change, Govt. of India, for your kind information and necessary record please.

The softcopy of the same is being mailed to the email id: roez.bsr-mef@nic.in

Thanking You.

Yours Faithfully,



Arindam Pattnaik
Senior Manager (Env. Mgt.)

Encl.: As above

Copy to:

1. **The Central Pollution Control Board,**
Zonal Office, Southern Conclave, Block -502, 5th & 6th Floors,
1582 Rajdanga Main Road, Kolkata - 700107
2. **The Member Secretary,**
State Pollution Control Board, A/118, Nilakantha Nagar, Unit - VIII, Bhubaneswar - 751012

Dulanga Coal Mining Project, Khapurikachhar, PO - Sanghumuda, Tehsil-Hemgir, Dist- Sundargarh 770013

दुलंगा कोल माइनिंग प्रोजेक्ट, खापुरिकछार, पोस्ट - संधुमुदा, तहसील - हेमगीर, जिला - सुंदरगढ़ ७७००१३

पंजीकृत कार्यालय: एन टी पी सी भवन, स्कोप कॉम्प्लेक्स, 7 इंस्टीटयुशनल एरिया, लोधी रोड, नई दिल्ली ११०००३

कॉर्पोरेट पहचान नंबर: L40101DL1975GOI007966, टेलीफोन नं: 011-24387333, फैक्स नं: 011-24361018, ई मेल: ntpccc@ntpc.co.in, वेबसाइट: www.ntpc.co.in

Registered Office: NTPC Bhavan, Scope Complex, 7 Institutional Area, Lodhi Road, New Delhi - 110003

Corporate Identification No: L40101DL1975GOI007966. Telephone No: 011-24387333. Fax No: 011-24361018. Email: ntpccc@ntpc.co.in. Website: www.ntpc.co.in

Point wise Compliance Report of Conditions specified in Environmental Clearance

Ref. Ltr. No. J-11015/1140/2007-IA.II (M) dated 03rd March, 2014 and amendment as on date

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
(i)	The maximum production from the mine at any given time shall not exceed the limit as prescribed in the EC.	<p>Being Complied</p> <p>As per the EC granted and as per approved Mining Plan, the rated peak production capacity of DLCMP is 7.0 MTPA.</p> <p>During FY 2023-24, 7.0 MT coal has been produced till 31.03.2024.</p> <p>Coal Produced in Last five years are as follows:</p> <p>FY 19-20: 15,40,002.71 Tonnes</p> <p>FY 20-21: 31,23,840.00 Tonnes</p> <p>FY 21-22: 52,92,094.00 Tonnes</p> <p>FY 22-23: 70,00,000.00 Tonnes</p> <p>FY 23-24: 70,00,000.00 Tonnes</p>
(ii)	The Forest Clearance has been granted for 304.75 ha (273.68 ha within the Dulanga Coal Block and 31.07 ha of forest land outside the Coal Block including 4.94 ha of forest land coming within the safety zone in Dulanga Coal Mining Project) vide letter no. 8-23/2013-FC dated 10.01.2014. FC for balance 18.34 ha has not been granted. No mining activity shall be carried out in forest land for which FC has not been granted.	<p>Being Complied</p> <p>Presently mining activity is restricted within the forest land diverted to Dulanga Coal Mining Project.</p> <p>Working Plan showing the present mining activity is attached as Annexure-I.</p>
(iii)	OB dump along the western side of an area of 244 ha would be brought to almost ground level for post-mining land use by re-handling of an estimated 112 Mm ³ of OB during 5 years after end of mine life (EOL). However, the dump along the east would be about 30m above ground level.	<p>Noted and Agreed to Comply</p> <p>This has been incorporated in the Mine Closure Plan and shall be ensured at the time of mine closure.</p>
(iv)	An estimated 112 Mm ³ of OB is proposed to be re-handled from	Noted and Agreed to Comply

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
	the eastern and western OB dumps.	Presently dumping of the OB in the eastern and western OB dumps are being done. Same shall be rehandled at the mine closure.
(v)	It was stated that an area of 286.74 ha within the ML (which includes an area of 226.23 ha of quarry area) and an area of 179.72 ha outside the ML would be developed with plantation.	<p>Noted and Agreed to Comply</p> <p>Plantation in quarry area will be done in phases in the available area after completion of mining and internal dumping is over.</p> <p>So far, 59,665 nos. of plants have been planted in the vacant areas in the project.</p> <p>Total 16,923 numbers of sapling have been planted till Mar'2024 and total 59,665 nos. of plants have been planted (including distribution) since inception of the mine.</p> <p>Copy of photos of Plantation activities carried out in different region is attached as Annexure – II.</p>
(vi)	No fly ash from the linked TPPs shall be used in backfilling of the void without undertaking an environmental feasibility study and without prior approval of this Ministry under EIA Notification, 2006.	<p>Noted and Agreed to Comply.</p> <p>Presently no fly ash is being dumped in the backfilling area.</p>
(vii)	Option-3 be adopted, as committed by the proponent, as the most feasible option for diversion of Garia Nala, Baidhara Nala and Nala B and its realignment, whereby the plan for their diversion to be taken up during the 8th and 10th year.	<p>Permission obtained from Dept. of Water Resources, Govt. of Odisha for diversion of Garia Nalla and its tributaries (Baidhar Nallah and Nallah-B) flowing within the coal block boundary of Dulanga Coal Mining Project vide letter dated. 23.08.2021.</p> <p>Copy of Nallah diversion permission letter is attached as Annexure-III.</p> <p>The Diversion of Garia Nala has been completed. However, embankment works are in progress. The Nalla has taken its natural course.</p> <p>Work for diversion of Baidhara Nallah & Nallah-B is in progress as per the approved diversion plan.</p>
(viii)	The fluoride in the groundwater both in dug wells and by installing piezometers in the study area at appropriate locations be monitored.	<p>Being Complied</p> <p>Groundwater quality including Fluoride is being monitored by an NABL Accredited laboratory at eight different locations in Core and Buffer zone.</p> <p>One (01) no. of Piezometer has been installed at Site Office area as per the conditions of NOC from CGWA.</p>

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
		<p>Also, Water level is being monitored through network of borewells/wells in core and buffer zone of DLCMP.</p> <p>The analysis report wrt fluoride in groundwater collected from the different locations within the study area for the period from the month of Oct'2023 to Mar'2024 is attached as Annexure - IV.</p>
(ix)	Transport of coal to Darlipalli TPS located at a distance of about 10km shall be by MGR.	<p>Noted & Agreed</p> <p>Coal produced from the DLCMP is being transported to Darlipalli Super Thermal Power Plant through MGR.</p>
(x)	An integrated calendar plan of production including the details re-handling separately in external and internal dumps should be furnished to MOEF for record.	<p>Complied</p> <p>Integrated calendar plan of production including details of re-handling of external and internal dumps has been submitted to MoEF & CC vide letter no. 0100/DLCMP/FD/ES/02/0814 dated 25.08.2014. Copy of letter attached as Annexure-V.</p>
(xi)	Temporary OB dumps which require re-handling should be stabilized with grass and shrubs.	<p>Being Complied</p> <p>Presently, OB dumps are active, and dumping is being done over there as per the approved mining plan.</p> <p>However, the inactive portion of the OB dump over 1.5 Ha has been stabilized with grassing and planting the tree sapling.</p> <p>Photos of the OB dump grassing is attached as Annexure-VI.</p>
(xii)	Data available with the Rajiv Gandhi National Drinking Water Mission, Department of Rural Development be studied and recommendations therein for removal / treatment of fluorides, TDS, etc, in drinking water be followed for providing safe drinking water to R&R colony and to the nearby villages.	<p>Being Complied</p> <p>Level of Fluorides, TDS etc. in the bore well and drinking water to R&R Colony is being monitored through NABL Accredited laboratory.</p> <p>The concentration level is well within the prescribed limits.</p> <p>Water is being supplied to all the dwelling units in the R&R Colony through overhead tank after treatment in water treatment plant.</p> <p>Additionally, UV Water purifiers have been provided to all the dwelling units of R&R Colony for ensuring safe drinking water.</p> <p>Copy of Ground water quality report attached as Annexure-IV & photographs of UV Purifier, WTP & OHT is attached as Annexure-VII.</p>

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
(xiii)	Mining shall be carried out as per statute at a safe distance from Garia Nala and its diversion canal and the diverted Baidhara nala and nala'B' Nala flowing within the lease boundary. The bund /embankment to be constructed along diverted canal of Garia nala shall be designed taking into account the highest flood level, based on past data, so as to guard against mine inundation.	<p>Being Complied</p> <p>The Diversion of Garia Nala has been completed. However, embankment works are in progress. The Nalla has taken its natural course.</p> <p>The embankment work of Baidhara Nala and Nala B are being done parallelly in tandem with excavation work.</p> <p>The embankment is designed taking into account the highest flood level and approved by the Water Resource Department, Govt. of Odisha.</p>
(xiv)	Topsoil shall be stacked properly within the ML with proper slope at earmarked site of 3.84 ha and shall be concurrently used for reclamation and development of green belt within a year of its generation.	<p>Being Complied</p> <p>Topsoil is being stacked within ML with proper slope at earmarked site.</p> <p>10,00,000 m³ of topsoil has been stacked at the earmarked site as on 31.03.2024</p> <p>As on 31.03.2024, a total of 1.27 Ha of Topsoil Dump has been stabilized with grassing of Stylo Hamata grass. Photographs attached as Annexure - VIII.</p>
(xv)	A temporary external OB dump in an area of 106.62 ha and of 60m height for the initial period of 2.5 years shall be created for dumping 38.5 Mm3 of OB, which would be reclaimed with plantation and after 2.5 to 3 year. There would be no external OB dumping from 5th year onwards. The temporary OB dumps which require re-handling shall be stabilized with grass and shrubs.	<p>Noted and Agreed to Comply</p> <p>Initially the external OB dump was planned in 106.62 ha area, but while granting the forest clearance, an area of 18.34 ha forest land and 2.95 ha of Govt land was excluded hence the present area for the external OB dump is reduced to 86 ha, accordingly only 28.5 mill.CuM shall be accommodated in the external OB dump.</p> <p>However, due to local law & order issues (i.e., resistance from the villagers for rehabilitation activities), the total proposed quantity i.e., 28.5 million Cu.M is unable to accommodate in the external OB Dump.</p> <p>Till end of Mar-24, approx. 14.0 million CuM of OB is accommodated and the balance OB Quantity to be accommodated at the earliest.</p> <p>Presently dumping activities are being carried out at Khapurikachhar OB dump and In pit dump.</p> <p>Inactive OB dump of Khapurikhachhar having 1.5 ha. has been grassed with different varieties along with local sapling planted and along the slope with Stylo Hamata grass.</p>

Rathu

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
(xvi)	Area brought under afforestation shall be not less than 466.46 ha which includes 286.74 ha within the ML and 179.72 ha outside the ML would be reclaimed with plantation, which includes 351.23 ha of reclaimed quarry, 106.50 ha of reclaimed external OB dump, 3.84 ha of topsoil dump, 2.75 ha of coal stockyard, 2.14 ha of surface water reservoir and an area of 83.74 ha undisturbed shall be developed into green belt within the first 3 years.	<p>Noted and Agreed to Comply</p> <p>Plantation in quarry area will be done in phases in the available area after completion of mining and internal dumping is over.</p> <p>So far, 59,665 nos. of plants have been planted in the vacant areas in the project.</p> <p>Total 16,923 numbers of sapling have been planted till Mar'2024 and total 59,665 nos. of plants have been planted (including distribution) since inception of the mine.</p>
(xvii)	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 utilized for watering the mine area, roads, green belt development, etc. The drains shall be regularly desilted and maintained properly.	<p>Being Complied</p> <p>Catch drains of 8 Kms length and siltation ponds of appropriate size are constructed to arrest silt and sediment flows from topsoil, OB and mineral dumps. Garland drain is so designed that it will discharge the rainwater to settling pond.</p> <p>Garland drains having width and depth of 1.5m to 2.0m have been constructed along OB Dumps. All the garland drains are connected to settling pond before discharging the rainwater to Garia Nala.</p> <p>Details of the same is as under:</p> <ul style="list-style-type: none"> ➤ OB dump-1A: 2350 m ➤ OB dump-1B: 2920 m ➤ Khuntijharia OB dump: 2578 m ➤ Beldihi OB dump: 1120 m ➤ Up-side of the mine: 2350 m this prevents entry of outside storm water into the mine pit. <p>Sedimentation pond/ settling pond has been de-Silted periodically. Also, embankment of adequate size is being provided along the Garia Nalla.</p> <p>Photos of garland drains, sedimentation pond and dust suppression are attached as Annexure - IX.</p>
(xviii)	The entire transportation of 21,210 TPD of coal from the mine to the linked Darlipali Super Thermal Power plant shall be by MGR only with wagon loading by Silo.	<p>Noted and Agreed to Comply</p> <p>Coal transportation to Darlipalli Super Thermal Power Plant is through MGR with wagon loading.</p>

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
	Transportation of coal by road is not permitted.	<p>In the event of Silo maintenance wagon loading is done through loaders ensuring proper dust prevention and suppression measures.</p> <p>Photos of Coal Silo and rail wagons are attached as Annexure - X.</p>
(xix)	An STP shall be provided for the township/ colony to treat the domestic effluents to prescribed standards and for their reuse in project activities.	<p>Being Complied</p> <p>The township of NTPC Dulanga is integrated with NTPC Darlipalli and STP of 1200 KLD is provided in the integrated township.</p> <p>However, STP has been provided for NTPC administrative Office.</p> <p>For mines pit offices septic tank followed by soak pit have been provided.</p> <p>The treated effluents are as per prescribed standards and are being reused for horticultural purpose.</p> <p>Photograph of STP at Darlipali Township is attached as Annexure-XI.</p>
(xx)	Area brought under afforestation shall be not less than 466.46 ha which includes 286.74 ha within the ML and 179.72 ha outside the ML would be reclaimed with plantation, which includes 351.23 ha of reclaimed quarry, 106.50 ha of reclaimed external OB dump, 3.84 ha of topsoil dump, 2.75 ha of coal stockyard, 2.14 ha of surface water reservoir and an area of 83.74 ha undisturbed shall be developed into green belt within the first 3 years.	<p>Noted and Agreed to Comply</p> <p>Plantation in quarry area will be done in phases in the available area after completion of mining and internal dumping is over.</p> <p>So far, 59,665 nos. of plants have been planted in the vacant areas in the project.</p> <p>Total 16,923 numbers of sapling have been planted till Mar'2024 and total 59,665 nos. of plants have been planted (including distribution) since inception of the mine.</p>
(xxi)	A Project specific Wildlife Conservation Plan prepared for Rs 73 lakhs as capital costs and Rs.61 lakhs (annual) for the project for conservation of wild fauna including Elephant, Sloth Bear and a number of Schedule-II fauna found in the study area and for conservation of their habitat shall be implemented in consultation with the Forest and Wildlife Departments of the State	<p>Being Complied</p> <p>The Site-specific Wildlife Conservation Plan as approved by the Chief Wildlife Warden; Odisha vide letter no. 9597/1WL(C) SSP-270/2012 dated 03/12/2013 is under implementation.</p> <p>Copy of the SSWCP approval letter & deposit slip is attached as Annexure-XII.</p> <p>Funds for implementation of the same in the buffer zone by the State Forest Department have already been deposited in Ad-hoc CAMPA account vide UTR No.</p>

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
	<p>Government. The Plan shall include creation of a passageway (undisturbed area through the block as a passage for the free movement of the elephants and for wild animals which may venture into the coal mine areas) at all stages of the mine operation in conjunction with the neighboring mines which come up in the area to allow movement of these fauna through the project area. The passageway shall be forested with species from the natural habitat to provide connectivity to enable them to reach the neighboring forests unhindered. Solar fencing would be done along the quarry which would be shifted as the mine develops. Grasslands shall be developed as part of Habitat Restoration in the study area and tree and plant species such as bamboo which constitute the natural diet of the elephants and plant species suitable for bears shall be developed as part of mine reclamation and eco-regeneration of the study area regularly visited by the elephants. At the post mining stage, the mine shall be restored as a habitat for the wildlife found in the pre-mining stage. The WL Plan shall include the use of sirens to alert the animals during MGR movement, sensitizing the rail drivers and minimizing speed during such crossings shall also be implemented.</p>	<p>SBIN714073448793 dated 14/03/2014 for Rs.4,49,70,000/-.</p>
(xxii)	<p>The project authorities shall also participate in a Regional Conservation Plan as and when prepared in the future by the State Govt. for the conservation of flora-fauna found in the region as a whole.</p>	<p>Being Complied</p> <p>Funds for the Regional Wildlife Conservation Plan have already been deposited in Ad-hoc CAMPA as per the revised rate fixed by the State Govt. @ Rs. 43,000/- per Ha for the total leasehold area vide UTR No. SBIN714073453867 dated 14/03/2014 for Rs.3,27,84,060/-.</p>

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
		Copy of the RWCP approval letter & deposit acknowledgement is attached as Annexure-XIII .
(xxiii)	<p>The progress made on the implementation of the Wildlife Conservation Plan shall be monitored by the creation of a Committee which includes experts in ecology and wildlife.</p> <p>The status of budgetary provision of capital and revenue expenditure on the various activities under the Project specific and Regional WL Conservation Plan and the status of the Plans shall be regularly reported to the MOEF RO, Bhubaneswar and also uploaded on the company website.</p>	<p>Being Complied</p> <p>For third party monitoring of implementation of WL Conservation Plan; College of Forestry, OUAT, Bhubaneswar has been engaged.</p> <p>Dr Nirakar Bhol, I/C Head of the Department-cum-Principal Investigator of the Monitoring Project oversees the third-party monitoring.</p> <p>The 3rd Six monthly report received from College of Forestry, OUAT, Bhubaneswar for the period Apr'2023 to Sep'2023 for the year 2023-24 is attached as Annexure-XIV.</p>
(xxiv)	<p>Third Party monitoring of implementation of WL Conservation Plan shall be carried out and for monitoring the utilization of funds earmarked for implementation of the WL Plan.</p>	<p>Being Complied</p> <p>For third party monitoring of implementation of WL Conservation Plan; College of Forestry, OUAT, Bhubaneswar has been engaged.</p> <p>Dr Nirakar Bhol, I/C Head of the Department-cum-Principal Investigator of the Monitoring Project oversees the third-party monitoring.</p> <p>The 3rd Six monthly report received from College of Forestry, OUAT, Bhubaneswar for the period Apr'2023 to Sep'2023 for the year 2023-24 is attached as Annexure-XIV.</p>
(xxv)	<p>A detailed R&R Plan shall be formulated for the 417 PAPs and 309 homestead losers as per R&R Policy of the State Govt. and shall be completed within December 2014; R&R shall include specific income generation schemes, skill development and capacity building, etc. The details of status of implementation and expenditure on the various activities under the R&R Action Plan for the total budget of R&R shall be uploaded on the company website.</p>	<p>Being Complied</p> <p>A detailed R&R Plan for the project affected families of Dulanga Coal Mining Project has been approved by the District Magistrate & Collector, Sundargarh with a total financial outlay of Rs. 112 Crores.</p> <p>The plan is being implemented accordingly for all eligible PAPs in phases.</p> <p>Expenditure incurred up to March 2023:</p> <ol style="list-style-type: none"> 1. R & R Colony Construction: Rs 97 Crores 2. R & R benefits (Incl Annuity): Rs 154.47 Cr (Rs 100.28 Cr for R&R + Rs 54.19 Cr for Annuity). <p>Details of the R&R grants provided to PAPs of NTPC Dulanga is uploaded on to NTPC Website. The same</p>

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
		can be accessed through https://www.ntpc.co.in/about-us/corporate-functions/corporate-citizenship/rehabilitation-resettlement
(xxvi)	CSR Plan with a total budgetary provision of Rs 15.92 crores (capital) and 7.34 crore/annum recurring cost) shall be implemented for the life of the project. The details of village-wise activities undertaken for the amount of Rs 67.69 lakhs already spent on CSR shall be uploaded on the company website and further, details of village-wise activities for provision of Rs 30-40 Cr for CSR for the first 5 years and Rs5/T of coal as recurring expenditure shall also be provided in the annual report and the compliance report furnished to MOEF RO, Bhubaneswar.	<p>Being Complied</p> <p>The budgetary provision of Rs. 15.92 crores (Capital) and 7.34 crore/ annum (recurring cost) pertains to the Environment Management Plan for the project and shall be implemented during mining operations for the life of the project.</p> <p>NTPC Dulanga Coal Mining Project has spent a total of approx. Rs 24 Lakhs under different heads like health, education, infrastructure, drinking water, capacity building / skill development during FY 2023-24.</p> <p>Expenditure incurred on CD activity in FY 2023-24 is attached as Annexure-XV.</p>
(xxvii)	A detailed R&R Plan shall be formulated in consultation with the various stakeholders as per prevalent R&R Policies and would cover R&R for individuals and for the displaced community as a whole.	<p>Being Complied</p> <p>R&R plan for the individuals and for the displaced community as a whole has been prepared in-line with the National R&R Policy & the OPRR Policy and the same has been duly approved of by the District Magistrate & Collector, Sundargarh. Copy of the R&R plan is attached as Annexure-XVI.</p>
(xxviii)	Various activities under R&R Plan should be completed within time-schedule. The detailed R&R and CSR Action Plans be prepared and implemented.	<p>Noted and Agreed to Comply</p> <p>Detailed R&R plan has already been prepared, approved of and has been implemented.</p>
(xxix)	An amount of 67.69 lakhs has been already spent on CSR and further, a provision of Rs 30-40 crores shall be earmarked for CSR for the first 5 years and 5/T of coal as recurring expenditure adjusted to the annual inflation rate.	<p>Noted and Agreed to Comply</p> <p>NTPC Dulanga Coal Mining Project has spent a total of approx. Rs 24 Lakhs under different heads like health, education, infrastructure, drinking water, capacity building / skill development during FY 2023-24.</p> <p>Expenditure incurred on CD activity in FY 2023-24 is attached as Annexure-XV.</p>

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
(xxx)	An amount of Rs.1592 lakhs (capital costs) and Rs.734 lakhs (recurring) costs earmarked for EMP shall be implemented and detail thereof furnished as part of the compliance report and also uploaded on the company website.	Noted and Agreed to Comply Amount earmarked for EMP are being utilized for implementation and being complied with. An amount of Rs 18.84 Crores has been incurred towards Environment Protection & Management.
(xxxi)	Coal transportation in pit: Rear Dumper, Surface to Siding through Conveyor belts and loading at siding by rail.	Being complied Presently transportation is being done in rear dumpers from coal face to CHP – Hopper and wagon loading of coal through RLS.
(xxxii)	The production shall be within the same Mining Lease area.	Being Complied
(xxxiii)	The OB shall be completely re-handled at the end of the mining.	Noted and Agreed to Comply The OB will be re-handled at the end of the mining as per the approved Mining Plan.
(xxxiv)	Final mine void depth will not be more than 40m. The void area will be converted into water body. The rest of the area will be back filled upto the ground level and covered with about a meter thick top soil and put to use.	Noted and Agreed to Comply Mining is being done as per the approved Mining Plan for the project. After completion of the mining the mine shall be closed as per the approved mine closure plan.
(xxxv)	Garland drains be provided.	Being Complied Garland drains having width and depth of 1.5m to 2.0m have been constructed along OB Dumps. All the garland drains are connected to settling pond before discharging the rainwater to Garia Nala. Details of the same is as under: ➤ OB dump-1A: 2350 m ➤ OB dump-1B: 2920 m ➤ Khuntijharia OB dump: 2578 m ➤ Beldihi OB dump: 1120 m ➤ Up-side of the mine: 2350 m this prevents entry of outside storm water into the mine pit.
(xxxvi)	The land after mining shall be brought back for agriculture purpose.	Noted and Agreed to Comply After completion of the mining the mine shall be closed as per the approved mine closure plan.

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
(xxxv)	Mine water should be treated for discharge into the lagoon. The quality of lagoon water shall be regularly monitored, and mitigation measures taken.	Being Complied Presently, no Mine Water is being discharged in lagoons. The quality of mine water is being monitored regularly through NABL accredited laboratory.
(xxxvi)	Everybody in the core area should be provided with mask for protection against fugitive dust emissions.	Being Complied All the persons working in the dust prone area are being provided with dust mask for protection against fugitive dust emissions as a part of PPE during mining operations. Photographs attached as Annexure-XVII .
(xxxix)	Dust mask to be provided to everyone working in the mining area.	Being Complied All the persons working in the dust prone area are being provided with dust mask for protection against fugitive dust emissions as a part of PPE during mining operations.
(xl)	The supervisory staff should be held personally responsible for ensuring compulsory regarding wearing of dust mask in the core area.	Being Complied All the persons working in the dust prone area are being provided with dust mask for protection against fugitive dust emissions as a part of PPE during mining operations. Ensuring the use of dust mask by the workmen has been made part of duty of the supervisory staffs.
(xli)	People working in the core area should be periodically tested for the lung diseases and the burden of cost on account of working in the coal mine area.	Being Complied All the personnel engaged in mining are tested under Occupational Health Checkup. Further, periodical health checkups are done for identification of lung diseases through Chest X – Ray. All Test Reports are available at site. Records of health checkup is attached as Annexure-XVIII .
(xlii)	The mining area should be grounded by green belt having thick closed thick canopy of the tree cover.	Being Complied Plantation of trees having thick canopy have been done in the safety zone of the Dulanga Coal mining project. Photographs of Safety Zone Gap Plantation along with Fencing is attached as Annexure-XIX .
(xlili)	The embankment constructed along the river boundary shall be of	Being Complied

Rathna

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
	suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side and stabilized with plantation so as to withstand the peak water flow and prevent mine inundation.	<p>The Diversion of Garia Nala has been completed. However, embankment works are in progress. The Nalla has taken its natural course.</p> <p>The embankment work of Baidhar Nala and Nala B are being done parallelly in tandem with excavation work.</p> <p>The embankment is designed taking into account the highest flood level and approved by the Water Resource Department, Govt. of Odisha.</p>
(xiv)	There shall be no overflow of OB into the river and into the agricultural fields and massive plantation of native species shall be taken up in the area between the river and the project.	<p>Being Complied</p> <p>No Surface runoff from OB Stacks /dump being discharged into any nearby agricultural fields.</p> <p>Already available plantation in the area between the river and the project have not been disturbed. Also, additional plantation have been done in the available gaps.</p>
(xiv)	OB shall be stacked at one earmarked external OB dumpsite(s) only. The ultimate slope of the dump shall not exceed 28°. Monitoring and management of existing reclaimed dumpsites shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forest and its concerned Regional office on yearly basis.	<p>Being Complied</p> <p>Only one external dump has been formed. Presently dumping of the OB is going on in the external OB Dump. The ultimate height of the external OB shall be maintained as per the approval. And the ultimate slope angle of the OB dump shall be maintained as 28 deg.</p>
(xlv)	Garland drains (size, gradient and length) and sump capacity shall be designed keeping 50% adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper setting of silt material.	<p>Being Complied</p> <p>As per the stipulation, Garland drains (size, gradient and length) and sump capacity have been designed keeping 50% adjoining the mine site.</p> <p>Dimensions vary from 2m to 4m with the gradient of 1:30.</p> <p>Sump capacity has been provided with adequate retention period to allow proper settling of silt materials.</p>
(xlvii)	Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check	<p>Being Complied</p> <p>Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and</p>

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
	run-off and siltation shall be based on the rainfall data.	siltation will be designed based on the rainfall data of the area. Construction of retaining wall will be carried out once we reach the optimum height and area section wise.
(xlviii)	Crushers at the CHP of adequate capacity for the expansion project 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.	Being Complied CHP of capacity 1325 tph is constructed and operational with inbuilt mist type dust suppression system in conveyors. Dust suppression arrangements such as fixed water sprinkling system have also been provided to check fugitive emissions from crushing operations, haulage roads, transfer points, etc. Photographs attached as Annexure-XX .
(xlix)	Drills shall be wet operated.	Being Complied Wet operated drills are being used during drilling operation. Photographs of wet drilling is attached as Annexure-XXI .
(i)	The project authorities shall undertake regular repairing and tarring of roads used for mineral transportation. A3-tier green belt comprising of a mix of native species shall be developed all along the major approach roads.	Being Complied Coal transportation to Darlipalli Super Thermal Power Plant is being done through MGR with wagon loading by Silo. Also, avenue plantation has been taken up during the monsoon season along the roads constructed by NTPC – DLCMP.
(ii)	Controlled blasting shall be practiced with use of delay detonators and only during daytime. The mitigative measures for control of ground vibrations and to attest the fly rocks and boulders shall be implemented.	Being Complied Controlled blasting during daytime are practiced with the use of delay detonators. Further, Scientific study of controlled blasting designed by ISM, Dhanbad. Additionally, all stipulations made by DGMS to this effect is being duly adhered to. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders are being implemented. Ground vibrations due to blasting are also being monitored regularly.
(iii)	A Progressive Mine Closure Plan shall be implemented by reclamation and afforestation of	Being Complied

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
	351.23 ha of the total quarry area of 567.19 ha by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. The balance 159.55 ha decoaled area being converted into a water reservoir of 45-50m depth at the post mining stage shall be gently sloped along the upper benches an stabilized and reclaimed with plantation	<p>Mine Closure Plan has already been approved as a part of Mining Plan and it envisages the stipulations as made herein by the Ministry.</p> <p>Progressive Mine Closure Plan is being implemented and annual report in this regard is being submitted the Coal Controller of India, Kolkata.</p> <p>Copy of the annual mine closure report is attached as Annexure-XXII.</p>
(liii)	A temporary external OB dump in an area of 106.62 ha and of 60m height for the initial period of 2.5 years shall be created for dumping 38.5 Mm3 of OB, which would be reclaimed with plantation and after 2.5 to 3 years. There would be no external OB dumping from 5th year onwards. The temporary OB dumps which require re-handling shall be stabilized with grass and shrubs.	<p>Noted and Agreed to Comply</p> <p>Initially the external OB dump was planned in 106.62 ha area, but while granting the forest clearance, an area of 18.34 ha forest land and 2.95 ha of Govt land was excluded hence the present area for the external OB dump is reduced to 86 ha, accordingly only 28.5 mill.CuM shall be accommodated in the external OB dump.</p> <p>However, due to local law & order issues (i.e., resistance from the villagers for rehabilitation activities), the total proposed quantity i.e., 28.5 million Cu.M is unable to accommodate in the external OB Dump.</p> <p>Till end of Mar-24, approx. 14.0 million CuM of OB is accommodated and the balance OB Quantity to be accommodated at the earliest.</p> <p>Presently dumping activities are being carried out at Khapurikachhar OB dump and In pit dump.</p>
(liv)	The proponent should prepare restoration and reclamation plan for the degraded area. The land be used in a productive and sustainable manner.	<p>Noted and Agreed to Comply</p> <p>Mine Closure Plan has already been approved as a part of Mining Plan and it envisages the stipulations as made herein by the Ministry.</p> <p>Progressive Mine Closure Plan is being implemented and annual report in this regard is being submitted the Coal Controller of India, Kolkata.</p> <p>Copy of the annual mine closure report is attached as Annexure-XXII.</p>
(lv)	Compensatory Ecological & Restoration of waste land, other	Noted and Agreed to Comply

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
	degraded land and OB dumps in lieu of breaking open the land be carried out	<p>Mine Closure Plan has already been approved as a part of Mining Plan and it envisages the stipulations as made herein by the Ministry.</p> <p>Progressive Mine Closure Plan is being implemented and annual report in this regard is being submitted the Coal Controller of India, Kolkata.</p> <p>Copy of the annual mine closure report is attached as Annexure-XXII.</p>
(Ivi)	The mining should be phased out in sustainable manner. No extra over burden dumps are permitted.	<p>Noted and Agreed to Comply</p> <p>Only one external OB dump has been made at DLCMP. Mining is being done as per the approved mining plan. For phasing out of the mining activity, Mine Closure Plan has already been prepared and approved by the MoC. Same is under implementation.</p>
(Ivii)	No groundwater shall be used for mining operations.	<p>Being Complied</p> <p>Rainwater collected into the mine sump and seepage water is being used for mining purposes. Ground water is being used only for potable use.</p> <p>NOC for abstraction of ground water has been obtained from the Central Ground Water Authority, New Delhi vide letter No. 21-4 (513)/ SER/ CGWA/ 2013-1982 dated 04th Dec. 2017 and renewed vide NOC No. CGWA/ NOC/MIN/REN/2/2022/7124 . Renewal application submitted to CGWA and is under consideration.</p> <p>Copy of the NOC application is attached as Annexure-XXIII.</p>
(Iviii)	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 in May. Data thus collected shall be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board	<p>Being Complied</p> <p>Regular monitoring of groundwater level and quality is being carried out through NABL Accredited as well as OSPCB empaneled laboratory. The frequency of monitoring is as per the schedule mentioned.</p> <p>Record of Ground water level for the period Oct'23 to Mar'24 is attached as Annexure -XXIV.</p> <p>The ground water quality report for the period Oct'23 to Mar'24 is annexed for your kind reference and necessary record. Annexure – IV.</p>

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
	quarterly within one month of monitoring.	
(lix)	The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring indicates a decline in water table. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.	<p>Being Complied</p> <p>Water level is being monitored through network of borewells/wells) in core and buffer zone of DLCMP.</p> <p>Record of Ground water level for the period Oct'23 to Mar'24 is attached as Annexure -XXIV.</p> <p>To augment the ground water in the area, rainwater harvesting structures have been constructed in the Vocational Training Centre & Coal Laboratory building and Pond construction activities in R&R Colony and Pond deepening activities have been undertaken in the nearby villagers as water conservation measures.</p> <p>Further, water tankers are also being deployed in nearby villages during summer season as a part of Community development activity.</p>
(lx)	Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.	<p>Being Complied</p> <p>The township of NTPC Dulanga is integrated with NTPC Darlipalli and STP of 1200 KLD is provided in the integrated township.</p> <p>However, STP has been provided for NTPC administrative Office.</p> <p>For mines pit offices septic tank followed by soak pit have been provided.</p> <p>ETP having 50KLD capacity has been constructed and is being used for treatment of Effluent water generated during vehicle washing.</p> <p>Inlet and outlet water samples of ETP is being monitored. All the parameters are under permissible limit. Copy of report for period Oct'23 to Mar'24 is annexed at Annexure-XXV.</p>
(lxi)	Besides carrying out regular periodic health check-up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, through an specialized agency/ institution within the District/State and the	<p>Being Complied</p> <p>All the personnel engaged in mining are tested under Occupational Health Checkup. Further, periodical health checkups are done for identification of lungs diseases through Chest X – Ray and hearing impairment, if any, through a specialist in the field.</p> <p>Records of health checkup is attached as Annexure-XVIII.</p>

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
	results reported to this Ministry and to DGMS.	
(Ixi)	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 any one particular season which is consistent in the time series), and the report submitted to MOEF and its concerned Regional office.	<p>Being Complied</p> <p>Mining operation started in the month of February 2018. Copy of Notice of Opening of Mine submitted to DGMS, Dhanbad is attached as Annexure-XXVI.</p> <p>Land use map for both core and buffer has been prepared on a scale of 1: 5000 based on Satellite Imagery path available in 2021 and was submitted with last half yearly compliance.</p> <p>Copy of Land Use Map attached as Annexure-XXVII.</p>
(Ixi)	A detailed Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & forests within 6 months of grant of Environmental Clearance.	<p>Being Complied</p> <p>An ESCROW account for depositing of the Mine Closure cost have been opened for the DLCMP. Till date Rs 27.48 Cr. has been deposited in the ESCROW account.</p> <p>Detailed Final Mine Closure Plan have already submitted to the MoEF & CC vide our letter ref no: 0100/ DLCMP/FD/ES/ 02/ 0814 dated 25/08/2014.</p> <p>Copy of the approval of mine closure plan is attached as Annexure-XXVIII.</p>
(Ixi)	The project authorities shall in consultation with the Panchayats of the local villages and administration identify socio-economic and welfare measures under CSR to be carried out over the balance life of the mine.	<p>Being Complied</p> <p>Various socio-economic and welfare measures are being undertaken as initial community development in consultation with the Panchayats of the local villages and administration and the same is being carried out accordingly. This practice shall be followed over the entire life of the mine.</p>
(Ixi)	The commitment made by the Proponent to the issue raised during Public Hearing shall be implemented by the Proponent.	<p>Being Complied</p> <p>All the commitment made during Public Hearing have been implemented.</p> <p>The status of implementation is attached as Annexure-XXIX.</p>
(Ixi)	Corporate Environment Responsibility : a. The Company shall have a well laid down Environment Policy	<p>Being Complied</p> <p>The Corporate Environment Responsibility Policy of NTPC already exists and the same is also being revised from time to time.</p>

Ratha

ECC No.	Specific EC Conditions	Compliance Status as on 31.03.2024
	<p>approved by the Board of Directors.</p> <p>b. The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.</p> <p>c. The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.</p> <p>d. To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.</p>	<p>Recently Corporate Environment Policy has been revised in 2021 Copy of the said Policy has been attached as Annexure-XXX.</p> <p>Hierarchical System of the Environment Management Cell is given below:</p> <ul style="list-style-type: none"> Chairman: Head of the Project Vice Chairman: Mine Agent Member Secretary: AGM (Env Mgmt) 2 nos. Advisors: Mining, Safety 3 nos. Members: Process Managers Convenor: Sr Manager (Env Mgmt) <p>System of Reporting of Reporting of occurrence of any non-compliance of EC conditions is as give below:</p> <ul style="list-style-type: none"> Regular meeting of Environment Management Cell Discussion and review of action taken on points of previous meeting. Discussion on Pending Issues Formulation of points for future Discussion on OFI, if any. <p>Discussion of such OFI reports during meeting of EMC for early rectification.</p>

Ratha

ECC No.	General EC Conditions	Compliance Status as on 31.03.2024
(i)	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.	Noted and Agreed to Comply Necessary approval shall be obtained from the MoEF & CC for any changes in mining technology and scope of working.
(ii)	No change in the calendar plan of production for quantum of mineral coal shall be made.	Being Complied
(iii)	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM ₁₀ , PM _{2.5} , SO ₂ , and NO _x monitoring. 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. etc. carried out at least once in six months.	Being Complied Four nos. of ambient air quality monitoring stations have already been established in consultation with the Odisha 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 mentioned such as PM ₁₀ , PM _{2.5} , SO ₂ , and NO _x . Heavy metals such as Hg, As, Ni, Cd and Cr. etc. are also carried out once in six months. The AAQ monitoring reports for the period from Oct'2023 to Mar'2024 is attached for your kind reference and necessary record. Annexure – XXXI. Also 01 (One) No. Continuous Ambient Air Quality Monitoring Station has been installed at our site to monitor the air quality. Photograph has been attached as Annexure – XXXII.
(iv)	Data on ambient air quality (PM ₁₀ , PM _{2.5} , SO ₂ , and NO _x) and heavy metals such as Hg, As, Ni, Cd, Cr, and other monitoring data shall be regularly submitted to the Ministry including its concerned Regional Office 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 recognized under the EPA rules, 1986 shall be furnished as part of compliance report.	Being Complied Monitoring is being carried out through NABL accredited laboratory and the monitoring reports are being submitted monthly to concerned Regional Office and to the State Pollution Control Board and along with compliance report biannually to IRO, MoEF&CC. The AAQ monitoring reports for the period from Oct'2023 to Mar'2024 are attached as Annexure – XXXI.
(v)	Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and	Being Complied



ECC No.	General EC Conditions	Compliance Status as on 31.03.2024
	drilling operations, operation of HEMM, etc. shall be provided with ear plugs/muffs.	<p>Planned periodic maintenance of the equipment engaged in the mining is being done to prevent excessive noise.</p> <p>Adequate measures are taken for control of noise levels below 85 dBA in the work environment during the operation phase of mining block.</p> <p>Workers in high noise environment are also provided with ear plugs/muffs.</p>
(vi)	Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.	<p>Being Complied</p> <p>ETP having 50KLD capacity has been constructed and is being used for treatment of Effluent water generated during vehicle washing.</p> <p>Inlet and outlet water samples of ETP is being monitored. All the parameters are under permissible limit. Copy of report is annexed at</p> <p>Annexure-XXV.</p> <p>The treated wastewater is being reused for vehicle washing.</p> <p>Photograph of ETP is attached as Annexure-XXXIII.</p>
(vii)	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.	<p>Being Complied</p> <p>Regular pollution monitoring of all vehicles involved in the mining project are in practice to control emission during operation of the mine.</p>
(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 analyzed through a laboratory recognized under EPA Rules, 1986.	<p>Being Complied</p> <p>Monitoring of environmental quality parameters are being carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the Regional Office, State Pollution Control Board (SPCB), Jharsuguda and data is being analyzed through a laboratory recognized under EPA Rules, 1986.</p>

Ratha

ECC No.	General EC Conditions	Compliance Status as on 31.03.2024
(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.	Being Complied Protective respiratory devices are provided to the personnel working in dusty areas. They are provided with adequate training and information on safety & health aspects regularly.
(x)	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, and records maintained thereof. The quality of environment due to outsourcing and the health and safety issues of the outsourced manpower should be addressed by the company while outsourcing.	Being Complied Initial medical examination of all the workers deployed in the mine has been taken and periodically health check-ups are being done. A schedule is prepared for implementation of Occupational Health Surveillance Program of workers to determine the impact due to exposure to dust and to take corrective measures for the same. Compliances regarding environment quality, health issues of outsourced manpower are taken care of during outsourcing.
(xi)	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.	Being Complied A separate Environmental Management Cell (EMC) under the control of senior executive who directly reports to the head of the company already exists for the project. EMC meetings are held regularly. Details of EMC is mentioned at ECC no. LXVI.
(xii)	The funds earmarked for environment 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 concerned Regional Office.	Being Complied The requisite funds for environmental protection measures have been included in the project cost. Financial provision stipulated towards environment protection measures will not be diverted for other purpose. Year wise expenditure incurred on environment protection measures is attached as Annexure-XXXIV .
(xiii)	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	Complied The advertisement was published in The Samaj (Kolkata, Baleswar, Brahmapur, Vishakapatnam, Sambalpur, Bhubaneswar, Cuttack, Rourkela) on 08.03.2014. A copy of the same is attached as Annexure-XXXV .

Ratha

ECC No.	General EC Conditions	Compliance Status as on 31.03.2024
	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 .	
(xiv)	A copy of the environmental clearance letter shall be marked to concern 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 company's website.	Complied Copy of EC is uploaded in the company website.
(xv)	A copy of the environmental clearance letter shall also 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 Sector and Collector's Office/Tehsildar's Office for 30 days.	Complied
(xvi)	The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated environmental clearance condition 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 public domain. The monitoring data of environmental quality parameter (air, water, noise and soil) and critical pollutant such as PM ₁₀ , PM _{2.5} , SO ₂ , and NO _x (ambient) and critical sectorial parameters shall also be displayed at the entrance of the project premises and mine office and in corporate office and on company's website.	Complied The clearance letter has been uploaded on the company's website. The monitoring data of the stipulated environmental quality parameters being displayed at the entrance of the mine office. The photograph of display has been attached as Annexure-XXXVI . The compliance status has been uploaded on the NTPC website.

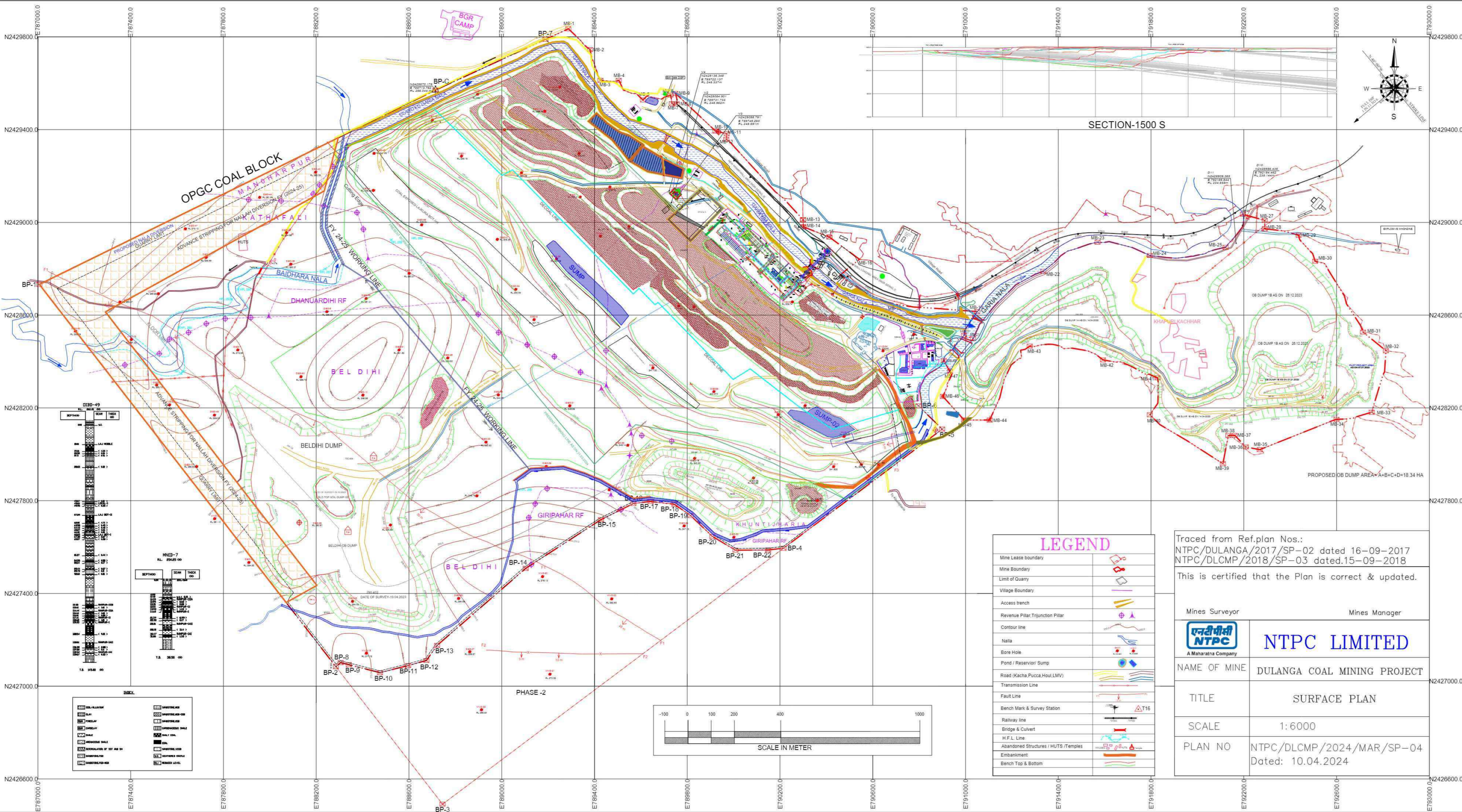
Ratha

ECC No.	General EC Conditions	Compliance Status as on 31.03.2024
(xvii)	The project proponent shall submit six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the Ministry, respective Zonal Offices of CPCB and the SPCB.	Being Complied Six-monthly progress reports are being submitted regularly. The last Six-monthly progress reports for the period Apr'2023 to Sep'2023 was submitted on 01.12.2023.
(xviii)	The Regional Office of this Ministry located in the Region 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 agreed
(xix)	The Environmental statement for each financial year ending 31 March in Form-V is mandated to be submitted by the project proponent for 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 Office of the MoEF by e-mail.	Being Complied The Environmental Statement for each financial year ending 31 st March are being submitted to the Odisha State Pollution Control Board and Regional Office of MoEF & CC in prescribed Form-V and the same is also being uploaded on NTPC website. Last submission was made for FY 2022-23 is submitted on 27.09.2023. Copy of the same has been uploaded on NTPC website.
5.	The proponent shall abide by all the commitments and recommendations made in the EIA/EMP report so also during their presentation to the EAC.	Complied
6.	The proponent is required to obtain all necessary clearances/approvals that may be required before the start of the project. The Ministry or any other competent authority may stipulate any further condition for environmental protection.	Noted and agreed All necessary clearances/approvals that are required for the project are obtained. We abide by the further condition for environmental protection issued by the Ministry or any other competent authority.



ECC No.	General EC Conditions	Compliance Status as on 31.03.2024
7.	The Proponent shall setup an Environment Audit cell with responsibility and accountability to ensure implementation of all the EC Conditions.	Being Complied
8.	The Ministry or any other competent authority may stipulate any further condition for environmental protection.	Noted and agreed Agreed to Comply any additional condition stipulated by the Ministry or any other competent authority.
9.	Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environmental (Protection) Act, 1986.	Noted and agreed
10.	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.	Noted and agreed

Rathu



Avenue Plantation



Plantation in Infra Office



Vacant Area Plantation



Plantation Near View Point



Plantation along MGR



Sapling Distribution





Government of Odisha
Department of Water Resources

No. 21250 /WR.,
WR-MAJII-WRC-0009/2016 (OSWAS)
Irr.-II-WRC-161/21 (Physical)

Date: 23/8/2021

COPY
- AGM(Civil)
- AGM(Mining)
- DAM(PS)

From

Ms Archana Patnaik, IAS,
Special Secretary to Government.

To

The General Manager, M/s NTPC Ltd.,
Dulunga Coal Mining Project, 2nd Floor,
Megha Mallahar, Mission Road, Sundargarh.

Sub: Permission for diversion of Garia Nalla and its tributaries (Baidhar Nallah and Nallah -B) flowing within the coal block boundary of Dulunga Coal Mining Project allotted to NTPC Ltd.

Sir,

In inviting reference to your Correspondence No-0100/ NTPC/DLCMP/MDO/2017/17 dated 05.04.2017 on the subject noted above I am directed to say that Government in Water Resources Department have been pleased to accord permission in favour of your industry for diversion of Garia Nalla and its tributaries (Baidhar Nallah and Nallah -B) flowing within the coal block boundary of Dulunga Coal Mining Project allotted to NTPC Ltd. with the following terms & conditions:-

Terms & Conditions:-

1. NTPC shall divert the Garia Nalla and its tributaries (Baidhar Nallah and Nala -B) in accordance with the provisions made in the mining plan of Dulunga Coal Block which has been approved by Ministry of Coal, Government of India and as per the condition(s) stipulated in the Environment clearance granted for Dulunga Coal Block by MOEF&CC.
2. NTPC shall divert the Garia Nalla and its tributaries namely Baidhar Nallah and Nala -B within the land under their possession on its own cost. All direct or indirect and annual expenditure on maintenance of the above said nallahs shall be borne by NTPC.
3. Any adverse impact noticed due to the diversion must be set right by NTPC at its own cost.
4. The gradient of the original nallah shall be maintained in the proposed diverted route by NTPC.
5. The regime channel section shall be maintained in the proposed diversion alignment by NTPC. Smooth transition shall be provided between diversion and original nallah section by NTPC.

P.T.O.

6. Safe distance shall be maintained by NTPC from the diversion channel to the mining operation boundary for safety point of view following Govt. norms.
7. NTPC shall ensure that riparian rights of the people residing in the downstream area shall not be affected upon diversion of Garia Nallah and its tributaries namely Baidhar Nallah and Nallah -B.
8. The water quality shall be maintained in the nallah by NTPC to ensure the protection of the riparian right of people living in the d/s of the diversion channel. NTPC shall not discharge/dispose any untreated and contaminated waste material into the nallahs so that the flora and fauna will be in peril.
9. Ecological and environmental damages, if any, arising during and after diversion of nallahs shall be the sole responsibility of NTPC for which they shall be treated as per law. NTPC shall have to obtain permission or clearance from Competent Authorities on ecology, environment and forest aspects as necessary.
10. The diverted nallahs shall be treated as public property.
11. Any construction activities /interference should be consistent with the hydraulic compulsions and structural safety standards.
12. NTPC shall ensure that diversion portion of nallah is adequate to carry design flood discharge. In case of failure, change of path of nallahs is noticed after diversion, NTPC is liable for reconstruction at their cost and pay compensation if damages occur to public/private properties.
13. Necessary safety arrangement shall be the responsibility of NTPC while executing the diversion work of nallahs. The Company shall have to provide barricading, display boards and other necessary caution boards while executing the work.
14. Cutting of any tree or removal of any utility services along the proposed diversion alignment if required, NTPC shall have to obtain clearances from concerned approving authorities.
15. NTPC shall procure insurance from reputed insurance Company against damages during execution. In case of damage caused to any assets due to diversion of nallahs, DoWR shall not be accountable or liable in any manner whatsoever.
16. NTPC shall intimate Revenue official's viz. Tahasildar & Collector of the district regarding such diversion in order to incorporate it in the cadastral map & ROR.
17. DoWR shall reserve the right to review/modify/revoke the permission in case of violation of terms and conditions of the permission.
18. NTPC shall construct peripheral drains for discharge of flood water of the catchments s Mining Lease area if required.
19. The diverted nallahs are to be properly fenced and protected against accidents.
20. The interest of the local villagers is to be suitably addressed in the event of diversion.

21. NTPC shall make necessary arrangement so that seepage water from diverted Nallah shall not enter into the mining area.
22. The work should be executed in accordance with the Codal Provision with the overall objective of environmental safeguards. Latest codal provision and National/International best practices must be followed. DoWR shall not be responsible for any breach of the safeguards.
23. DoWR shall have the right to order such works as may be necessary to maintain the integrity of the nallahs at any time during or after the execution not covered in approved scheme. NTPC shall be bound to execute the same as per instruction of DoWR at their own cost.

Yours faithfully

[Signature]
23/08/2021

Special Secretary to Government

Memo No. 21251 /WR, Dtd. 23/8/2021

Copy forwarded to the E.I.C., Odisha, Bhubaneswar/ CE & BM, Mahanadi Basin, Burla/ CE Designs, Bhubaneswar for information and necessary action.

[Signature]
23/08/2021

Under Secretary to Government

Memo No. 21252 /WR, Dtd. 23/8/2021

Copy forwarded to Industries Department / Steel & Mines Department/ IPICOL / IDCO for information and necessary action.

[Signature]
23/08/2021

Under Secretary to Government

Memo No. 21253 /WR, Dtd. 23/8/2021

Copy forwarded to Collector & District Magistrate, Sundargarh for information and necessary action.

[Signature]
23/08/2021

Under Secretary to Government

Memo No. 21254 /WR, Dtd. 23/8/2021

Copy forwarded to Executive Engineer, Sundargarh Irrigation Division, Sundargarh for information and necessary action.

[Signature]
23/08/2021

Under Secretary to Government



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000619F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 1

Date: 02 Nov 2023

Test Report No: ERSIPL/TR/WA/315

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.10.2023
Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.
Sample Collected in presence of : Representative of the Customer.
Sample Received on : 20.10.2023
Analysis Started on : 20.10.2023
Analysis Completed on : 30.10.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 3 ltrs
Type of Container : Glass Bottle, HDPE Bottle
Weather Condition : Sunny
Atmospheric Temperature : 32 °C

Sample ID. No.

1. ERSIPL/WA/729

Locations

1. Tap water inside NTPC site office

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result
					ERSIPL/ WA/729
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	6.5 to 8.5	6.74
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.59
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	136.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.06
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	24.64
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	274.0
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	28.86
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	29.93
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	120.0

- Note-
- The test results relate only to the items sampled and tested.
 - Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 - This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 - Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 - This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 2

Date: 02 Nov 2023

Test Report No: ERSIPL/TR/WA/T-315

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.10.2023

Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.10.2023

Analysis Started on : 20.10.2023

Analysis Completed on : 30.10.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 32 °C

Sample ID. No.

1. ERSIPL/WA/729

Locations

1. Tap water inside NTPC site office

TEST FINDINGS:

Sl	Parameters Analyzed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result
					ERSIPL/ WA/729
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND
10	Cadmium	IS 3025:Part 41: 1992 Reaffirmed-2019	mg/L	0.003	ND

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND

ND-Not Detected


(Authorized Signatory)
S.P. Pattanayak
Tech. Manager

...END OF TEST REPORT...



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000620F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 1

Date: 02 Nov 2023

Test Report No: ERSIPL/TR/WA/316

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.10.2023

Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.10.2023

Analysis Started on : 20.10.2023

Analysis Completed on : 30.10.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 32 °C

Sample ID. No.

1. ERSIPL/WA/730
2. ERSIPL/WA/731
3. ERSIPL/WA/732
4. ERSIPL/WA/733

Locations

1. Tube Well, NTPC Dispensary, Villagae Bihajor
2. Open Well in Village Kanktora
3. Tube Well in Village Kalamegha
4. Open well in Village Kathfali

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/730	ERSIPL/WA/731	ERSIPL/WA/732	ERSIPL/WA/733
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	6.5 to 8.5	6.63	5.91	6.91	6.96
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.54	0.48	0.51	0.33
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	134.0	48.0	362.0	30.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.05	0.06	0.08	0.08
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	22.69	12.81	49.28	23.65
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	348.0	94.2	556.0	65.5
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	26.45	11.22	66.53	7.21
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	40.97	1.72	29.48	6.49
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1	<0.1	<0.1	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	26.0	54.0	290.0	38.0

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I)

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 2

Date: 02 Nov 2023

Test Report No: ERSIPL/TR/WA/T-316

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.10.2023

Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.10.2023

Analysis Started on : 20.10.2023

Analysis Completed on : 30.10.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 32 °C

Sample ID. No.

1. ERSIPL/WA/730
2. ERSIPL/WA/731
3. ERSIPL/WA/732
4. ERSIPL/WA/733

Locations

1. Tube Well, NTPC Dispensary, Villagae Bihajor
2. Open Well in Village Kanktora
3. Tube Well in Village Kalamegha
4. Open well in Village Kathfali

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/730	ERSIPL/WA/731	ERSIPL/WA/732	ERSIPL/WA/733
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0	<5.0	<5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A	A	A	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A	A	A	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0	<5.0	<5.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil	Nil	Nil	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND	ND	ND	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND

**Environmental Research and Services (India) Pvt. Ltd.****(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)**

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND	ND	ND	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND	ND	ND	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND	ND	ND	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND	ND	ND	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND	ND	ND	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND	ND	ND	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND	ND	ND	ND
22	Boron	IS 3025:Part 57: 2021	mg/L ^m	0.5	ND	ND	ND	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND	ND	ND	ND

ND-Not Detected


(Authorized Signatory)
S.P. Pattanayak
Tech. Manager

...END OF TEST REPORT...



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000621F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 1

Date: 02 Nov 2023

Test Report No: ERSIPL/TR/WA/317

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 13.10.2023

Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.10.2023

Analysis Started on : 20.10.2023

Analysis Completed on : 30.10.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 31 °C

Atmospheric Temperature

: 32 °C Sample ID, No. Locations

1. ERSIPL/WA/734

1. Open well in Village Khuntjhar

2. ERSIPL/WA/735

2. Bore well in Village Rengalmunra

3. ERSIPL/WA/736

3. Open well in Village Bendrichua

4. ERSIPL/WA/737

4. Bore Well R & R Colony, Kalamegha

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/734	ERSIPL/WA/735	ERSIPL/WA/736	ERSIPL/WA/737
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	6.5 to 8.5	5.87	7.47	6.39	6.81
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.52	0.64	0.49	0.39
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	46.0	266.0	34.0	126.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.06	0.05	0.08	0.07
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	25.62	63.07	20.70	18.72
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	208.40	694.0	69.4	379.0
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	12.02	14.43	8.02	25.65
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	9.18	39.78	7.69	21.87
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1	<0.1	<0.1	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	20.0	336.0	42.0	162.0

- Note-
- The test results relate only to the items sampled and tested.
 - Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 - This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 - Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 - This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I)

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
 Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 2

Date: 02 Nov 2023**Test Report No: ERSIPL/TR/WA/T-317**

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.
 Date of Sampling : 13.10.2023
 Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.
 Sample Collected in presence of : Representative of the Customer.
 Sample Received on : 20.10.2023
 Analysis Started on : 20.10.2023
 Analysis Completed on : 30.10.2023
 Method of Sampling : As per Applicable Test Method
 Quantity of Sample : 3 ltrs
 Type of Container : Glass Bottle, HDPE Bottle
 Weather Condition : Sunny
 Atmospheric Temperature : 31 °C

Sample ID. No.

1. ERSIPL/WA/734
2. ERSIPL/WA/735
3. ERSIPL/WA/736
4. ERSIPL/WA/737

Locations

1. Open well in Village Khuntjharia
2. Bore well in Village Rengalmunra
3. Open well in Village Bendrichua
4. Bore Well R & R Colony, Kalamegha

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/734	ERSIPL/WA/735	ERSIPL/WA/736	ERSIPL/WA/737
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0	<5.0	<5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A	A	A	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A	A	A	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0	<5.0	<5.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil	Nil	Nil	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND	ND	ND	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
		IS 3025:Part 41: 1992						

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND	ND	ND	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND	ND	ND	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND	ND	ND	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND	ND	ND	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND	ND	ND	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND	ND	ND	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND	ND	ND	ND
22	Boron	IS 3025:Part 57: 2021	mg/L TM	0.5	ND	ND	ND	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND	ND	ND	ND

ND-Not Detected


(Authorized Signatory)
S.P. Pattanayak
Tech. Manager

...END OF TEST REPORT...



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000636F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 1

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/WA/323

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 07.11.2023

Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.11.2023

Analysis Started on : 20.11.2023

Analysis Completed on : 27.11.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 31 °C

Sample ID. No.

1. ERSIPL/WA/763

Locations

1. Tap water inside NTPC site office

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result
					ERSIPL/ WA/763
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	—	6.5 to 8.5	7.01
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.43
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	142.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.07
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	26.61
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	279.0
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	30.46
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	28.28
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	126.0

- Note-
- The test results relate only to the items sampled and tested.
 - Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 - This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 - Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 - This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ ~~Waste Water~~)

Pg No: 1 of 2

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/WA/T-323

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 07.11.2023
Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.
Sample Collected in presence of : Representative of the Customer.
Sample Received on : 20.11.2023
Analysis Started on : 20.11.2023
Analysis Completed on : 27.11.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 3 ltrs
Type of Container : Glass Bottle, HDPE Bottle
Weather Condition : Sunny
Atmospheric Temperature : 31 °C

Sample ID. No.

1. ERSIPL/WA/763

Locations

1. Tap water inside NTPC site office

TEST FINDINGS:

Sl	Parameters Analyzed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result
					ERSIPL/ WA/763
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND
10	Cadmium	IS 3025:Part 41: 1992 Reaffirmed-2019	mg/L	0.003	ND

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001 : 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND
18	Polynuclear aromatic hydrocarbons	APHA 8440	mg/L	0.0001	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND

ND-Not Detected


(Authorized Signatory)
S.P. Pattanayak
Town Manager

...END OF TEST REPORT...



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000637F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 1

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/WA/324

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 07.11.2023

Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.11.2023

Analysis Started on : 20.11.2023

Analysis Completed on : 27.11.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 31 °C

Sample ID. No.

1. ERSIPL/WA/764
2. ERSIPL/WA/765
3. ERSIPL/WA/766
4. ERSIPL/WA/767

Locations

1. Tube Well, NTPC Dispensary, Villagae Bihajor
2. Open Well in Village Kanktora
3. Tube Well in Village Kalamegha
4. Open well in Village Kathfali

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10300, 2012	Result			
					ERSIPL/WA/764	ERSIPL/WA/765	ERSIPL/WA/766	ERSIPL/WA/767
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	6.5 to 8.5	6.85	5.97	6.98	6.99
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.51	0.54	0.49	0.31
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	138.0	52.0	368.0	38.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.07	0.06	0.07	0.05
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	24.64	15.77	51.25	25.62
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	353.0	99.2	563.0	71.5
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	28.86	12.83	68.14	9.62
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	40.97	2.31	30.82	7.09
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1	<0.1	<0.1	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	30.0	60.0	292.0	38.0

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
 Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ ~~Waste Water~~)

Pg No: 1 of 2

Date: 27 Nov 2023**Test Report No: ERSIPL/TR/WA/T-324**

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 07.11.2023
 Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.
 Sample Collected in presence of : Representative of the Customer.
 Sample Received on : 20.11.2023
 Analysis Started on : 20.11.2023
 Analysis Completed on : 27.11.2023
 Method of Sampling : As per Applicable Test Method
 Quantity of Sample : 3 ltrs
 Type of Container : Glass Bottle, HDPE Bottle
 Weather Condition : Sunny
 Atmospheric Temperature : 31 °C

Sample ID. No.

1. ERSIPL/WA/764
2. ERSIPL/WA/765
3. ERSIPL/WA/766
4. ERSIPL/WA/767

Locations

1. Tube Well, NTPC Dispensary, Villagae Bihajor
2. Open Well in Village Kanktora
3. Tube Well in Village Kalamegha
4. Open well in Village Kathfali

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/764	ERSIPL/WA/765	ERSIPL/WA/766	ERSIPL/WA/767
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0	<5.0	<5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A	A	A	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A	A	A	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0	<5.0	<5.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil	Nil	Nil	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND	ND	ND	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
10	Cadmium	IS 3025:Part 41: 1992 Reaffirmed-2019	mg/L	0.003	ND	ND	ND	ND

**Environmental Research and Services (India) Pvt. Ltd.****(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)**

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND	ND	ND	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND	ND	ND	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND	ND	ND	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND	ND	ND	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND	ND	ND	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND	ND	ND	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND	ND	ND	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND	ND	ND	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND	ND	ND	ND

ND-Not Detected


(Authorized Signatory)
S.P. Pattanayak
Tech. Manager

...END OF TEST REPORT...



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000638F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 1

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/WA/325

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 07.11.2023

Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.11.2023

Analysis Started on : 20.11.2023

Analysis Completed on : 27.11.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 31 °C

Sample ID. No.

1. ERSIPL/WA/768

2. ERSIPL/WA/769

3. ERSIPL/WA/770

4. ERSIPL/WA/771

Locations

1. Open well in Village Khuntjharla

2. Bore well in Village Rengalmunra

3. Open well in Village Bendrichua

4. Bore Well R & R Colony, Kalamegha

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/768	ERSIPL/WA/769	ERSIPL/WA/770	ERSIPL/WA/771
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	6.5 to 8.5	5.81	7.30	6.41	6.79
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.44	0.57	0.35	0.61
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	50.0	282.0	36.0	130.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.06	0.05	0.07	0.07
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	26.61	64.06	22.67	20.70
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	211.4	700.1	74.1	382.9
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	13.63	48.10	8.82	27.25
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	9.48	30.48	6.49	22.31
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1	<0.1	<0.1	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	26.0	338.0	46.0	166.0

Note-

- The test results relate only to the items sampled and tested.
- Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
- This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
- Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
- This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
 Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 2

Date: 27 Nov 2023**Test Report No: ERSIPL/TR/WA/T-325**

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 07.11.2023

Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.11.2023

Analysis Started on : 20.11.2023

Analysis Completed on : 27.11.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 31 °C

Sample ID. No.

1. ERSIPL/WA/768

2. ERSIPL/WA/769

3. ERSIPL/WA/770

4. ERSIPL/WA/771

Locations

1. Open well in Village Khuntjharia

2. Bore well in Village Rengalmunra

3. Open well in Village Bendrichua

4. Bore Well R & R Colony, Kalamegha

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/768	ERSIPL/WA/769	ERSIPL/WA/770	ERSIPL/WA/771
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0	<5.0	<5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A	A	A	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A	A	A	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0	<5.0	<5.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil	Nil	Nil	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND	ND	ND	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
10	Cadmium	IS 3025:Part 41: 1992 Reaffirmed-2019	mg/L	0.003	ND	ND	ND	ND

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND	ND	ND	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND	ND	ND	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND	ND	ND	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND	ND	ND	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND	ND	ND	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND	ND	ND	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND	ND	ND	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND	ND	ND	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND	ND	ND	ND

ND-Not Detected

(Authorized Signatory)

S.P.Pattanayak
Tech. Manager

...END OF TEST REPORT...



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000738F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 1

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/WA/374

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 13.12.2023

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.12.2023

Analysis Started on : 20.12.2023

Analysis Completed on : 29.12.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Scattered Clouds

Atmospheric Temperature : 23 °C

Sample ID. No.

1. ERSIPL/WA/900

Locations

1. Tap water inside NTPC site office

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result
					ERSIPL/ WA/900
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	—	6.5 to 8.5	7.03
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.45
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	138.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.08
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	27.59
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	276.0
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	29.66
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	25.90
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	130.0

- Note-
- The test results relate only to the items sampled and tested.
 - Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 - This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 - Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 - This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ ~~Waste Water~~)

Pg No: 1 of 2

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/WA/T-374

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 13.12.2023

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.12.2023

Analysis Started on : 20.12.2023

Analysis Completed on : 29.12.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Scattered Clouds

Atmospheric Temperature : 23 °C

Sample ID. No.

1. ERSIPL/WA/900

Locations

1. Tap water inside NTPC site office

TEST FINDINGS:

Sl	Parameters Analyzed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result
					ERSIPL/ WA/900
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0
02	Odour	IS 3025:Part 05:2018	—	Agreeable (A)	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	—	Agreeable (A)	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND
10	Cadmium	IS 3025:Part 41: 1992 Reaffirmed-2019	mg/L	0.003	ND



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND

ND-Not Detected

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S P Pattanaya,
Tech. Manager

.....END OF TEST REPORT



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000739F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 1

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/WA/375

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 13.12.2023

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.12.2023

Analysis Started on : 20.12.2023

Analysis Completed on : 29.12.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Scattered Clouds

Atmospheric Temperature : 23 °C

Sample ID. No.

1. ERSIPL/WA/901
2. ERSIPL/WA/902
3. ERSIPL/WA/903
4. ERSIPL/WA/904

Locations

1. Tube Well, NTPC Dispensary, Villagae Bihajor
2. Open Well in Village Kanktora
3. Tube Well in Village Kalamegha
4. Open well in Village Kathfall

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/901	ERSIPL/WA/902	ERSIPL/WA/903	ERSIPL/WA/904
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	—	6.5 to 8.5	6.87	5.95	6.95	6.98
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.49	0.31	0.54	0.31
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	136.0	50.0	366.0	34.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.07	0.08	0.07	0.07
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	25.62	14.78	52.23	22.67
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	355.0	95.2	561.0	73.6
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	28.86	12.02	68.14	8.02
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	37.99	3.21	32.31	7.39
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1	<0.1	<0.1	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	34.0	62.0	292.0	42.0

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 2

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/WA/T-375

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 13.12.2023

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.12.2023

Analysis Started on : 20.12.2023

Analysis Completed on : 29.12.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Scattered Clouds

Atmospheric Temperature : 23 °C

Sample ID. No.

1. ERSIPL/WA/901
2. ERSIPL/WA/902
3. ERSIPL/WA/903
4. ERSIPL/WA/904

Locations

1. Tube Well, NTPC Dispensary, Villagae Bihajor
2. Open Well in Village Kanktora
3. Tube Well in Village Kalamegha
4. Open well in Village Kathfali

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/901	ERSIPL/WA/902	ERSIPL/WA/903	ERSIPL/WA/904
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0	<5.0	<5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A	A	A	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A	A	A	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0	<5.0	<5.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil	Nil	Nil	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND	ND	ND	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001 : 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND	ND	ND	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND	ND	ND	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND	ND	ND	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND	ND	ND	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND	ND	ND	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND	ND	ND	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND	ND	ND	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND	ND	ND	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND	ND	ND	ND

ND-Not Detected

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P. Pattanayak
Tech. Manager

.....END OF TEST REPORT



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000740F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 1

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/WA/376

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 13.12.2023

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.12.2023

Analysis Started on : 20.12.2023

Analysis Completed on : 29.12.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Scattered Clouds

Atmospheric Temperature : 23 °C

Sample ID. No.

1. ERSIPL/WA/905
2. ERSIPL/WA/906
3. ERSIPL/WA/907
4. ERSIPL/WA/908

Locations

1. Open well in Village Khuntjharia
2. Bore well in Village Rengalmunra
3. Open well in Village Bendrichua
4. Bore Well R & R Colony, Kalamegha

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/905	ERSIPL/WA/906	ERSIPL/WA/907	ERSIPL/WA/908
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	6.5 to 8.5	5.86	7.33	6.42	6.85
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.41	0.48	0.31	0.56
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	46.0	268.0	34.0	132.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.08	0.07	0.07	0.08
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	24.64	65.04	22.67	21.68
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	208.4	694.2	73.6	378.9
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	12.83	48.90	8.02	28.86
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	10.52	36.79	739	23.36
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1	<0.1	<0.1	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	30.0	330.0	42.0	164.0

- Note:-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ ~~Waste Water~~)

Pg No: 1 of 2

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/WA/T-376

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 13.12.2023

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.12.2023

Analysis Started on : 20.12.2023

Analysis Completed on : 29.12.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Scattered Clouds

Atmospheric Temperature : 23 °C

Sample ID. No.

1. ERSIPL/WA/905
2. ERSIPL/WA/906
3. ERSIPL/WA/907
4. ERSIPL/WA/908

Locations

1. Open well in Village Khuntjharia
2. Bore well in Village Rengalmunra
3. Open well in Village Bendrichua
4. Bore Well R & R Colony, Kalamegha

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/905	ERSIPL/WA/906	ERSIPL/WA/907	ERSIPL/WA/908
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0	<5.0	<5.0	<5.0
02	Odour	IS 3025:Part 05:2018	—	Agreeable (A)	A	A	A	A
03	Taste	IS 3025:Part 07:08: 1984 Reaffirmed-2017	—	Agreeable (A)	A	A	A	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0	<5.0	<5.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil	Nil	Nil	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND	ND	ND	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
10	Cadmium	IS 3025:Part 41: 1992	mg/L	0.003	ND	ND	ND	ND



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001 : 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbs@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND	ND	ND	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND	ND	ND	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND	ND	ND	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND	ND	ND	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND	ND	ND	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND	ND	ND	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND	ND	ND	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND	ND	ND	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND	ND	ND	ND

ND-Not Detected

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S. P. Pattanayak
Tech. Manager

.....END OF TEST REPORT



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000051F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 1

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/WA/23

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.01.2024

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 15.01.2024

Analysis Started on : 15.01.2024

Analysis Completed on : 25.01.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 26 °C

Sample ID, No.

1. ERSIPL/WA/022

Locations

1. Tap water inside NTPC site office

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result
					ERSIPL/ WA/022
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	6.5 to 8.5	6.98
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.39
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	136.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.06
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	26.61
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	277.5
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	30.46
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	26.19
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	136.0

Note-

- The test results relate only to the items sampled and tested.
- Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
- This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
- Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
- This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ ~~Waste~~Water)

Pg No: 1 of 2

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/WA/T-23

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.01.2024

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 15.01.2024

Analysis Started on : 15.01.2024

Analysis Completed on : 25.01.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 26 °C

Sample ID. No.

1. ERSIPL/WA/022

Locations

1. Tap water inside NTPC site office

TEST FINDINGS:

Sl	Parameters Analyzed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result
					ERSIPL/ WA/022
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND
10	Cadmium	IS 3025:Part 41: 1992 Reaffirmed-2019	mg/L	0.003	ND



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND

ND-Not Detected

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P. Pattanayak
Tech. Manager

.....END OF TEST REPORT



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000052F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 1

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/WA/24

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.01.2024
Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.
Sample Collected in presence of : Representative of the Customer.
Sample Received on : 15.01.2024
Analysis Started on : 15.01.2024
Analysis Completed on : 25.01.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 3 ltrs
Type of Container : Glass Bottle, HDPE Bottle
Weather Condition : Sunny
Atmospheric Temperature : 26 °C

Sample ID, No.

1. ERSIPL/WA/023
2. ERSIPL/WA/024
3. ERSIPL/WA/025
4. ERSIPL/WA/026

Locations

1. Tube Well, NTPC Dispensary, Villagae Bihajor
2. Open Well in Village Kanktora
3. Tube Well in Village Kalamegha
4. Open well in Village Kathfali

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:30500, 2012	Result			
					ERSIPL/WA/023	ERSIPL/WA/024	ERSIPL/WA/025	ERSIPL/WA/026
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	6.5 to 8.5	6.91	5.87	6.96	6.95
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.44	0.34	0.51	0.41
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	142.0	54.0	368.0	40.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.07	0.06	0.05	0.05
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	27.59	15.77	54.20	22.67
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	358.4	98.4	566.0	72.2
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	31.26	12.83	70.54	9.62
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	38.88	3.81	31.87	7.69
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1	<0.1	<0.1	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	38.0	64.0	288.0	42.0

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ ~~Waste Water~~)

Pg No: 1 of 2

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/WA/T-24

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.01.2024

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 15.01.2024

Analysis Started on : 15.01.2024

Analysis Completed on : 25.01.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 26 °C

Sample ID. No.

1. ERSIPL/WA/023
2. ERSIPL/WA/024
3. ERSIPL/WA/025
4. ERSIPL/WA/026

Locations

1. Tube Well, NTPC Dispensary, Villagae Bihajor
2. Open Well in Village Kanktora
3. Tube Well in Village Kalamegha
4. Open well in Village Kathfali

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/023	ERSIPL/WA/024	ERSIPL/WA/025	ERSIPL/WA/026
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0	<5.0	<5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A	A	A	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A	A	A	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0	<5.0	<5.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil	Nil	Nil	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND	ND	ND	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
10	Cadmium	IS 3025:Part 41: 1992 Reaffirmed-2019	mg/L	0.003	ND	ND	ND	ND



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001 : 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND	ND	ND	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND	ND	ND	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND	ND	ND	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND	ND	ND	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND	ND	ND	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	—	ND	ND	ND	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND	ND	ND	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND	ND	ND	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND	ND	ND	ND

ND-Not Detected

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P.Pattanayak
Tech. Manager

.....END OF TEST REPORT



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000053F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 1

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/WA/25

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.01.2024

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 15.01.2024

Analysis Started on : 15.01.2024

Analysis Completed on : 25.01.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs.

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 26 °C

Sample ID. No.

1. ERSIPL/WA/027
2. ERSIPL/WA/028
3. ERSIPL/WA/029
4. ERSIPL/WA/030

Locations

1. Open well in Village Khuntjharia
2. Bore well in Village Rengalmunra
3. Open well in Village Bendrichua
4. Bore Well R & R Colony, Kalamegha

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/027	ERSIPL/WA/028	ERSIPL/WA/029	ERSIPL/WA/030
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	---	6.5 to 8.5	5.83	7.21	6.41	6.81
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.42	0.48	0.33	0.51
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	50.0	270.0	38.0	136.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.06	0.07	0.06	0.08
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	21.68	67.01	21.68	19.71
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	211.1	699.8	78.5	379.1
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	12.83	50.50	8.82	29.66
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	11.12	35.30	6.94	21.87
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1	<0.1	<0.1	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	32.0	322.0	46.0	166.0

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 2

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/WA/T-25

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.01.2024

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 15.01.2024

Analysis Started on : 15.01.2024

Analysis Completed on : 25.01.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 26 °C

Sample ID. No.

1. ERSIPL/WA/027
2. ERSIPL/WA/028
3. ERSIPL/WA/029
4. ERSIPL/WA/030

Locations

1. Open well in Village Khuntjaria
2. Bore well in Village Rengaimunra
3. Open well in Village Bendrichua
4. Bore Well R & R Colony, Kalamegha

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/027	ERSIPL/WA/028	ERSIPL/WA/029	ERSIPL/WA/030
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0	<5.0	<5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A	A	A	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A	A	A	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0	<5.0	<5.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil	Nil	Nil	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND	ND	ND	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
10	Cadmium	IS 3025:Part 41: 1992 Reaffirmed-2019	mg/L	0.003	ND	ND	ND	ND



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND	ND	ND	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND	ND	ND	ND
16	Anionic detergents	IS 13428:2005 Reaffirmed-2019	mg/L	0.2	ND	ND	ND	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND	ND	ND	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND	ND	ND	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND	ND	ND	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND	ND	ND	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND	ND	ND	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND	ND	ND	ND

ND-Not Detected

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

.....END OF TEST REPORT

(Authorized Signatory)

S.P.Pattanayak
Tech. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000108F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 1

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/WA/53

Name and Address of the Customer

: Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling

: 12.02.2024

Sample Collected by

: T S Mohanta, Dy QM, ERS(I) Pvt. Ltd.

Sample Collected in presence of

: Representative of the Customer.

Sample Received on

: 18.02.2024

Analysis Started on

: 18.02.2024

Analysis Completed on

: 28.02.2024

Method of Sampling

: As per Applicable Test Method

Quantity of Sample

: 3 ltrs

Type of Container

: Glass Bottle, HDPE Bottle

Weather Condition

: Scattered Clouds

Atmospheric Temperature

: 24 °C

Sample ID. No.

1. ERSIPL/WA/130

Locations

1. Tap water inside NTPC site office

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result
					ERSIPL/ WA/130
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	~	6.5 to 8.5	7.01
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.36
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	126.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.07
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	25.62
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	255.1
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	28.06
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	28.06
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	128.0

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P. Pattanayak



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 2

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/WA/T-53

Name and Address of the Customer

: Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling

: 12.02.2024

Sample Collected by

: T S Mohanta, Dy QM, ERS(I) Pvt. Ltd.

Sample Collected in presence of

: Representative of the Customer.

Sample Received on

: 18.02.2024

Analysis Started on

: 18.02.2024

Analysis Completed on

: 28.02.2024

Method of Sampling

: As per Applicable Test Method

Quantity of Sample

: 3 ltrs

Type of Container

: Glass Bottle, HDPE Bottle

Weather Condition

: Scattered Clouds

Atmospheric Temperature

: 24 °C

Sample ID. No.

1. ERSIPL/WA/130

Locations

1. Tap water inside NTPC site office

TEST FINDINGS:

Sl	Parameters Analyzed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result
					ERSIPL/ WA/130
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND
10	Cadmium	IS 3025:Part 41: 1992 Reaffirmed-2019	mg/L	0.003	ND



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND
18	Polynuclear aromatic hydrocarbons	APHA 8440	mg/L	0.0001	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND

ND-Not Detected

Note:-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak
Toun. Manager

.....END OF TEST REPORT.....



Environmental Research and Services (India) Pvt. Ltd.

[An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory]

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com



TC-7440

ULR-TC744024000000109F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 1

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/WA/54

Name and Address of the Customer

: Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling

: 12.02.2024

Sample Collected by

: T S Mohanta, Dy QM, ERS(I) Pvt. Ltd.

Sample Collected in presence of

: Representative of the Customer.

Sample Received on

: 18.02.2024

Analysis Started on

: 18.02.2024

Analysis Completed on

: 28.02.2024

Method of Sampling

: As per Applicable Test Method

Quantity of Sample

: 3 ltrs

Type of Container

: Glass Bottle, HDPE Bottle

Weather Condition

: Scattered Clouds

Atmospheric Temperature

: 24 °C

Sample ID. No.

1. ERSIPL/WA/131
2. ERSIPL/WA/132
3. ERSIPL/WA/133
4. ERSIPL/WA/134

Locations

1. Tube Well, NTPC Dispensary, Villagae Bihajor
2. Open Well in Village Kanktora
3. Tube Well in Village Kalamegha
4. Open well in Village Kathfali

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/131	ERSIPL/WA/132	ERSIPL/WA/133	ERSIPL/WA/134
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	—	6.5 to 8.5	6.95	6.57	6.91	7.01
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.34	0.25	0.41	0.28
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	130.0	42.0	346.0	30.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.06	0.07	0.06	0.08
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	24.64	13.80	51.25	20.70
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	334.1	88.4	546.0	70.2
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	24.85	8.82	60.12	6.41
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	32.91	3.21	28.28	6.19
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1	<0.1	<0.1	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	32.0	52.0	276.0	38.0

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S P Pattanayak



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 2

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/WA/T-54

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.02.2024

Sample Collected by : T S Mohanta, Dy QM, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 18.02.2024

Analysis Started on : 18.02.2024

Analysis Completed on : 28.02.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Scattered Clouds

Atmospheric Temperature : 24 °C

Sample ID. No.

1. ERSIPL/WA/131
2. ERSIPL/WA/132
3. ERSIPL/WA/133
4. ERSIPL/WA/134

Locations

1. Tube Well, NTPC Dispensary, Villagae Bihajor
2. Open Well in Village Kanktora
3. Tube Well in Village Kalamegha
4. Open well in Village Kathfali

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/131	ERSIPL/WA/132	ERSIPL/WA/133	ERSIPL/WA/134
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0	<5.0	<5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A	A	A	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A	A	A	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0	<5.0	<5.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil	Nil	Nil	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND	ND	ND	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND	ND	ND	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND	ND	ND	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND	ND	ND	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND	ND	ND	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND	ND	ND	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND	ND	ND	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND	ND	ND	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND	ND	ND	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND	ND	ND	ND

ND-Not Detected

Note:-

1. The test results relate only to the items sampled and tested.
2. Total liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak
Toun. Manager

.....END OF TEST REPORT.....



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000110F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 1

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/WA/55

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.02.2024

Sample Collected by : T S Mohanta, Dy QM, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 18.02.2024

Analysis Started on : 18.02.2024

Analysis Completed on : 28.02.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Scattered Clouds

Atmospheric Temperature : 24 °C

Sample ID. No.

1. ERSIPL/WA/135
2. ERSIPL/WA/136
3. ERSIPL/WA/137
4. ERSIPL/WA/138

Locations

1. Open well in Village Khuntjharia
2. Bore well in Village Rengalmunra
3. Open well in Village Bendrichua
4. Bore Well R & R Colony, Kalamegha

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/135	ERSIPL/WA/136	ERSIPL/WA/137	ERSIPL/WA/138
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	—	6.5 to 8.5	6.02	7.11	6.51	6.87
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.25	0.38	0.23	0.45
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	40.0	260.0	32.0	130.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.06	0.07	0.05	0.08
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	19.71	63.07	19.71	17.74
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	201.1	679.8	71.5	365.1
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	8.82	48.10	7.21	26.45
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	8.17	30.82	6.49	18.88
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1	<0.1	<0.1	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	34.0	316.0	42.0	156.0

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ ~~Waste Water~~)

Pg No: 1 of 2

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/WA/T-55

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.02.2024

Sample Collected by : T S Mohanta, Dy QM, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 18.02.2024

Analysis Started on : 18.02.2024

Analysis Completed on : 28.02.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs.

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Scattered Clouds

Atmospheric Temperature : 24 °C

Sample ID. No.

1. ERSIPL/WA/135
2. ERSIPL/WA/136
3. ERSIPL/WA/137
4. ERSIPL/WA/138

Locations

1. Open well in Village Khuntjaria
2. Bore well in Village Rengalmunra
3. Open well in Village Bendrichua
4. Bore Well R & R Colony, Kalamegha

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/135	ERSIPL/WA/136	ERSIPL/WA/137	ERSIPL/WA/138
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0	<5.0	<5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A	A	A	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A	A	A	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0	<5.0	<5.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil	Nil	Nil	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND	ND	ND	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
10	Cadmium	IS 3025:Part 41: 1992 Reaffirmed-2019	mg/L	0.003	ND	ND	ND	ND



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND	ND	ND	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND	ND	ND	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND	ND	ND	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND	ND	ND	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND	ND	ND	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND	ND	ND	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND	ND	ND	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND	ND	ND	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND	ND	ND	ND

ND-Not Detected

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P.Pattanayak
Team Manager

.....END OF TEST REPORT



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

TC-7440

ULR-TC744024000000183F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 1

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/WA/88

Name and Address of the Customer

: Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling

: 11.03.2024

Sample Collected by

: R K Jena, Field Supervisor ERS(I) Pvt. Ltd.

Sample Collected in presence of

: Representative of the Customer.

Sample Received on

: 18.03.2024

Analysis Started on

: 18.03.2024

Analysis Completed on

: 28.03.2024

Method of Sampling

: As per Applicable Test Method

Quantity of Sample

: 3 ltrs

Type of Container

: Glass Bottle, HDPE Bottle

Weather Condition

: Sunny

Atmospheric Temperature

: 34 °C

Sample ID. No.

1. ERSIPL/WA/178

Locations

1. Tap water inside NTPC site office

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result
					ERSIPL/ WA/178
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	—	6.5 to 8.5	7.06
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.32
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	124.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.08
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	24.64
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	251.6
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	27.25
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	22.31
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	126.0

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 2

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/WA/T-88

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 11.03.2024

Sample Collected by : R K Jena, Field Supervisor ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 18.03.2024

Analysis Started on : 18.03.2024

Analysis Completed on : 28.03.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 34 °C

Sample ID. No.

1. ERSIPL/WA/178

Locations

1. Tap water inside NTPC site office

TEST FINDINGS:

Sl	Parameters Analyzed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result
					ERSIPL/ WA/178
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND
10	Cadmium	IS 3025:Part 41: 1992 Reaffirmed-2019	mg/L	0.003	ND



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND

ND-Not Detected

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P. Pattanayak
Tech. Manager

.....END OF TEST REPORT



Environmental Research and Services (India) Pvt. Ltd.

[An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory]



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000184F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste Water)

Pg No: 1 of 1

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/WA/89

Name and Address of the Customer

: Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling

: 11.03.2024

Sample Collected by

: R K Jena, Field Supervisor ERS(I) Pvt. Ltd.

Sample Collected in presence of

: Representative of the Customer.

Sample Received on

: 18.03.2024

Analysis Started on

: 18.03.2024

Analysis Completed on

: 28.03.2024

Method of Sampling

: As per Applicable Test Method

Quantity of Sample

: 3 ltrs

Type of Container

: Glass Bottle, HDPE Bottle

Weather Condition

: Sunny

Atmospheric Temperature

: 34 °C

Sample ID. No.

1. ERSIPL/WA/179
2. ERSIPL/WA/180
3. ERSIPL/WA/181
4. ERSIPL/WA/182

Locations

1. Tube Well, NTPC Dispensary, Villagae Bihajor
2. Open Well in Village Kanktora
3. Tube Well in Village Kalamegha
4. Open well in Village Kathfali

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/179	ERSIPL/WA/180	ERSIPL/WA/181	ERSIPL/WA/182
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	—	6.5 to 8.5	6.63	6.61	6.89	7.03
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.31	0.29	0.44	0.32
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	132.0	44.0	344.0	32.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.06	0.07	0.07	0.08
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	25.62	14.78	50.26	21.68
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	329.8	91.6	542.9	68.5
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	25.65	9.62	59.32	7.21
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	31.87	3.51	26.79	6.79
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1	<0.1	<0.1	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	34.0	60.0	274.0	40.0

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 2

Date: 30 Mar 2024
Test Report No: ERSIPL/TR/WA/T-89
Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.
Date of Sampling : 11.03.2024
Sample Collected by : R K Jena, Field Supervisor ERS(I) Pvt. Ltd.
Sample Collected in presence of : Representative of the Customer.
Sample Received on : 18.03.2024
Analysis Started on : 18.03.2024
Analysis Completed on : 28.03.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 3 ltrs
Type of Container : Glass Bottle, HDPE Bottle
Weather Condition : Sunny
Atmospheric Temperature : 34 °C

Sample ID. No.

1. ERSIPL/WA/179
2. ERSIPL/WA/180
3. ERSIPL/WA/181
4. ERSIPL/WA/182

Locations

1. Tube Well, NTPC Dispensary, Villagae Bihajor
2. Open Well in Village Kanktora
3. Tube Well in Village Kalamegha
4. Open well in Village Kathfali

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/179	ERSIPL/WA/180	ERSIPL/WA/181	ERSIPL/WA/182
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0	<5.0	<5.0	<5.0
02	Odour	IS 3025:Part 05:2018	—	Agreeable (A)	A	A	A	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	—	Agreeable (A)	A	A	A	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0	<5.0	<5.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil	Nil	Nil	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND	ND	ND	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND	ND	ND	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND	ND	ND	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND	ND	ND	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND	ND	ND	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND	ND	ND	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND	ND	ND	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND	ND	ND	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND	ND	ND	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND	ND	ND	ND

ND-Not Detected

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P.Pattanayak
Tech. Manager

.....END OF TEST REPORT



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

TC-7440

ULR-TC744024000000185F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ ~~Waste Water~~)

Pg No: 1 of 1

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/WA/90

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 11.03.2024

Sample Collected by : R K Jena, Field Supervisor ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 18.03.2024

Analysis Started on : 18.03.2024

Analysis Completed on : 28.03.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 34 °C

Sample ID. No.

1. ERSIPL/WA/183
2. ERSIPL/WA/184
3. ERSIPL/WA/185
4. ERSIPL/WA/186

Locations

1. Open well in Village Khuntjharua
2. Bore well in Village Rengalmunra
3. Open well in Village Bendrichua
4. Bore Well R & R Colony, Kalamegha

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/183	ERSIPL/WA/184	ERSIPL/WA/185	ERSIPL/WA/186
01	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	-	6.5 to 8.5	6.09	7.17	6.59	6.84
02	Turbidity	IS 3025:Part 10: 2023	NTU	1.0	0.27	0.35	0.21	0.41
03	Total Hardness as CaCO ₃	IS 3025:Part 21: 2009 Reaffirmed-2019	mg/L	200.0	42.0	258.0	34.0	128.0
04	Total Iron	IS 3025:Part 53: 2003 Reaffirmed-2019	mg/L	0.3	0.06	0.07	0.07	0.08
05	Chloride	IS 3025:Part 32: 1988 Reaffirmed-2019	mg/L	250.0	20.70	62.09	20.70	16.75
06	Total Dissolved Solids	IS 3025:Part 16: 2023	mg/L	500.0	203.6	676.2	73.7	364.1
07	Calcium as Ca	IS 3025:Part 40: 1991 Reaffirmed-2019	mg/L	75.0	9.62	47.29	8.02	25.65
08	Sulphate as SO ₄	IS 3025 (Part 24/Sec 1) : 2022	mg/L	200.0	8.43	29.78	6.19	19.93
09	Fluoride	IS 3025:Part 60: 2008 Reaffirmed-2019	mg/L	1.0	<0.1	<0.1	<0.1	<0.1
10	Total Alkalinity as CaCO ₃	IS 3025:Part 23: 1986 Reaffirmed-2019	mg/L	200.0	36.0	314.0	44.0	154.0

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (Water/ Waste-Water)

Pg No: 1 of 2

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/WA/T-90

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 11.03.2024

Sample Collected by : R K Jena, Field Supervisor ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 18.03.2024

Analysis Started on : 18.03.2024

Analysis Completed on : 28.03.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 34 °C

Sample ID. No.

1. ERSIPL/WA/183
2. ERSIPL/WA/184
3. ERSIPL/WA/185
4. ERSIPL/WA/186

Locations

1. Open well in Village Khuntjaria
2. Bore well in Village Rengalmunra
3. Open well in Village Bendrichua
4. Bore Well R & R Colony, Kalamegha

TEST FINDINGS:

Sl	Parameters Analysed	Test Method	Unit	Permissible Limit as per IS:10500, 2012	Result			
					ERSIPL/WA/183	ERSIPL/WA/184	ERSIPL/WA/185	ERSIPL/WA/186
01	Colour	IS 3025:Part 04: 1983 Reaffirmed-2021	Hazen	5.0	<5.0	<5.0	<5.0	<5.0
02	Odour	IS 3025:Part 05:2018	--	Agreeable (A)	A	A	A	A
03	Taste	IS 3025:Part 07,08: 1984 Reaffirmed-2017	--	Agreeable (A)	A	A	A	A
04	Nitrate as NO ₃	IS 3025:Part 34: 1983 Reaffirmed-2019	mg/L	45.0	<5.0	<5.0	<5.0	<5.0
05	Residual Free Chlorine	IS 3025:Part 26: 2021	mg/L	0.2 (min)	Nil	Nil	Nil	Nil
06	Copper	IS 3025:Part 42: 1992 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
07	Manganese	IS 3025:Part 59: 2006 Reaffirmed-2022	mg/L	0.1	ND	ND	ND	ND
08	Phenolic Compound	IS 3025:Part 43: 1992 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
09	Mercury	IS 3025:Part 48: 1994 Reaffirmed-2019	mg/L	0.001	ND	ND	ND	ND
10	Cadmium	IS 3025:Part 41: 1992 Reaffirmed-2019	mg/L	0.003	ND	ND	ND	ND



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Pg No: 2 of 2

11	Selenium	IS 3025:Part 56: 2003 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
12	Total Arsenic	IS 3025:Part 37: 2022	mg/L	0.01	ND	ND	ND	ND
13	Cyanide	IS 3025:Part 27: 1986 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
14	Lead	IS 3025:Part 47: 1994 Reaffirmed-2019	mg/L	0.01	ND	ND	ND	ND
15	Zinc	IS 3025:Part 49: 1994 Reaffirmed-2019	mg/L	5.0	ND	ND	ND	ND
16	Anionic detergents	IS 13428 :2005 Reaffirmed-2019	mg/L	0.2	ND	ND	ND	ND
17	Total Chromium	IS 3025:Part 52: 2003 Reaffirmed-2019	mg/L	0.05	ND	ND	ND	ND
18	Polynuclear aromatic hydrocarbons	APHA 6440	mg/L	0.0001	ND	ND	ND	ND
19	Mineral Oil	IS 3025:Part 39: 2021	mg/L	0.5	ND	ND	ND	ND
20	Pesticides	USEPA gas-liquid chromatography	mg/L	---	ND	ND	ND	ND
21	Aluminium	IS 3025:Part 55: 2003 Reaffirmed-2019	mg/L	0.03	ND	ND	ND	ND
22	Boron	IS 3025:Part 57: 2021	mg/L	0.5	ND	ND	ND	ND
23	Nickel	IS 3025:Part 54: 2003 Reaffirmed-2019	mg/L	0.02	ND	ND	ND	ND

ND-Not Detected

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P. Pattanayak
Tech. Manager

.....END OF TEST REPORT

000223



एनटीपीसी लिमिटेड
(भारत सरकार का उद्यम)

NTPC Limited

(A Govt. of India Enterprise)

दुलंगा कोल माइनिंग प्रोजेक्ट
Dulanga Coal Mining Project

Ref.: 0100/DLCMP/FD/ES/02/0814

Date: 25.08.2014

To,

The Director

Ministry of Environment, Forests & Climatic Change, Gov of India

Indira Paryavaran Bhawan,

Jorbagh, Aliganj

New Delhi - 110003

श्री. आर. कृष्णन द्वारा प्राप्त
Received by C.R. Section
पर्यावरण एवं वन विभाग
Ministry of Environment & Forests
भारत सरकार/Govt. of India
के. ए. कॉ. परिसर, लोधी रोड
C.A. C. Complex Lodhi Road
नई दिल्ली/New Delhi-110008

Subject: Compliance of Specific condition Nos. 4A(x) & 4A (ixiii) of environmental clearance accorded for Dulanga Coal Mining project (7MTPA in an area of 785.37ha= (803.71ha-18.34ha=785.37ha); of M/s NTPC Limited, Ib valley coalfields, Dist. Sundargarh, Odisha.

Reference: Letter No.: J/11015/1140/2007-IA.II(M) dated 03.03.2014 issued by MoEF, Gol.

Sir,

With reference to above subject, it is to mention that the Ministry of Environment and Forests, Government of India have accorded Environmental clearance for Dulanga Coal Mining project (7MTPA in an area of 785.37ha= (803.71ha-18.34ha=785.37ha); of M/s NTPC Limited, Ib valley coalfields, Dist. Sundargarh, Odisha vide J/11015/1140/2007-IA.II(M) dated 03.03.2014. In compliance to the subject Specific conditions of Environmental clearance, the compliance details are furnished below and the same is also being furnished in soft in form of CD:

Condition No. 4A (x) - An integrated calendar plan of production including the details re-handling separately in external and internal dumps should be furnished to MOEF for record.

An integrated calendar plan of production including the details re-handling separately in external and internal dumps is furnished as **Annexure-I**.

Condition No. 4A (Ixiii) - A detailed Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & forests within 6 months of grant of Environmental Clearance.

A brief note on detailed final mine closure plan along with details of corpus fund as per the Revised Mining Plan is enclosed as **Annexure-II**.

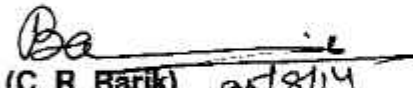
The Revised Mining Plan including **Mine Closure Plan** (1st Revision) (April 2012) of Dulanga Coal Block of IB valley Coalfield, Sundargarh District, Odissa has been approved by MoC, vide letter No 13016/27/2012-CA-I Dated 14th August, 2012.

The copy the approval letter of MoC and the relevant information on the detailed Final Mine Closure Plan along with details of Corpus Fund as per the Revised Mining Plan approved by MoC is enclosed at **Annexure-III**.

This is for your kind information in compliance to above conditions please.

Thanking You.

Yours Faithfully


(C. R. Barik) 25/8/14
Addl. General Manager (I/c)

Enclosure: As above

An integrated calendar plan of production including the details re-handling separately in external and internal dumps

The mining method in the proposed Dulanga coal Mining Project is opencast mining method by shovel-dumper combination for excavation of OB and Surface miner as well as shovel-dumper combination for extraction coal. The extractable coal reserves is 152 Million Tonne. With the rated output of 7MTPA the life of mine computed as 24 years. In addition to this, there will be construction period of two years before commencement of actual production from the mine.

A total quantity of 394.00 Cum of overburden (including 3.65 M.Cu.m of top soil) will be removed from the quarry of the project during the life of 24 years of mining operations. In the initial years the excavated OB will be dumped in the external surface dump and the back filling operations will commence only after sufficient de-coaled areas is available within the quarry. With assessed overall stripping ratio of 2.59 cum/t and annual target of 7 MT, the yearly average overburden removal would be in the order of 18.4 M cum.

The OB generated during 1st & 2nd year will be exclusively disposed in external surface dump located at south eastern side of ML (Block) area, lying outside the allotted coal block boundary. In the 3rd and 4th year, disposal of waste will be partly in surface dump and partly in backfilling. From the start of 5th year and onward full scale backfilling will start. The external OB dump will expand over an area of 86 ha and the dump is designed to accommodate 28.5 Mcum.

About 7% of waste will be disposed on the proposed overburden dump. Remaining 93% of the total waste will be disposed of in the mined out de-coaled area.

The calendar programme of coal production and OB removal is furnished hereunder.

Calendar Programme of coal production and OB removal in Dulanga Coal Block

Year	Coal Progressive (Mt)	Coal Cumulative (Mt)	Total waste (OB) (Mcum) prog.	Total waste (OB) (Mcum) Cumulative	Stripping ratio (cum/t) prog	Stripping ratio (Cum/t)
C1						
C2						
1	1	1	4.5	4.5	4.5	4.5
2	2.5	3.5	10.5	15	4.2	4.29
3	4.5	8	5.5	30.5	3.44	3.81
4	7	15	18	48.5	2.57	3.23
5	7	22	18	66.5	2.57	3.02
6	7	29	18.4	84.9	2.63	2.93
7	7	36	18.4	103.3	2.63	2.87
8	7	43	18.4	121.7	2.63	2.83
9	7	50	18.4	140.1	2.63	2.8
10	7	57	18.4	158.5	2.63	2.78
11	7	64	18.4	176.9	2.63	2.76
12	7	71	18.4	195.3	2.63	2.75
13	7	78	18.4	213.7	2.63	2.74
14	7	85	18.4	232.1	2.63	2.73
15	7	92	18.4	250.5	2.63	2.72
16	7	99	18.4	268.9	2.63	2.72
17	7	106	18.4	287.3	2.63	2.71
18	7	113	18.4	305.7	2.63	2.71
19	7	120	18.4	324.1	2.63	2.7
20	7	127	18.4	342.5	2.63	2.7
21	7	134	18.4	360.9	2.63	2.69
22	7	141	18.4	379.3	2.63	2.69
23	6	147	10	389.3	1.67	2.65
24	5	152	4.7	394	0.94	2.59
Total	152		394			2.59

The dumping schedule is given in **Table below**:

Dumping Schedule (Figure in Mm³)

Year	External Dump		Internal Dump		Total	
	OB	Cumm OB	OB	Cumm OB	OB	Cumm OB
C1						
C2						
1	4.50	4.50	0.00	0.00	4.50	4.50
2	10.50	15.00	0.00	0.00	10.50	15.00
3	9.00	24.00	6.50	6.50	15.50	30.50
4	4.50	28.50	13.50	20.00	18.00	48.50
5	0.00	28.50	18.00	38.00	18.00	66.50
6	0.00	28.50	18.40	56.40	18.40	84.90
7	0.00	28.50	18.40	74.80	18.40	103.30
8	0.00	28.50	18.40	93.20	18.40	121.70
9	0.00	28.50	18.40	111.60	18.40	140.10
10	0.00	28.50	18.40	130.00	18.40	158.50
11	0.00	28.50	18.40	148.40	18.40	176.90
12	0.00	28.50	18.40	166.80	18.40	195.30
13	0.00	28.50	18.40	185.20	18.40	213.70
14	0.00	28.50	18.40	203.60	18.40	232.10
15	0.00	28.50	18.40	222.00	18.40	250.50
16	0.00	28.50	18.40	240.40	18.40	268.90
17	0.00	28.50	18.40	258.80	18.40	287.30
18	0.00	28.50	18.40	277.20	18.40	305.70
19	0.00	28.50	18.40	295.60	18.40	324.10
20	0.00	28.50	18.40	314.00	18.40	342.50
21	0.00	28.50	18.40	332.40	18.40	360.90
22	0.00	28.50	18.40	350.80	18.40	379.30
23	0.00	28.50	10.00	360.80	10.00	389.30
24	0.00	28.50	4.70	365.50	4.70	394.00
TOTAL	28.50		365.50		394.00	

Proper attention will be given to the stability of the external surface dump, backfilled dump and crown dump from failures and leaching out.

Re-handling of dump

In view of recommendations of Expert Appraisal Committee (EAC) and Environmental Clearance (EC) granted by MoEF, the internal dumps (Western & Eastern) will be re-handled for void filling. Due to this re-handling, the depth of void will reduce from 255m to 40-50m and the whole area of 351.23Ha will be reclaimed. The height of east side internal dump reduced matching to surrounding ground level and afforested. The height of west side internal dump reduced upto 30m from surrounding ground level and afforested.

Year-wise re-handling of OB is furnished in table below.

Year	OB Rehandled (Mm3)	
	Progressive	Cumulative
25 th	22.4	22.4
26 th	22.4	44.8
27 th	22.4	67.2
28 th	22.4	89.6
29 th	22.4	112.0
Total	112.0	

Final topography shall confirm to the surrounding ground level except in some areas and final void area.

BRIEF NOTE ON DETAILED FINAL MINE CLOSURE PLAN
ALONG WITH DETAILS OF CORPUS FUND

BACKGROUND

Revised Mining Plan including Mine Closure Plan (1st Revision) (April 2012) of Dulanga Coal Block of IB valley Coalfield, Distt. Sundergarh, Orissa was approved by MoC, vide letter No 13016/27/2012-CA-I Dated 14th August, 2012 (Copy Enclosed at Annexure-I)

As this is a Progressive Mine Closure Plan (PMCP), only tentative cost estimate has been envisaged and estimated as per the guidelines issued by MoC. Detailed Mine Closure Plan shall be prepared 5 years prior to the actual closure of the mining operations.

ANNUAL CLOSURE COST

As mentioned above, the annual closure cost has been calculated as per the guidelines issued by MoC (vide letter no 55011-01-2009-CPAM dated 27/08/2009 & 18.02.2011). As per circulated guidelines of MoC the closure cost for an opencast mine is to be modified based on the Wholesale Price Index (WPI) as notified by Govt. of India.

The WPI for all commodities Issued from Office of Economic Advisor, Ministry of Commerce and Industry, Govt. of India (Base date: 2004-05) was 129.60 in Aug'09 and 148.10 in Feb'11. The closure cost was ₹.6.00 Lakhs per ha in Aug'09. The current closure cost has been arrived by multiplying ₹. 6.00 Lakhs per ha by the ratio of WPI in Feb'11 and WPI in Aug'09 which comes to be ₹. 6.86 Lakhs per ha. The calculation methodology is as follows:

Total lease hold area Considered for mine closure (A)	: 890.63 ha
Mine closure cost per Ha for opencast mine in Aug'09	: ₹. 6.00 Lakhs

Mine closure cost per Ha for opencast mine in Feb'11(B) : ₹ 6.86 Lakhs

Life of the mine (C) : 26 years
(Incl. 2 years of construction period)

Annual base price [(A X B)/C] (for 1st year) : ₹ 2.35 Crores

Total closure cost for opencast mine : ₹ 120.05 Crores

(Compounding @ 5% annual escalation)

The year wise closure cost is tabulated in the following Table as per the approved Revised Mining Plan

YEAR WISE AMOUNT TO BE DEPOSITED IN ESCROW ACCOUNT

YEAR	AV. COST PER ANNUM (₹. CRORES)	YEAR WISE EXPENDITURE WITH 5 % ESCALATION (₹.CRORES)
C1	2.35	2.35
C2	2.35	2.47
P1	2.35	2.59
P2	2.35	2.72
P3	2.35	2.85
P4	2.35	3.00
P5	2.35	3.15
P6	2.35	3.30
P7	2.35	3.47
P8	2.35	3.64
P9	2.35	3.83
P10	2.35	4.02
P11	2.35	4.22
P12	2.35	4.43
P13	2.35	4.65
P14	2.35	4.88
P15	2.35	5.13
P16	2.35	5.38
P17	2.35	5.65
P18	2.35	5.94
P19	2.35	6.23
P20	2.35	6.54
P21	2.35	6.87

YEAR	AV. COST PER ANNUM (₹. CRORES)	YEAR WISE EXPENDITURE WITH 5 % ESCALATION (₹.CRORES)
P22	2.35	7.21
P23	2.35	7.57
P24	2.35	7.95
TOTAL	61.07	120.05

Total Estimated cost for completing the envisaged closure activities comes to **Rs 120.05 Crores**. This Estimated cost will be modified based on WPI as notified from Govt. of India from time to time.

ABANDONMENT COST/CORPUS FUND

Tentative cost of likely closing activities as envisaged below has been estimated considering base date as Feb '2011. Actual closing activities and activity wise costs may change during the preparation of Final Mine Closure Plan which will be prepared 5 years before the likely cessation of mining operation. A time schedule for abandonment along with tentative fund requirement over the life of mine has been shown in the bar chart given below: **(Prepared inline with Table 11.9, Chapter XI of Approved Revised Mining Plan, Enclosed at Annexure-II)**

Tentative Fund Requirement for Closure Activities (Without Escalation)

Sl. No.	Detailed Activities to be undertaken	P-5	P-10	P-15	P-20	P-24	End of Mine Closure
1.0	<u>Mine Area & Waste Management</u>						
1.1	Plantation along the block boundary, embankment, approach road, CHP, Cross country conveyor, Railway siding etc and around the mine infrastructure area						
1.2	Physical reclamation of external dump (Levelling, Spreading of top soil, toe wall formation, drain etc.)						
1.3	Physical reclamation of internal and external dump (Levelling, Spreading of top soil, toe wall formation, drain etc.)						
1.4	Bio reclamation of above items						
1.5	Barbed wire fencing as per requirement						
2.0	<u>Environmental Management (Air, Water, Waste, Noise etc)</u>						
2.1	Treatment of mine water before discharging into nala/river						
2.2	Thorough inspection of external and stabilized internal dumps to find state of its stabilization & Bio reclamation.						

Sl. No.	Detailed Activities to be undertaken	P-5	P-10	P-15	P-20	P-24	End of Mine Closure
2.3	Action to stabilize & vegetate uncovered patches, if any.						
2.4	Inspection of garland drains & bunds around external dumps to prevent leachate water from entering natural water courses directly.						
2.5	Inspection of embankment to prevent entry of uncontrolled water to mine						
2.6	Strengthening of embankment						
2.7	Quarterly sampling of water, air, noise and soil and its mitigation						
2.8	Record keeping, monitoring and reporting						
3.0	Actions for safety & security of local community due to abandonment of the mine or part of the mine						
3.1	Regular inspection of the mined out area, O.B. dumps etc. for assessing the closure job.						
3.2	Action for making safe the drainage areas, fire areas etc.						
3.3	Making 2 meter high pucca wall/stone fencing around the top edge of the mined out area, where immediate void exists at the quarry edge (to avoid drowning).						
3.4	Making 2 meter high pucca wall/stone fencing around the external OB Dump in the north of the block (if required)						
3.5	Survey of the total project area for updating mine plans Under Coal Mine Regulation.						
4.0	Social & Economic Aspects						
4.1	C.S.R activities						
5.0	Execution & Supervision						
5.1	Purchasing / Hiring of equipment for closure activities etc.						
5.2	Execution & Supervision of the activities by mining and other statutory personal .						
6.0	Miscellaneous charges towards activities incidental/related to progressive mine closure including power cost, deployment of security personal, 3 years post closure environmental monitoring, supervision , rehandling of OB, protective & rehabilitation measures including their maintenance & monitoring etc.						
	Total estimated expenditure incurred in Rs Crore	20.00	25.00	30.00	35.00	45.00	61.07

(The amount deposited in the Escrow Account and the amount to be released does not include the interest accrued in the Escrow Account.)

FINANCIAL ASSURANCE

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

- **Opening of a Escrow Account**

The proponent (NTPC) shall open an escrow Account with any Scheduled Bank. The beneficiary of this account shall be Coal Controller Organisation (on behalf of central Government). The proponent shall deposit the amount detailed in **Table No 11.10** ,Chapter XI of the Approved Revised Mining Plan, on yearly basis into this Escrow account.

Estimated cost will be modified based on WPI as notified by Government of India.

- **Condition for operating the Escrow Account**

An agreement, outlining detailed terms and conditions of operating the Escrow account, shall be finalized and executed amongst the project owners, concerned Bank and the Coal Controller. The agreement shall be executed before the grant of permission by the coal controller to open the mine.

- **Release of Funds from Escrow Account**

Mining will be carried out in a phased manner initiating afforestation/ Reclamation work in the mined out area of the first phase while commencing the mining in the second phase i.e. continuation of mining activities from one phase to other indicating the sequence of operations depending on the geo mining condition of the mine. Up to 80% of the total deposited amount including interest accrued in the escrow account will be released after every five years in line with the periodic examination of the closure plan as per Clause 3.1 of the Annexure of the Guidelines (**Mine Closure Guidelines issued by MoC**). The amount released will be equal to the expenditure incurred in the Progressive Mine Closure in past five years or 80% whichever is less. The balance amount at the end of the Final Mine Closure shall be released to mine owner/lease holder on compliance of all provisions of closure plan duly signed by the lessee. It will be certified that said closure of mine complied all statutory rules, regulations, orders made by the Central or State Govt, statutory organisations, court etc and duly certified by the coal controller.

RESPONSIBILITY OF MINE OWNER

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

NTPC shall submit the coal controller a yearly report before 1st July every year setting forth the extent of protective and rehabilitative works carried out as envisaged in the approved mine closure plans. Details of physical progress of the closure activities and expenses incurred will be included in the yearly report.

PROVISION FOR MINE CLOSURE

The mine owner will obtain a mine closure certificate from coal controller to the effect that the protective, reclamation and rehabilitation works have been carried out by the mine owner in accordance with the mine closure plan/final mine closure plan for surrendering the reclaimed land to the State Government concerned.

This is to inform that, Dump management as suggested by EAC was studied in detail considering the geo-mining conditions of the block and it was found that backfilling of the void can be done within five years of post mining operations (exhaustion of coal resources in the present block boundary) by re-handling the Western and Eastern internal dumps as shown in the Final Stage Dump Plan(**Plate No. 48**).

As per the EAC suggestions, NTPC submitted a Revised Final Stage Dump Plan (**Plate No. 53**) with void of area of 159 ha, but the depth of void will be reduced from 255m to 50m from surface by re-handling the internal dumps.

Apart from the above, efforts have been made to rework the post mining topography conforming to the surrounding surface level. Instead of planting trees NTPC may resort to spread the bio reclaimed soil over the internal dumps and convert some portion of land based on the practicability, into agricultural land.

No.13016/27/2012-CA-1
Government of India
Ministry of Coal

New Delhi, the 14th August, 2012

To,

Shri A.K. Dash,
Addl. GM (PE-Mine Planning & Design)
5th Floor, Engineering Officer Complex,
Sector-24
NTPC Limited,
NOIDA- 201 301

Subject: Approval of Revised Mining Plan including Mine Closure Plan (1st Revision) (April 2012) of Dulanga coal block of IB Valley Coalfield, Distt. Sundergarh, Orissa -Reg.

Sir,

I am directed to refer to your letter no. CC:PEM:7015:MP:30 dated 17th October, 2011 submitting therewith Revised Mining Plan including Mine Closure Plan (1st Revision) (April 2012) of Dulanga coal block of IB Valley coalfield, Distt Sundergarh, Orissa and to say that the matter has been considered and the approval of the Central Government thereon is hereby conveyed under Section 5(2)(b) of the Mines & Minerals (Development & Regulation) Act, 1957 subject to the following conditions:-

- (i) The mining company shall take all necessary precautions regarding safety of mine workings, persons deployed therein.
- (ii) Mining Lease to be acquired shall not encroach into any other coal block.
- (iii) The approval of the Mining Plan is without prejudice to the requirement of approvals from competent/prescribed authority under the relevant rules/regulations etc.

2. Two copies of the approved Revised Mining Plan including Mine Closure Plan (1st Revision) duly signed by the competent authority are returned herewith with the request that a copy of the approved Revised Mining Plan including Mine Closure Plan (1st Revision) may be submitted to the concerned State Government for necessary action and also a photocopy of the approved Revised Mining Plan including Mine Closure Plan (1st Revision) may be sent to the Coal Controller for monitoring the block.

Yours faithfully,



(Sandeep Gupta)

Under Secretary to the Govt. of India

Encl: as above

Copy to:

The Under Secretary, CPAM Section, Ministry of Coal for information and record.



Grassing Activities along slope of Non-Active Overburden Dump.

Khapurikacchar OB Dump View



View of Khapurikacchar from OB Dump



OVER HEAD TANK



WATER TREATMENT PLANT



UV PURIFIER IN R&R COLONY

Grassing activities at Top Soil Dump



Before Grassing Activities along the slope.



After Grassing Activities along slope of Top Soil.

Garland Drains & Sedimentation Pond



Garland Drain



Garland Drain connected to settling pond



Settling Pond inside Mines

Dust Suppression Measures



Water Sprinkling on Haul Roads inside Mines



Fixed Type Sprinkling on Haul Roads Near CHP



Interlocked Dust Suppression arrangement in Surface Miner

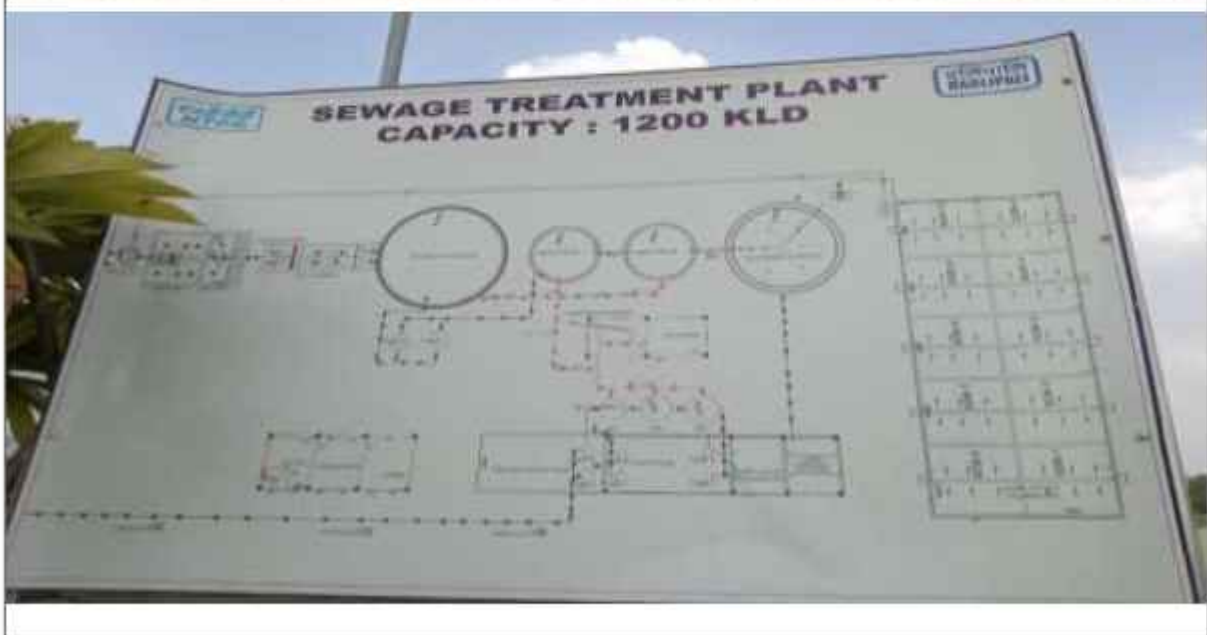


Wet Drilling Arrangement

Silo Loading System with PLC based control system and transportation through Rail Wagon



Sewage Treatment Plant of 1200 KLD at Darlipali Township



OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (WILDLIFE)
& CHIEF WILDLIFE WARDEN, ODISHA, BDA APARTMENT, 5TH FLOOR,
PRAKRUTI BHAWAN, NILAKANTHA NAGAR, BHUBANESWAR

Ph. No.0674-2564587, FAX No.0674-2565062
(Website: odishawildlife.org, E. mail: odishawildlife@gmail.com)

Memo No. **7480**/1 WL(C)SSP-270/2012
Dated, Bhubaneswar, the **30** Sept, 2014

To

The Principal Chief Conservator of Forests, Odisha,
Bhubaneswar

Sub:

Diversion of 304.75 hectares (originally applied 323.09 hectares) of forest land (273.68 hectares within the Dulanga coal block and 31.07 hectares of forest land outside the coal block) including 4.94 hectares of forest land coming within the safety zone area in Dulanga Coal Mining Projects spreads over Revenue villages of Dulanga, Majhapara, Manoharpur, Kathafali, Beldihi, Khuntijhria and Khapurikachhar and Dhanuadihi RF, Giripahad RF and Satparlia RF in IB valley coalfields in favour of M/s National Thermal Power Corporation Ltd. in Sundargarh Forest Division of Sundargarh District, Odisha

This is to inform you that a Site Specific Wildlife Conservation Plan at a financial outlay of ₹686.00 lakh in respect of the above Coal Mining project of M/s NTPC Ltd. has been approved and communicated to you in this office memo No.9597 dt 3.12.2013, in compliance to the Terms of Reference (TOR) No.(xv) prescribed in letter No.J-11015/1140/2007-IA.II(M) dt 17.1.2008 of Ministry of Environment & Forests, Govt. of India while considering the proposal for opening a new opencast coal mine project of 8 MTPA capacity in Ib Valley Coalfields in Sundargarh district, Odisha by M/s NTPC Ltd.

Subsequently, on the above diversion proposal, Govt. of India, MoEF vide their letter F. No.8-23/2013-FC dt 10.1.2014 granted stage-I approval alongwith some conditions to be fulfilled before grant of Stage-II forest clearance. Out of those, condition No. (xv) & (xvi) deal with deployment of watchers alongwith communication equipments to detect wild animals/elephants and warn the loco driver about movement of animals.

In the Site Specific Wildlife Conservation Plan approved for the above project, provisions have been made for engagement of watchers as well as supply of communication equipments to them. However, keeping in view of the observation of Govt. in F&E Deptt. vide their memo No.15413/F&E dt 21.8.2014, additional provisions at a cost of ₹27.29 lakh have been made in the Site Specific Wildlife Conservation Plan. These together with the financial outlay already approved comes to **₹713.29 lakh** (Rupees seven crore thirteen lakh twenty thousand) only for the following activities.

(i) For the Project Area:

(a) Activities to be implemented in project area by M/s NTPC Ltd. in Sundargarh Division as per the SSWLCP already approved	₹236.30 lakh
(b) Cost of engagement of watchers in loco cabin and supply of binoculars and search lights	₹25.13 lakh
Sub -Total:	₹261.43 lakh

P.T.O.

- (ii) For the Project Impact Area:
- | | |
|---|--------------|
| (a) For activities to be implemented by DFO, Sundargarh Divn. in project impact area as per the SSWLCP already approved | ₹449.70 lakh |
| (b) Cost of communication equipments and search lights to be supplied to watchers | ₹2.16 lakh |
| Sub -Total: | ₹451.86 lakh |


Grand Total (i + ii): ₹713.29 lakh

3. Various activities in the lease hold area will be executed by the Project proponent under the guidance of the Divisional Forest Officer, Sundargarh Divn. An additional amount of ₹2.16 lakh (already deposited ₹449.70 lakh) may be deposited in the CAMPA fund meant for the purpose for implementation of various activities within the project impact area by the Forest Deptt. as envisaged in the plan.

4. All other conditions of the approval letter issued vide this office memo No. 9597 dt 3.12.2013 remain unchanged.

5. Addendum to the already approved Site Specific Wildlife Conservation Plan incorporating the provisions of watchers and communication equipments in compliance to condition No. (xv) & (xvi) of stage-I approval order of Govt. of India, MoEF vide their letter F. No.8-23/2013-FC dt 10.1.2014 is approved herewith.

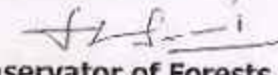
Encl: 2 copies of addenda as above


**Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha**

Memo No. 7481 /date 30-09-2014

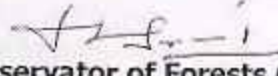
Copy forwarded to the Divisional Forest Officer, Sundargarh Division for information and necessary action in continuation of this office memo No.9598 dt 3.12.2013.

Encl: As above


**Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha**

Memo No. 7482 /date 30-09-2014

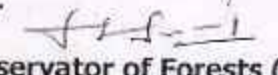
Copy forwarded to the Regional Chief Conservator of Forests, Rourkela Circle for information and necessary action in continuation of this office memo No.9599 dt 3.12.2013.


**Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha**

Memo No. 7483 /date 30-09-2014

Copy forwarded to the Special Secretary to Government of Odisha, F & E Deptt., Bhubaneswar for favour of information and necessary action with reference to Deptt. memo No.10F(cons)84/2014-15413/F&E dt 21.8.2014.

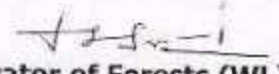
Encl: As above


**Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha**

Memo No. 7484 /date 30-09-2014

Copy forwarded to the Addl. General Manager (I/c), NTPC Ltd., Dulanga Coal Mining Project, Sundargarh for information and necessary action with reference to his letter dated 13.9.2014.

Encl: As above


**Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha**



Transforming Lives

NTPC Limited

Talcher Super Thermal Power Station
P.O. DEEPSHIKHA
759147

Ref: 00100/2013269952/13.03.2014

Date: 13/03/2014

To,
AD-HOC CAMPA ACCOUNT NO SBO 1025203
CORPORATION BANK
GOI, MOEF, PARYAVARAN BHAVAN
CGO COMPLEX LODHI ROAD
NEW DELHI 110003

Dear Sir / Madam,

We are pleased to inform you that the company has arranged to remit the amount as per the following details, directly to your bank CORPORATION BANK, LODHI COMPLEX BRANCH account number SB01025222.

Total Amount Paid	44,970,000.00
-------------------	---------------

Amount (in words): Rupees Four Crore Forty-Nine Lakh Seventy Thousand Only.

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

If the amount is not received in your account kindly contact the person mentioned below giving the above reference number.

Your's Faithfully,

For NTPC Ltd.

Designation

13/03/2014

UTR No. SBIN 71407344 8783

OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (WILDLIFE)
& CHIEF WILDLIFE WARDEN, ODISHA, BDA APARTMENT, 5TH FLOOR,
PRAKRUTI BHAWAN, NILAKANTHA NAGAR, BHUBANESWAR
Ph. No.0674-2564587, FAX No.0674-2565062
(Website: odishawildlife.org, E. mail: odishawildlife@gmail.com)

Memo No. **7480**/1 WL(C)SSP-270/2012
Dated, Bhubaneswar, the **30** Sept, 2014

To

The Principal Chief Conservator of Forests, Odisha,
Bhubaneswar

Sub: *Diversion of 304.75 hectares (originally applied 323.09 hectares) of forest land (273.68 hectares within the Dulanga coal block and 31.07 hectares of forest land outside the coal block) including 4.94 hectares of forest land coming within the safety zone area in Dulanga Coal Mining Projects spreads over Revenue villages of Dulanga, Majhapara, Manoharpur, Kathafali, Beldihi, Khuntijhria and Khapurikachhar and Dhanuadihi RF, Giripahad RF and Satparlia RF in IB valley coalfields in favour of M/s National Thermal Power Corporation Ltd. in Sundargarh Forest Division of Sundargarh District, Odisha*

This is to inform you that a Site Specific Wildlife Conservation Plan at a financial outlay of ₹686.00 lakh in respect of the above Coal Mining project of M/s NTPC Ltd. has been approved and communicated to you in this office memo No.9597 dt 3.12.2013, in compliance to the Terms of Reference (TOR) No.(xv) prescribed in letter No.J-11015/1140/2007-IA.II(M) dt 17.1.2008 of Ministry of Environment & Forests, Govt. of India while considering the proposal for opening a new opencast coal mine project of 8 MTPA capacity in Ib Valley Coalfields in Sundargarh district, Odisha by M/s NTPC Ltd.

Subsequently, on the above diversion proposal, Govt. of India, MoEF vide their letter F. No.8-23/2013-FC dt 10.1.2014 granted stage-I approval alongwith some conditions to be fulfilled before grant of Stage-II forest clearance. Out of those, condition No. (xv) & (xvi) deal with deployment of watchers alongwith communication equipments to detect wild animals/elephants and warn the loco driver about movement of animals.

In the Site Specific Wildlife Conservation Plan approved for the above project, provisions have been made for engagement of watchers as well as supply of communication equipments to them. However, keeping in view of the observation of Govt. in F&E Deptt. vide their memo No.15413/F&E dt 21.8.2014, additional provisions at a cost of ₹27.29 lakh have been made in the Site Specific Wildlife Conservation Plan. These together with the financial outlay already approved comes to **₹713.29 lakh** (Rupees seven crore thirteen lakh twenty thousand) only for the following activities.

(i) For the Project Area:

(a) Activities to be implemented in project area by M/s NTPC Ltd. in Sundargarh Division as per the SSWLCP already approved	₹236.30 lakh
(b) Cost of engagement of watchers in loco cabin and supply of binoculars and search lights	₹25.13 lakh
Sub -Total:	₹261.43 lakh

P.T.O.

- (ii) For the Project Impact Area:
- | | |
|---|--------------|
| (a) For activities to be implemented by DFO, Sundargarh Divn. in project impact area as per the SSWLCP already approved | ₹449.70 lakh |
| (b) Cost of communication equipments and search lights to be supplied to watchers | ₹2.16 lakh |
| Sub -Total: | ₹451.86 lakh |


Grand Total (i + ii): ₹713.29 lakh

3. Various activities in the lease hold area will be executed by the Project proponent under the guidance of the Divisional Forest Officer, Sundargarh Divn. An additional amount of ₹2.16 lakh (already deposited ₹449.70 lakh) may be deposited in the CAMPA fund meant for the purpose for implementation of various activities within the project impact area by the Forest Deptt. as envisaged in the plan.

4. All other conditions of the approval letter issued vide this office memo No. 9597 dt 3.12.2013 remain unchanged.

5. Addendum to the already approved Site Specific Wildlife Conservation Plan incorporating the provisions of watchers and communication equipments in compliance to condition No. (xv) & (xvi) of stage-I approval order of Govt. of India, MoEF vide their letter F. No.8-23/2013-FC dt 10.1.2014 is approved herewith.

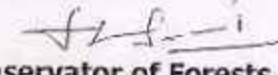
Encl: 2 copies of addenda as above


**Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha**

Memo No. 7481 /date 30-09-2014

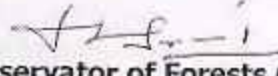
Copy forwarded to the Divisional Forest Officer, Sundargarh Division for information and necessary action in continuation of this office memo No.9598 dt 3.12.2013.

Encl: As above


**Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha**

Memo No. 7482 /date 30-09-2014

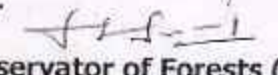
Copy forwarded to the Regional Chief Conservator of Forests, Rourkela Circle for information and necessary action in continuation of this office memo No.9599 dt 3.12.2013.


**Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha**

Memo No. 7483 /date 30-09-2014

Copy forwarded to the Special Secretary to Government of Odisha, F & E Deptt., Bhubaneswar for favour of information and necessary action with reference to Deptt. memo No.10F(cons)84/2014-15413/F&E dt 21.8.2014.

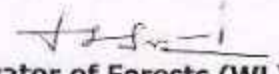
Encl: As above


**Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha**

Memo No. 7484 /date 30-09-2014

Copy forwarded to the Addl. General Manager (I/c), NTPC Ltd., Dulanga Coal Mining Project, Sundargarh for information and necessary action with reference to his letter dated 13.9.2014.

Encl: As above


**Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha**



Transforming lives

NTPC Limited

Talcher Super Thermal Power Station
P.O. DEEPSHIKHA
759147

Ref: 00100/2013269951/13.03.2014

Date: 13/03/2014

To,
AD-HOC CAMPA ACCOUNT NO SBO 1025203
CORPORATION BANK
GOI, MOEF, PARYAVARAN BHAVAN
CGO COMPLEX LODHI ROAD
NEW DELHI 110003

Dear Sir / Madam,

We are pleased to inform you that the company has arranged to remit the amount as per the following details, directly to your bank **CORPORATION BANK, LODHI COMPLEX BRANCH** account number **SB01025222**.

Total Amount Paid	32,784,060.00
-------------------	---------------

Amount (In words): Rupees Three Crore Twenty-Seven Lakh Eighty-Four Thousand Sixty Only.

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

If the amount is not received in your account kindly contact the person mentioned below giving the above reference number.

Your's Faithfully,

For NTPC Ltd.

Designation

13/03/2014
UP No. & Date of amt of RTGS is reqd. to be mentioned.

CN 21164876

UTR No. SBIN 714073453867

MONITORING REPORT

(April 2023 - September 2023)

THIRD PARTY MONITORING AND EVALUATION OF SITE SPECIFIC WILDLIFE CONSERVATION ACTIVITIES IN DULANGA COAL MINING PROJECT OF NTPC LTD, SUNDARGARH



Submitted to
Additional General Manager (Mining)
NTPC Dulanga Coal Mining Project, Sundargarh

Submitted by
Dr N. Bhol (Principal Investigator)
College of Forestry
Odisha University of Agriculture & Technology
Bhubaneswar- 751 003

MONITORING REPORT

(April 2023 - September 2023)

THIRD PARTY MONITORING AND EVALUATION OF SITE SPECIFIC WILDLIFE CONSERVATION ACTIVITIES IN DULANGA COAL MINING PROJECT OF NTPC LTD, SUNDARGARH

Odisha University of Agriculture and Technology, Bhubaneswar has been engaged by the authorities of NTPC Ltd, SSC- Coal Mining (Ranchi) as 3rd Party in February 2022 for monitoring and evaluation of site specific wildlife conservation activities in Dulanga Coal Mining Project of NTPC, Sundargarh. Dr Nirakar Bhol, I/C of Silviculture & Agroforestry Department is the Principal Investigator and Dr Kumaresh Behera, Assistant Professor, Department of Livestock Production & Management, OUAT is the Co-Principal Investigator of the monitoring team.

The monitoring and evaluation works have been carried out by OUAT scientists since March 2022 and two monitoring reports have been submitted earlier. During April 2023- September 2023, a series of communication has been made with persons concerned dealing the assigned activities of Dulanga Coal Mining Project, Khapuriakachhar, Sundargarh over phone and email. Also communication has been made with the Divisional Forest Office, Sundargarh and its field officials regarding this work. The monitoring team has visited the sites and physically verified the progress of works and documents. The team has visited the office of both Dulanga Coal Mining Project and DFO, Sundargarh and discussed with the concerned staff. The following progress of activities has been observed during April 2023 - September 2023.

A. CORE ZONE ACTIVITIES

The Core Zone activities have been undertaken by Dulanga Coal Mining Authority of NTPC itself since 2018-19. The progress of activities done by NTPC till 31.03.2023 has been reported in the last two reports. The activities done during April 2023 - September 2023 are as follows.

1. Plantation development

Maintenance of plantation over 210 ha with differential cost as in EMP over reclaimed area, over burden dump and safety zone has been done. New plantations of species like Karanj, Neem, Siris and Acacia has been taken up. The plantation activists have involved following costs.

Month	Cost incurred (Rs)
April 2023	41365
May 2023	40355
June 2023	38864
July 2023	38864
August 2023	41828
September 2023	39390



Raising of new plantation of Karanj



Maintenance of previous year's plantation

A new plantation programme has been initiated w.e.f 1.9.2023 with a cost of Rs 11,765,53/- This plantation will be developed along railway line and vacant space adjacent to safety zone near Khapurikachhar area of DLMP. The work has been assigned to Industrial Plantation Division, Raigarh, Chhatisgarh (a plantation unit of Chhatisgarh Govt.) The cost includes maintenance of plantation for 50 months also.

The progress of work is satisfactory. It has been advised not to plant *Acacia auriculiformis* further. Rather species like Subabul (*Leucaena leucocephala*) and Kanchan (*Bauhinia variegata*), Horse tamarind/ Bilati kaian (*Inga dulcis*), Jamun (*Syzygium cumini*), Fig (*Ficus glomerata*) or other plants suitable for wildlife should be planted.

2. Engagement of Van Sahayak

Three numbers of Van Sahayak have been engaged which were sanctioned in the project. The following amount has been paid to them during the assessment period.

Month	Cost incurred (Rs)
April 2023	42347.22
May 2023	49711.95
June 2023	189639.48
July 2023	
August 2023	
September 2023	

The progress of this activity is satisfactory.

3. Engagement of Van Pal

One Van Pal has been engaged which is sanctioned in the project to supervise nursery and plantation activities. The following amount has been paid to him during the assessment period.

Month	Cost incurred (Rs)
April 2023	16519.76
May 2023	19392.77
June 2023	73979.75
July 2023	
August 2023	
September 2023	

The progress of this activity is satisfactory.

4. Fire watchers

Five number of fire watchers have been engaged. The following amount has been paid to them during the assessment period.

Month	Cost incurred (Rs)
April 2023	13768
May 2023	13768
June 2023	13768
July 2023	13768
August 2023	14765
September 2023	14294

The progress of this activity is satisfactory.

5. Grass seeding

There is target of grass seeding of 100 ha area in the project area. During this reported period no grass seeding has been done. In 2021-22, an area 2.77 ha has been covered under grass seeding. As explained by the officials, the dumping site of overburdens is currently in active stage for which this work has not been undertaken.

6. Photo Voltaic Fencing

Fencing with normal barbed wire has been done for a length of 12.5 km earlier against the provision of 15 km Photo Voltaic Fencing. As per the requirement of site, the rest fencing may be done.

7. Water harvesting structure

In the current period of reporting no water harvesting structure has been made. Water harvesting structures have already been developed as per EMP.

8. Water pollution abatement

No fresh infrastructure for water pollution abatement has been established during the current reporting period. Previously one Effluent Treatment Plant of 50 KLD and Sewerage Treatment Plant of 500 KLD have been established for water pollution abatement and those are running successfully.

9. Minimization of man-animal conflict during road transportation

No new signboards have been erected during the present period to aware people and minimize man-animal conflict during road transportation. However, earlier some signboards have been displayed in important points for this cause. The officials have been asked to erect some new awareness boards in strategic points to minimize man-animal conflict.

10. Garbage control

Garbage control work is being done in every month. During the assessment period, Rs 1,315,166/- has been spent for this purpose.

11. Weed control

The following amounts have been spent towards weed control.

Month	Cost incurred (Rs)
April 2023	36135
May 2023	37938
June 2023	33381
July 2023	25491
August 2023	32449
September 2023	32579

12. Training and awareness promotion

An awareness promotion activity has been conducted on 5.6.2023 - World Environment Day and an amount of Rs 30539/- has been spent for this.

13. Protection and monitoring vehicle

A vehicle (Bolero) has been provided for protection and monitoring work of site specific wildlife conservation activities. In six months an amount of Rs 380150/- has been spent for this.

14. Raising of Forest Nursery

A forest nursery has been established inside the project area to raise different species of trees for plantation development.



Forest Nursery inside project area of Dulanga Coal Mining Project

Remarks

The overall progress of activities in core zone is satisfactory. The following aspects are to be taken care in future:

1. The assignment of developing of new plantations awarded to Industrial Plantation Division, Raigarh, Chhatisgarh with an outlay of Rs 11,765,537/- should be monitored properly. The agency is to be directed to raise plant species which will be helpful for conservation of wildlife.
2. Grass seeding of overburden areas should be done as early as possible.
3. Some signboards should be erected at strategic points to aware people and minimize man-animal conflict during road transportation.
4. Environment awareness programmes such as celebration of Earth Day- 22nd April, World Environment Day – 5th June, Vanamahotsava – 1st week of July, Wildlife Week – 1st week of October, etc may be conducted among students and staff.

B. BUFFER ZONE ACTIVITIES

Sundargarh Forest Division is the implementing agency for Buffer Zone activities. Dulanga Coal Mining Project authorities have deposited Rs 4,49,70,000.00 on 14.03.2014 to State Forest Department to carry out buffer zone activities. This money has been given to utilize during planned 10 years period for following activities.

1. GIS mapping to monitor forest fragmentation
2. Plantation in degraded forest (ANR) over 150 ha
3. Fire line 15 km layout
4. Fire watching activities
5. Habitat improvement through bamboo plantation over 320 ha/over existing forest land including protection and enhancement of regeneration for 10 years
6. Excavation of water holes with saltlicks
7. Erosion control trenches and check dams on nallas
8. Biodiversity monitoring every alternate year and documentation
9. Elephant tracking activities
10. Solar lighting for 10 villages
11. Corpus fund
12. Cattle immunization
13. Awareness activities
14. Anti-poaching and anti-smuggling measures/ Providing communication equipments and search lights to watchers

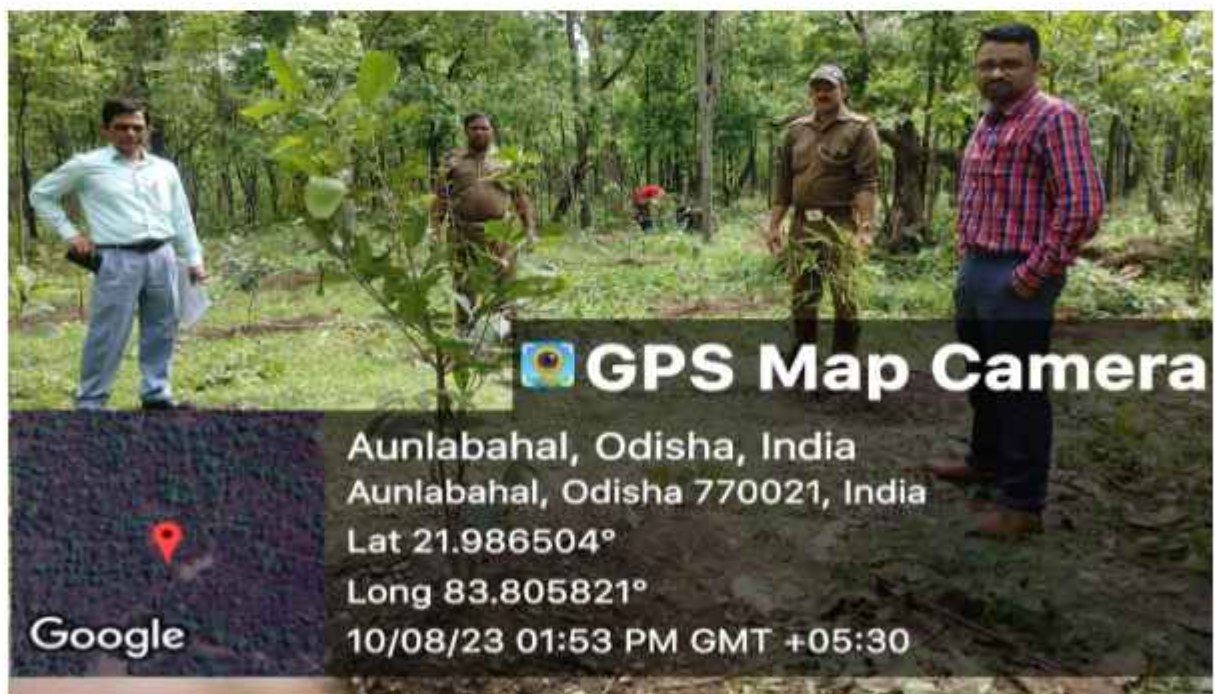
Unfortunately none of the above activities were undertaken by the Sundargarh Forest Division till 31.03.2023. After getting this monitoring assignment, the OUAT team pursued the matter at the office of DFO, Sundargarh and at the office of PCCF (Wildlife), Bhubaneswar. The following progress has occurred in the current assessment period from 1.4.2023 to 30.9.2023.

1. GIS mapping to monitor forest fragmentation

This work has not yet been taken up.

2. Plantation in degraded forest (ANR) over 150 ha

ANR planting over 50ha in Hemgir beat of Hemgir Range and 50ha in Laikera beat of Gopalpur Range has been carried out. The plant species such as jack fruit, arjun, bamboo, jamun, bahada, asana, banyan, peepal, aonla, mango and tamarind have been planted. Hemgir Range has spent Rs 7,30,775/- and Gopalpur Range has also spent Rs 7,30,775/- for such activities by 30.9.2023.



3. **Fire line 15 km layout**
 This work is be done in dry season.
4. **Fire watching activity**
 This work is to be done in dry season.

5. **Habitat improvement through bamboo plantation over 320 ha/over existing forest land**

Hemgir Range has raised 160 ha of bamboo plantation of Salia bamboo during this period in Garjanpahad RF. Out of this, 60 ha in Hemgir Section, 60 ha in Daghora Section and 40 ha in Kanika Section have been raised. A total of Rs 18,22,080/- has been spent for these plantations by 30.9.23. Gopalpur Range has raised 30 ha of bamboo plantation.



6. **Excavation of water holes with saltlicks**

This is to be done in post monsoon period.

7. **Erosion control trenches and check dams on nallas**

These works will be done in post monsoon period.

8. **Biodiversity monitoring every alternate year and documentation**

This work has not yet been done.

9. **Elephant tracking activities**

Two elephant trackers have been engaged by the Hemgir Range and an amount of Rs 50,000/- has been spent towards this.

10. **Solar lighting for 10 villages**

This work has not been done.

11. **Corpus fund**

This work is yet to be done.

12. Cattle immunization status

This activity has not been carried out.

13. Awareness activities

This has not yet been done.

14. Anti-poaching and anti-smuggling measures/ Providing communication equipments and search lights to watchers

This item is yet to be executed.

Remarks

The progress of work in the current assessment period is satisfactory. A significant progress has been made in development of ANR plantations and Bamboo plantations. Two elephant trackers have been also engaged. However, a lot of other activities are yet to be done. The Sundargarh Forest Division has to pay attention for early execution of following activities.

1. GIS mapping to monitor forest fragmentation
2. Fire line 15 km layout
3. Fire watching activities
4. Excavation of water holes with saltlicks
5. Erosion control trenches and check dams on nallas
6. Biodiversity monitoring every alternate year and documentation
7. Solar lighting for 10 villages
8. Corpus fund
9. Cattle immunization
10. Awareness activities
11. Anti-poaching and anti-smuggling measures/ Providing communication equipments and search lights to watchers

The funding agency and monitoring team have to pursue this matter with authorities of Sundargarh Forest Division for early execution of the activities.

Bhubaneswar
Date: 19.02.2024



Dr Nirakar Bhol
Principal Investigator
College of Forestry, OUAT

NTPC Limited				
Dulanga Coal Mining Project				
PART-1 (To be carried out at project affected villages and GPs)				
Sl. No.	Year	Description of Activity/Work (To be carried out in Project affected Villages)	Name of village/Area	Expenditure (In Rs in Lakhs)
1	2023-24	Tubectomy Camp	CHC Sargipali	1.67
2	2023-24	Hemgir Kabbaddi tournament (kisan club)	Hemgir	0.20
3	2023-24	Independence Day celebration	kanaktura, bihajor, masina, kalamegha, r&r colony school	0.40
4	2023-24	Ekadashi Karma festival 2023 at Sanskruti Bhawan, Sundargarh o	Sundargarh	0.90
5	2023-24	NIT, Rourkela	Rourkela	2.50
6	2023-24	procurement of Ladies Bicycle for the children of Eklavya Orphanage, Hemgiri as a CSR Major on the occasion of Coal Mining Day-2023.	Darlipali, Dulanga	0.72
7	2023-24	Installation & commissioning of solar street light at nearby villages	Nearby villages	15.00
8	2023-24	procurement of study material (TBW)	Nearby School	0.67
9	2023-24	Distribution of Solar lantern among poor and needful womans	Nearby villages	0.28
10	2023-24	Distribution of track suit for Eklavya orphanage of Hemgir	Orphanage Hemgir	0.23
11	2023-24	Cloth purchase for Bedsheet, pillow and Cunni	Training centre	1.50
			Total	24.07

REHABILITATION AND RESETTLEMENT PLAN

of

NTPC Limited

DULANGA COAL MINING PROJECT



REHABILITATION AND RESETTLEMENT PLAN

**NTPC LTD, DULANGA COAL MINING PROJECT,
SUNDARGARH, ODISHA**

OFFICE OF THE LAND ACQUISITION OFFICER, HEMGIR

NO 378 Date: 13/09/14

TO

The Addl. General Manager (I/c)
NTPC Dulanga Coal Mining Project
Sundargarh

Sub: Approval of Rehabilitation & Resettlement (R&R) plan of Dulanga Coal Mining Project, NTPC Limited, Sundargarh

Ref: Your letter dated 09.09.2013

Sir,

Please find attached herewith the R&R plan of Dulanga Coal Mining Project of NTPC Limited, Sundargarh duly approved by the competent authority.

This is for your information and necessary action.

Thanking You.

Enclosure: As above.

Yours faithfully,


Land Acquisition Officer, Hemgir
14.9.14

CONTENTS

1. INTRODUCTION	1—2
2. METHODOLOGY	2—2
3. DETAILS OF PROJECT AREA & DISPLACEMENT	3—4
4. PERCEIVED IMPACTS ON ENVIRONMENT DUE TO EXECUTION OF PROJECT	4—4
5. DETAILS OF PROJECT AFFECTED PERSONS OF THE DULANGA COAL MINING PROJECT	4—5
6. GUIDING PRINCIPLES OF RESETTLEMENT & REHABILITATION PLAN	5—6
7. DETAILS OF LAND TO BE ACQUIRED	6—7
8. COMPENSATION FOR ASSETS	7—7
9. COMPENSATION FOR TREES	7—7
10. COMPENSATION FOR HOUSES	7—8
11. COMPENSATION FOR OTHER IMMOVABLE ASSETS ATTACHED TO LAND	8—8
12. RESETTLEMENT & REHABILITATION	8—17
13. PLANNING & IMPLEMENTATION OF R&R PLAN	17—18
14. INITIAL COMMUNITY DEVELOPMENT & CSR ACTIVITIES	18—20
15. TOTAL PROPOSED FINANCIAL OUTLAY FOR R&R PLAN	20—20

1. Introduction

NTPC Limited is the largest Indian State owned electric utilities company which was set up in 1975 to accelerate power development in India. It is emerging as an integrated power major with presence across the entire energy value chain. With a current generating capacity of more than 40 GW, NTPC has embarked on plans to become a 75 GW company by 2017. NTPC Ltd has been allotted a total of Six(06) Coal Mining Blocks across three States, of which Dulanga Coal Mining Block is located in the state of Odisha. The excavated coal from the mine via railway corridor, would be used for Power generation in the Darlipalli Super Thermal Power Plant which is also located in the Sundargarh district.

While land for coal mining area for the block, shall be acquired under CBA Act-1957, the Land for OB Dump and Mine infrastructure including R&R Colony, CHP corridor, CISF colony etc shall be acquired under LA Act. It is estimated that a total of 2044.10 acres of land would be utilised for the project, which would encompass lands of 8 villages namely, Dulanga, Majhapada, Beldih, Khuntiharia, Kathali, Manoharpur, Khapurkachar and Kalamegha, spanning 3 Gram Panchayats of Sanghumda, Kanakura and Durubaga.

Due to the project, several families would be affected/ relocated and there would be loss of lands coupled with loss of livelihoods. A Socio Economic Survey was conducted by Xavier Institute of Management, Bhubaneswar, in line with the Orissa R&R Policy, in the project affected villages. As per findings obtained from the survey report, about 509 families would be displaced and about 438 families would be affected by the project.

With a view to striking a balance between the company's business initiatives and the development needs of the project affected masses, the project seeks to follow the R&R package approved by Honourable Collector and District Magistrate, the Orissa Resettlement & Rehabilitation Policy and its subsequent amendments issued from time to time. It may be mentioned here that the R&R package, draws immense strength from implementation of past policies, best practices in other States and Orissa Government's Industrial Policy Resolution, 2001.

The current intervention of policy formulation has actually taken note of the lessons learnt through these past policies, which essentially reflects Government's genuine spirit of learning and retrospection.

As mandated in the Orissa R&R Policy, emphasis has been given on the following:

- Avoiding displacement wherever possible and minimize it exercising available options Otherwise
- Recognizing voices of displaced communities emphasizing the needs of the indigenous communities and vulnerable sections
- To ensure environmental sustainability through participatory and transparent process
- Help guiding the process of developing institutional mechanism for implementation, monitoring, conflict resolution and grievance redressal.

2. Methodology:

The Rehabilitation and Resettlement Plan emphasizes that the project shall play a positive role in the socio-economic upliftment and betterment of quality of life of the people residing in the area. In addition to providing the rightful compensation to the land owners, efforts have been made to ensure transparency in the process of planning and execution. The preparation of the plan included the following procedures:

- 1) Conducting a Socio Economic Survey of the project affected families, which included collation of Primary and Secondary data through PRA exercises, Focus Group discussions, Personal interviews, door to door survey and focus group discussions etc with a specific focus on gender participation
- 2) Further Hemgir block falling under Scheduled areas list of the State, institutions of local self governance, especially the Panchayati raj institutions were consulted and involved during the process. To ensure participation among the people and to involve all sections of the villages, Pali Sabhas, Gram sabhas have been consulted. An Environmental public hearing has also been conducted to factor in all possible suggestions encompassing the needs and requirements of the villagers.
- 3) Discussions with the project affected families and village level micro planning has been taken up to ensure that proper weightage to issues.

3. Details of Project Area and Extent of Displacement

The Dulanga Coal Mining Block has been allocated to NTPC Ltd for developing coal mines for its upcoming Darlipalli Super Thermal power Plant. The Coal Mining Block is situated in Hemgir Block and would involve acquisition of 2044.10 acres which would comprise of 870.45 acres of private land, 424.84 acres of Govt land and 748.81 acres of forest Land. The land being acquired, would be used for setting up of the Coal Mines, OB Dump, other Infrastructure and establishing a Resettlement and Rehabilitation colony.

A total of 8 villages, namely, Dulinga, Majhapada, Beldihi, Kathali, Khuntiharia, Khapurkachar, Mancharpur, Kalamegha would be affected by the project. Efforts have been made to minimise the requirement of land for the project and thus also minimise displacement of people from the area. In order to identify the extent of displacement and effect of the project, a socio economic survey has been taken up in the project affected villages in line with the Odisha R&R policy. This survey would assess the vulnerability and level of impoverishment of villagers, under three broad parameters viz. demographic profile, social profile and economic profile. Apart from this, it would also help in providing a base for impact monitoring subsequent to displacement.

Sl	Type of Land	Mining Area Land [CBA Act] (Acres)	Land [LA Act] (Acres)			Grand Total (Acres)
			OB Dump & Infrastructure	R&R Colony	Total	
1	Private	460.38	370.88	39.19	410.07	870.45
2	Govt./ Revenue	263.23	98.01	63.60	161.61	424.84
3	Forest	672.02	76.79	0.00	76.79	748.81
Total (Acres)		1395.63	545.68	102.79	648.47	2044.10

The land being acquired, is marked by the presence of good agricultural land and rich forest flora. The mainstay of the villagers is agriculture, mostly rainfed, with a single paddy crop. However, due to the presence of forests, there is a huge dependence for several minor forest

produces. It may be mentioned here that due to the presence of other coal mining projects in the area, the villagers are directly or indirectly involved in working in the mining area. The Dufanga coal Mining Project, which shall have an annual capacity of 7Mn tonnes per annum, shall create numerous skilled and unskilled job opportunities in the area. It is planned that the mining shall be done through (MDO) Mine Developer Cum Operator and would be highly mechanised. It is however expected that, several semi skilled and unskilled jobs would arise out of the operations. As per the OPRR 2006 and its amendments, Clause-9(II-a), nominated members of the displaced and other affected families would be given utmost preference in the matter of employment. For jobs arising out of assignments to be taken up by other vendors also, preference shall be extended to project affected masses. Adequate arrangement to provide vocational training to at least one member of each displaced/other family so as to equip him/her to start his/her own small enterprise and refine his/her skills to take advantage of new job opportunities. For those engaged in traditional occupations/handicrafts/ handlooms, suitable training shall be organized at the cost of project authority to upgrade their existing skills. Emphasis would be given by the company on the overall development of the villagers, which would take into account, up gradation of existing infrastructure, providing new infrastructure, upliftment of standard of living, improvement in the quality of living, improving access to better quality of education, health facilities etc.

4. Perceived impacts on environment due to execution of project

To assess the impacts of the Dufanga Coal Mining Project, NTPC Ltd, an Environment Impact Assessment study has been carried out and all possible/ perceived impacts have been outlined. Keeping in mind necessary guidelines issued by the MOEF, all possible impacts shall be taken care of and shall be implemented as per the Environment Management Plan approved by the MOEF. Utmost care shall be taken to avoid any adverse impact on the existing Bio diversity and overall environment, in the area.

5. Details of Project Affected Persons of the Dufanga coal mining project

A socio-cultural, resource mapping and infrastructural survey is being conducted by Xavier Institute of Management, Bhubaneswar, an independent agency identified by the Government to ensure proper benchmarking. This survey aims at identification of the Project affected families and assess the extent of impoverishment of the families apart from outlining various assets both private and government existing in the area. The details of Project affected persons is enclosed as below.

Sl.No	Name of Village	Purpose of Land Acquisition	No of Affected families
1	DULINGA	Coal Block & Infrastructure	224
2	MAJHAPADA	Coal Block & Infrastructure	267
3	BELDIHI	Coal Block & CISF colony	177
4	KATHFALI	Coal Block	28
5	MANOHARPUR	Coal Block	04
6	KHUNTIJHARIA	Coal Block	91
7	KHAPURIKACHAR	OB Dump & infrastructure	62
8	KALAMEGHA	R&R Colony	94
9	SATPARLIA Reserve Forest	Infrastructure	00
10	DHANUARDIHI Reserve Forest	Coal Block	00
11	GIRIPAHAD Reserve Forest	Coal Block	00
TOTAL			947

NB: The figures depicting the affected families are based on the Socio Economic Survey conducted by XIM, Bhubaneswar.

6. Guiding Principles of the Rehabilitation and Resettlement Plan

Eligibility: As per the Rehabilitation and Resettlement Plan, all families who have been residing for a minimum of 3 years in the project area prior to the date of publication of Section-4 (1) Notification under LA Act-1894 and Section-7 Notification under CBA Act-1957 and on account of acquisition of his/her agricultural/homestead land are affected by the project.

Time Frame: The time frame for actualisation and implementation of this Resettlement and Rehabilitation plan would be five (05) years from the date of approval of the plan.

Impact Assessment: After implementation of the plan, a Social Impact Evaluation (SIE) shall be taken up to provide a base for future interventions.

7. **Details of Land to be acquired:** Land shall be acquired for different purposes which are outlined below:

- a) Land to be acquired for the Coal mining Block(Acquisition under CBA Act-1957)

Sl.No	Land Details	Area to be Acquired (In Acres)
1	Private Land	460.38
2	Revenue Land (Non Forest Land)	263.23
3	Forest Land	672.02
TOTAL		1395.63 Ac

For Land to be acquired under CBA Act- 1957, Section-11 notification has been published and the land is now vested with the NTPC Ltd. Payment for compensation for land is in process.

- b) Land to be acquired for setting up of OB Dump & other Mine Infrastructure(Acquisition under LA Act- 1894)

Sl.No	Land Details	Area to be Acquired (In Acres)
1	Private Land	370.88
2	Revenue Land (Non Forest Land)	98.01
3	Forest Land	76.79
TOTAL		545.68

Land acquisition is in advanced stages.

- c) Land to be acquired for setting up of R&R Colony (Acquisition under LA Act- 1894): The land for the R&R colony has been identified in consultation with the villagers, in village Kalamegha at Kanaktura Gram Panchayat. A total of 102.79 acres of land is allocated for the purpose which shall contain the Rehabilitation Colony for the PAPs and other necessary infrastructure. The matter has been discussed in Pali sabhas, Gram Sabhas and in RPDAC meetings and the land acquisition is in advanced stages.

Sl.No	Land Details	Area to be Acquired (In Acres)
1	Private Land	39.19
2	Revenue Land (Non Forest Land)	63.60
TOTAL		102.79 Ac

Based on the approval of the 3rd RPDAC meeting of Dulanga Coal Mining Project, on 28.04.2012 and subsequent deliberation, Collector and District Magistrate, vide Letter no-1007 dated 06.09.2013, had approved the Compensation and R&R package for NTPC Ltd, Dulanga Coal Mining Project. (Copy Enclosed)

8. Compensation for Assets:

As per the Socio Economic Survey being carried out in the project affected villages, enumeration of all immovable assets, community assets as well as government assets, is being done through PWD, Sundargarh. As per the guidelines issued by the Revenue department, Rural Development Department and as approved by district authorities, the cost of assets in terms of compensation would be distributed to the villagers.

As regards "public property" like School Building, Club House, Hospital, Panchayat Ghar, electrical installation, place(s) of worship, roads etc, value of such property affected shall be deposited with the District Collector.

9. Compensation for Trees:

Compensation for trees would be paid to the individual beneficiaries as per rate fixed by the District govt authorities.

10. Compensation for Houses: For Houses, situated in the areas being acquired by the project, cost of the assets as ascertained by the District authorities, shall be paid to the

individual beneficiaries. For this, an Asset Valuation study is being taken up in the villages along with the Roads and Building department, Sundargarh to ascertain the cost of assets. As regards "public property" like School Building, Club House, Hospital, Panchayat Ghar, electrical installation, place(s) of worship, value of such property affected shall be deposited with the concerned District Collector. Either Project or District Administration shall take up construction at the place as would be determined in consultation with representatives of displaced persons.

11. **Compensation for other Immovable Assets attached to land:** Compensation for all immovable assets attached to land, like Ponds, Creeks, Check Dams, Bore wells, open Wells etc shall be paid to the individual beneficiaries.

12. RESETTLEMENT AND REHABILITATION

Resettlement Benefits:

Families whose Houses would be acquired by the project and would get displaced, would be provided benefits as per the following two options:

Option-1: Families opting to resettle in R&R Colony- The eligible displaced families shall submit their consent for resettlement in the R&R colony at Kalamegha, through an irrevocable affidavit on or before the cut off date as mentioned by the NTPC.

- a) **Provision of Homestead land & house in R&R Colony:** Each displaced family, who shall opt for resettlement in the R&R colony, shall be provided with land measuring Ac.0.10 Decimal for homestead purpose. Land patta of the Homestead land, shall be provided to each family, at the time of handover of the individual house. Besides, NTPC shall provide a house of size @ 1000 sqft. Super built area, including cowshed and staircase, constructed over the homestead land allotted to the above mentioned displaced families. (As per OPRR-2006, Clause- 9(d)).
- b) **Assistance in lieu of Temporary Shed:** For families who are dismantling their house/other structures in the village, handing over possession to Govt/NTPC and evacuating the village, in lieu of assistance for temporary shed, NTPC shall pay to the person, House rent assistance @ Rs.1000/- per month from the day of physical evacuation for a period of eighteen (18) months.

- c) **Assistance for Transportation:** NTPC shall provide transportation allowance of Rs 3000/- or free transportation for shifting to the resettlement location or their new place of inhabitation. If a displaced person is unable to carry all the materials, such as wood etc immediately after dismantling his/her house in the village and willing to keep it in his/her plot for some time till he/she transports it to his/ her relocated area, NTPC will facilitate for watch and ward for a period of 15 days. NTPC shall not be responsible for this material after 15 days.
- d) **Maintenance Allowance:** NTPC shall provide " Maintenance Allowance" @ Rs.3000/- per month to all the displaced families on vacation of land/house for a period of one year from the date of vacation.

Resettlement in R&R Colony- Cost Component: Rs.86.04 Crores			
Description of Item	No of PAPs	Unit Cost (In Lakh Rs.)	Total (In Crs Rs.)
Cost of establishment of R&R Colony including plot and Basic Infrastructure	490		75.01
Corpus for of maintenance of R&R Colony@ 10% of total cost of R&R colony	490		7.501
Registration fee for transfer of plots in RC in the name individual PAP Families	490	0.15	0.735
Maintenance Allowance /family	490	0.36	1.764
Transportation Grant/family	490	0.03	0.147
Assistance for Temporary Shed	490	0.18	0.882
TOTAL			86.039

Option-2: Families opting for Self Resettlement - The eligible displaced families shall submit their consent for self relocation elsewhere, through an irrevocable affidavit on or before the cut off date as mentioned by the NTPC.

- a) **Assistance for Self Relocation:** A displaced family, who chooses by providing consent through an affidavit for self relocation elsewhere, other than R&R Colony, shall be given cash grant of Rs.75,000/- in lieu of house plot/homestead land.
- b) **Building Assistance:** A displaced family who chooses by providing consent through an affidavit for self relocation elsewhere, other than R&R Colony, shall receive House Building Assistance @ 60% of the construction cost assessed for the house constructed by NTPC in the rehabilitation habitat at Kalamegha or house building assistance provided in the R&R policy 2006, as on that date, i.e Rs.6.60 Lakhs or whichever being higher.
- c) **Assistance in lieu of Temporary Shed:** For families who are dismantling their house/other structures in the village, handing over possession to Govt/NTPC and evacuating the village, in lieu of assistance for temporary shed, NTPC shall pay to the person, House rent assistance @ Rs.1000/- per month from the day of physical evacuation for a period of six (06) months.
- d) **Assistance for Transportation:** NTPC shall provide transportation allowance of Rs 3000/- or free transportation for shifting to the resettlement location or their new place of inhabitation. If a displaced person is unable to carry all the materials, such as wood etc immediately after dismantling his/her house in the village and willing to keep it in his/her plot for some time till he/she transports it to his/ her relocated area, NTPC will facilitate for watch and ward for a period of 15 days. NTPC shall not be responsible for this material after 15 days.
- e) **Maintenance Allowance:** NTPC shall provide " Maintenance Allowance" @ Rs.3000/- per month to all the displaced families on vacation of land/house for a period of one year from the date of vacation.

Resettlement benefits for PAPs opting for self relocation – Cost Component:
Rs.4.99 Crores

Description of Item	No of PAPs	Unit Cost (In Lakh Rs.)	Total (In Crs Rs.)
Cash in Lieu of Homestead Land	64	0.75	0.48
House Building assistance	64	6.60	4.224
Maintenance Allowance /family	64	0.36	0.23
Transportation Grant/family	64	0.03	0.019
Assistance for Temporary Shed	64	0.08	0.038
TOTAL			4.991

Provision for Encroachers: An encroacher family, who is homestead less as defined in the Orissa Prevention of Land Encroachment Act, 1972 and is in possession of the encroached land at least for a period of ten years continuously prior to the date of notification under relevant law(s) declaring intention of land acquisition will get ex gratia, equal to compensation for the similar category of homestead land, against the encroached homestead land up to a maximum of 1/10th of an acre. While determining the extent of land for such compensation the homestead land held by him/her is to be taken into account. The ex gratia will be in addition to the actual cost of structures thereon. If the encroachment is found to be objectionable, (s)he will be entitled to the cost of structure only.

Financial outlay for Encroachers: Rs.35.25 Crores

Provisions for encroachers (Land Cost has been taken as weighted average of cost of Govt land under CBA Act @ 6.705Lacs and Govt Land under LA Act @ 1.933 Lacs			
GM Land	82	15.00	1230.00
Forest Land	153	15.00	2295.00
TOTAL			35.25 Crs

Additional Compensation for Multiple Displacement: In accordance with the provisions laid down by the Orissa R&R Policy, Clause 8(iv), additional compensation amounting to 50 % of the normal compensation payable, shall be paid to each displaced family over and above the normal compensation in the form of ex-gratia. It is assumed that about 10 original families having land to the extent of 20 acres would be covered under the above mentioned provision.

Additional compensation for multiple displacement – Cost Component:

Rs.3.75 Crores

Description of Item	Extent of Land	Unit Cost (In Lakh Rs.)	Total (In Crs Rs.)
Additional compensation for multiple displacement @ 50% of normal compensation over & above compensation for land	50 acres	7.50	3.75

Rehabilitation Benefits

Opportunities for Employment:

NTPC shall not provide employment in its establishment directly to a person eligible for employment owing to displacement, as the mining activity shall be carried out through a Mining Developer and Operator (MDO), for the life of the Mine. For the jobs generated by MDO, PAFs would be accommodated based on their suitability and availability.

- a) **One time Cash Assistance in-lieu of employment:** NTPC shall pay double the amount prescribed in the R&R policy 2006 for different categories, as on date of disbursement, as one time cash assistance in lieu of employment to the eligible persons as applicable to different eligible categories. The categories of PAFs shall be decided and approved by the State Govt viz:

Categories as per OPRR-2006

	No of PAFs	Amount (Lakh Rs.)	Total
Category I: Displaced families losing all land including homestead land	318	14.94	47.51
Category II: Displaced families losing more than 2/3rd of agricultural land and homestead land	27	8.96	2.42

Category-III: Families losing all agricultural land but not homestead land	39	5.98	2.33
Category-IV: Displaced families losing more than 1/3rd of agricultural land and homestead land	142	3.0	4.26
Category-V: Displaced families losing only homestead land but not agricultural land	215	3.0	6.45
Category-VI: Families losing agricultural land in part but not homestead land	206	3.0	6.18
SUB-TOTAL (b)			69.15 Crores

b) Monthly Financial Assistance/ Annuity: NTPC shall provide monthly financial assistance through an approved Annuity Scheme of LIC of India or similar organization (as approved by IRDA) as a social security measure to all eligible families for employment as per the Orissa R&R policy 2006, who avail one time cash assistance in lieu of employment. The features of the scheme shall be as follows:

- The scheme is mandatory for all families eligible for employment and receiving one time cash compensation, in order to ensure financial security on a long term.
- The scheme shall be applicable for people eligible for employment in the age group of 18 years and above. The benefit shall be available for a term of 25 years or till the life of the annuitant, whichever is earlier.
- The Annuity payable shall be Rs.3000/- per month (Rupees Three Thousand per month/ Rupees Thirty Six thousands annually), as per the proposal approved by IRDA.
- The scheme shall come into force, six months after the date from which eligible person dismantles his/her house/ structures, hands over possession to Govt/NTPC, hands over possession of land and evacuates the village.

No of PAPs eligible for employment	Amount (In Lakh Rs.) @ Rs.3000/- per month for 25 years	Amount (Rs.)
947	9.0	8.52 Crs

The estimated financial outlay for providing Annuity for 947 PAPs for 25 years, shall be Rs.8.52 Crores approximately.

- c) **Training for Self-employment:** NTPC Ltd. DLQMP, under the guidance of the District Collector, Sundargarh concerned will make adequate arrangements for development of entrepreneurship, technical and professional skills for self employment. Vocational training shall be imparted to at least one member of each displaced/other family so as to equip him/her to start his/her own small enterprise and refine his/her skills to take advantage of new job opportunities. Training on Tailoring, Tie and Dye, Applique & Patch Work, Machine Embroidery, Computer knowledge to women and Mobile repairing, Masonary, Plumbing, Electrician, Computer knowledge, Driving etc for men, are being imparted/ planned to be imparted. For those engaged in traditional occupations/ handicrafts/ handlooms, suitable training shall be organized at the cost of project authority to upgrade their existing skills. Training on food processing, mushroom cultivation, computer courses, poultry farming, dairy farming, sewing etc could open new avenues for self employment in the region.

The NTPC shall invite applications from trainees among affected families for training on various courses. Applicants would be required to submit their applications along with certificate of land acquired from the appropriate authority, income certificates, educational qualifications and caste certificates etc. The scheme is a welfare scheme for the PAFs and would in no way confer any right on the PAF's for financial assistance. In case, provision of all infrastructural facilities are not available for conducting the training courses, concerned State Govt department, shall be consulted to facilitate training to the applicants. Necessary expertise/ Resource persons required for the training program shall be drawn from professional agencies/ State Govt departments. All expenditures amounting to the same, arising therein, shall be borne by the user agency.

- d) **Merit Scholarship Scheme:** To improve and encourage the literacy and educational standards in the project area and to create a pool of potential candidates, NTPC shall introduce a Merit Scholarship scheme for the wards of the Project affected families. If the wards from the affected families are not eligible/available, the same would be extended to the wards in the vicinity villages. The scholarship so decided, shall be applicable for the duration of the course. Applicants would be required to submit their applications along with certificate of land acquired from the appropriate authority, income certificates, educational qualifications and caste certificates etc. The requiring body would reserve the right to increase/decrease the number of beneficiaries or change the no of beneficiaries in different disciplines, depending on the availability of the students etc.

Currently, scholarship is being extended to candidates of wards from affected villages, undergoing technical course in various colleges. The amount of scholarship changes depending

upon the course, Rs.1000/- per month for ITI, Rs.1200/- per month for Diploma and Rs.1500/- per month for Engineering.

Apart from this, it is being planned to set up a Polytechnic at Zinc colony, jointly with Daripalli STPP, for the youths, for imparting Diploma in Engineering, wherein training courses shall be provided on specific industry based traits.

e) Shops and Service units:

- (a) **Shops and Service Units:** NTPC Ltd shall also construct shops and service units at feasible locations at their own cost, which will be allotted in consultation with Collector to project displaced families opting for self employment. While allotting such units, preference will be given to physically challenged persons and members of displaced SC & ST families.

f) Proposed Rehabilitation Colony

1. The Rehabilitation and Resettlement colony has been proposed to be established in Kalamegha village.
2. Specific care has been taken to minimise the land requirement for the R&R colony, to ensure that there is no displacement arising out of acquisition of the land.
3. All displaced families having opted for resettling in the R&R colony shall be allotted land with houses in the colony.

g) Salient features of the R&R Colony

NTPC shall design and plan the resettlement villages at Kalamegha, Hemgir Tehsil and shall construct individual houses. The Rehabilitation habitat shall have all the basic amenities and facilities like Road, Drainage, Electricity, Drinking water, School, Anganwadi, Community center, Religious place of worship, Cremation ground, Market place, Shopping center, Primary health center, Veterinary clinic, Village Pond, Bus Stand, Panchayat Ghar, Park, Grazing Ground etc, for the resettlement of the displaced families of the project.

Each family shall be provided with a house of size @ 1000 sq ft super built area, including cowshed and staircase, constructed over the homestead land allotted to all displaced families who shall opt for resettlement in R&R Colony. Record of Rights of the land and houses allotted

to the displaced persons shall be handed over to the residing families by the District Administration while resettling them in the Resettlement habitat.

ESTIMATED COST OF R&R COLONY & INFRASTRUCTURE FACILITIES: Rs.75.01 Crs

SL NO	Activity	Total Est. Value (Lakhs Rs.)
1	Houses for PAFs (490 Nos) Built up area for house= 93.02 Sq.mts including Cowshed and Staircase	5390.02
2	Other Misc Building a) Primary School b) Anganwadi c) Community center d) Tribal Center e) Primary Health Center f) Veterinary Clinic g) Panchayat Ghar h) Shopping Center	568.75
3	Other Infrastructure a) Worship Places b) Play Grounds c) Park d) Community Pond e) Pasture Land f) Burial/Cremation Ground	154.93
4	Bulk Services a) Road / Drains / Bridges and Culverts b) Boundary & gate complex c) Water supply d) Sewerage system (Sewage Disposal System Network and Sewage Treatment Plan) e) External electrification	1387.00
SUB-TOTAL		7501.00

h) **Special benefits to displaced indigenous families and primitive tribal groups :**

As per the OPRR-2006, Clause- 13, special provisions have been kept for indigenous families and primitive tribal groups as mentioned below.

- While developing the resettlement plans, the socio-cultural norms of indigenous and primitive tribal groups have been kept in mind.
- All attempts are being made to resettle the indigenous communities in a compact area close to their natural habitat.
- A programme for development of alternate fuel, fodder and non-timber forest produce (NTFP) resources on non- forest lands within a period of five years sufficient to meet requirements of tribal communities

13. Planning and Implementation of R&R Plan

In order to encourage participation of displaced people and their elected representatives in implementation and monitoring of R & R package, to oversee and monitor periphery development, a Rehabilitation-cum-Periphery Development Advisory Committee (RPDAC) for the project has been formed (As per OPRR-2006, Clause 17). This committee under the chairmanship of the Revenue Divisional Commissioner, includes people's representatives, one or two leading NGOs of the affected area and select Government officers.

(a) State Level Council on Resettlement and Rehabilitation (SLCRR) :

At the State level, there will be a Council headed by the Chief Minister to advise, review and monitor implementation of Resettlement and Rehabilitation Policy. The Council may comprise of Ministers, select representatives of the people, leading social activists, academicians and experts of national and international repute and senior officials of the Government.

(b) LA and R & R Structure:

(a) State Level:

A Directorate of R & R will be constituted to discharge and oversee the implementation of the R&R Policy. Detailed structure and functions of this Directorate will be notified by the Government

(b) District / Project Level:

Depending on magnitude of the RR works at the project level, there may be a Project Director, Resettlement and Rehabilitation (PD-RR), who shall be assisted by such other officers as Government may decide. The PD-RR shall be the Chief Coordinating Officer between all the line departments in the matter of resettlement and rehabilitation. He will be responsible for implementation of the Policy and timely execution of R & R works under the over all supervision and guidance of the Collector and the Directorate of R&R. (ii) Where R & R work is of lesser magnitude, the same can be undertaken by the LAO of the Collectorate.

(c) Budgetary Provision and Allotment:

Wherever required, adequate budget provision will be kept towards land acquisition and R & R establishments to ensure effective implementation of R & R Policy. The Directorate of R&R would submit such budgetary estimate/ works by 1st January of every year. Government will ensure timely release of allotment to the concerned authorities.

(d) Grievance Redressal Mechanism:

An effective Grievance Redressal Mechanism will be set up at District and Directorate level to deal with grievance of the project displaced people relating to land acquisition, resettlement and rehabilitation. Besides, all the project authorities shall be asked to set up an effective Grievance Redressal Mechanism relating to their project. Effective participation of the displaced communities will be ensured in the process.

14. Initial Community Development and Corporate Social responsibility activities

The Community Development projects of NTPC are aimed at communities of the targeted villages, the endeavour being to improve the quality of life of the people. In order to make a long term impact, the concentration would be on providing access to basic amenities on water, sanitation, roads, health, education and relevant infrastructure.

In this regard, under the chairmanship of the Collector and District Magistrate, a Periphery Development Society, has been formed with members comprising of several govt departments and other people representatives. The funds for community development would be deposited with the Committee in the ratio of 70, 30, 20 for the project affected villages and periphery, Block level and District level respectively. A total of Rs. 30 crores (Rupees thirty Crores) is planned to be earmarked for a period of 5 years till 2016-2017.

As part of the company's commitment towards Corporate Social Responsibility, community development activities have been taken up across 5 major verticals of Education, Health, Training/Empowerment, Infrastructure Upgradation, few of which are mentioned as follows:

- Distribution of dresses to Anganwadi children
- Distribution of School Bags to children
- Distribution of Drum Set, Jersey set to schools
- Distribution of Cooking Kits to Anganwadis
- Sweaters to School and Anganwadi children
- Study kits to School students and Anganwadi kits to Anganwadi children
- Distribution of Cricket and Football kits to village clubs
- Providing Aquaguard to Govt office at block and district level
- Distribution of Durees to Anganwadis and village clubs
- Installation of Solar Street Lights in villages and govt offices
- Distribution of Solar Lanterns to meritorious students
- Distribution of Blankets and Mosquito nets to villages
- Providing assistance to education
- Organising competitions in schools
- Sponsoring Science Exhibition
- Sponsoring major sports events in the locality
- Cleaning and Deeping of village Ponds
- Organizing village Sanitation work
- Constructing temporary check dams across Nalas
- Providing Visiting Chair sets to Govt offices
- Renovation of Jagannath temple at Sundargarh
- Renovation of Cultural complex at Sundargarh
- Conducting regular Health check up camps in villages and free distribution of medicines
- Providing Water purifiers and Almirahs in Gram Panchayat offices

- Organizing Cataract operation camps
- Providing Musical instruments to cultural groups in villages
- Providing school infrastructure in schools
- Barbed wire fencing in schools
- Repair work and Whitewashing in schools
- Construction of Bridge at Kalamegha village
- Strengthening of Roads
- De-silting of Ponds
- Providing Culverts and Causeways
- Construction of Community halls/ Club houses
- Providing Drinking Water through Bore wells & Overhead tanks
- Sponsoring cultural celebrations in villages
- Providing training on Tailoring, Tie & Dye to women
- Driving Training to Men
- Computer Education training to villagers
- Summer Camps to promote extra-curricular abilities in children

Efforts are on to provide vocational training to at least one member of each displaced/other family so as to equip him/her to start his/her own small enterprise and refine his/her skills to take advantage of new job opportunities. For those engaged in traditional occupations/ handicrafts/ handlooms, suitable training shall be organized at the cost of project authority to upgrade their existing skills. As per need assessment survey conducted by the project with active participation from various govt departments, namely District Industries Commission, Women and Child welfare, etc, several areas for training have been identified both individual and group based.

15. TOTAL PROPOSED FINANCIAL OUTLAY FOR R&R PLAN:

Resettlement Package:	Rs. 91.03 Crores
Provision for Encroachers:	Rs. 35.25 Crores
Provision for Multiple Displacement:	Rs. 3.75 Crores
Rehabilitation package:	Rs. 77.67 Crores
Community development:	Rs. 30.00 Crores
TOTAL	Rs.237.70 Crores


 सी.आर. बारिक / C.R. BARIK
 भूपट्ट महाप्रबंधक-प्रभारी
 Addl. General Manager/IC
 एनटीपीसी लिमिटेड / NTPC Limited
 दुर्गा बॉल माइनिंग प्रोजेक्ट
 Durlanga Coal Mining Project


 LAND ACQUISITION OFFICER
 HEMGIR


 COLLECTOR, SUNDARGARH

Use of PPEs in Mines



(FORM - O)
(See rule 29F (2) and 22L)
Report of medical examination under rule 29B
(To be issued in triplicate)**

795

Certificate No... 784...
Certified that Shri/Shrimati Benukher Kachan *employed as Electing Trainee In
mine, Form B No... 725... has been
examined for an initial/periodical medical examination. He/she* appears to be... 22...
years of age. The findings of the the examining authority are given in the attached sheet. It is
considered that Shri/Shrimati* Benukher Kachan...

(a)* is medically fit for any employment in mines.

(b)* is suffering from..... And is medically unfit for

- (i) any employment in mine; or
- (ii) any employment below ground; or
- (iii) any employment or work.....

©* is suffering from..... should get this disability* cured/controlled and
should be again examined within a period of months. He/She will appear for
re-examination with the result of test of..... and the opinion
of..... Specialist from..... He/She may be permitted/not*
permitted to carry on his duties during this period.



Dr. HARISH CHANDRA BACH
Medical Officer
Junior Class (I)

Signature of the examining authority

Name and designation in Block letters

Place :

Date : 20.3.20

* Delete whatever is not applicable.

** One copy of the certificate shall be handed over to the person concerned and another copy shall be sent to the manager of the mine concerned by registered post; and the third copy shall be retained by the examining authority.

1 Inserted vide Notification No. GSR 656, dated 5.6.1980

Report of the examining authority

(to be filled in for every medical examination whether initial or periodical or re-examination or after cure/control of disability). Annexure to Certificate No. 222 as a result of medical examination on 22-03-2020
 Identification Mark Black Inked Letter

Left thumb impression of The candidate

1. General development- Good / Fair / Poor

2. Height 1.60 Cms.3. Weight 60 kg

4. Eyes :

(i) Visual acuity-Distant vision (with or without glasses).

Right eye 6/6 Left eye 6/6

(ii) Any organic disease of eyes

(iii) Night blindness

(iv) Colour blindness

(v) Squint

(* to be tested in special cases)

5. Ears :

(i) Hearing : right ear 6000 Hz Left ear 6000 Hz(ii) Any organic diseases. NO

6. Respiratory system.

Chest measurement :

(i) After full inspiration 86 cms.(ii) After full expiration 84 cms.

7. Circulatory system:

Blood Pressure 110/70 mmHgPulse 72

8. Abdomen :

Tenderness. NOLiver. NormalSpleen. NOTumour. NO

9. Nervous system:

History of fits or epilepsy NOParalysis. NOMental health. Good10. Locomotory system NAD11. Skin. Normal12. Hydrocele. NO13. Hernia. NO14. Any other abnormality NO

15. Urine :

Reaction. AcidicAlbumin. (+)Sugar. Abundant16. Skiagram of chest. NAD17. Any other test considered necessary by the examining authority. NO18. Any opinion of specialist considered necessary. NO19. ECG: Normal20. Liver function test: Normal21. Spirometry: Normal

Place:

Signature of the examining authority

(FORM - C)
(See rule 21F (2) and 22L)
Report of medical examination under rule 21F
(To be issued in duplicate)**

Certificate No. 77 Abdul Bari
Certified that Sari Sarimati employed as Grader operator in
mine, Form B No. _____ has been
examined for an initial/periodical medical examination. He/She* appears to be 30
years of age. The findings of the examining authority are given in the attached sheet. It is
considered that Sari Sarimati Abdul Bari

(a)* is medically fit for any employment in mines.

(b)* is suffering from _____ and is medically unfit for

- (i) any employment in mines; or
- (ii) any employment below ground; or
- (iii) any employment or work _____

C* is suffering from _____ should get this disability* cured/controlled and
should be again examined within a period of _____ months. He/She will appear for
re-examination with the result of fit of _____ and the opinion
of _____ Specialist from _____. He/She may be permitted to
permitted to carry on his duties during this period.

Space for affixing
Passport Size
Photograph of the
Candidate.

Dr. R. N.
Signature of the Medical Officer
Name and designation in block letters

Name and designation in block letters

Place: Abdul Bari

Date: 07.12.21

* Delete whatever is not applicable.

** One copy of the certificate shall be handed over to the person concerned and another copy shall be sent
to the manager of the mine concerned by registered post; and the third copy shall be retained by the
examining authority.

Plastered vide Notification No. GSR 656, dated 5.6.1990

(FORM O - Cont.)

Report of the examining authority

(to be filled in for every medical examination whether initial or periodical or re-examination or after cure/control of disability). Annexure to Certificate No. 74/23
a result of medical examination on 02.12.21
Identification Mark..... Left thumb impression of The candidate

1. General development- Good / Fair / Poor

2. Height..... 161..... Cms.

3. Weight..... 63..... kg.

4. Eyes:

(i) Visual acuity-Distant vision (with or without glasses).
Right eye..... 6/6..... Left eye..... 6/6.....

(ii) Any organic disease of eyes

(iii) Night blindness

(iv) Colour blindness

(v) Squint

(* to be tested in special cases)

5. Ears:

(i) Hearing: right ear..... 6/10..... Left ear..... 6/10.....

(ii) Any organic diseases.

6. Respiratory system.

Chest measurement:

(i) After full inspiration..... 96..... cms.

(ii) After full expiration..... 92..... cms.

7. Circulatory system:

Blood Pressure 130/90 mmHg

Pulse 65 13 per min

8. Abdomen:

Tenderness.

Liver.

Spleen.

Tumour.

9. Nervous system:

History of fits or epilepsy

Paralysis.

Mental health.

10. Locomotory system

11. Skin.

12. Hydrocele.

13. Hernia.

14. Any other abnormality

15. Urine:

Reaction.

Albumin.

Sugar.

16. Skiagram of chest.

17. Any other test considered necessary by the examining authority.

18. Any opinion of specialist considered necessary.

19. ECG.

20. Liver function test.

21. Spirometry.

Place:

Group: B +ve

Signature of the candidate

Medical Officer
NIPES
Signature of the examining authority
Signature of the candidate
Signature of the project

FORM - O
(See rule 291(3) and 221.)
Report of medical examination under rule 291:
(To be issued in triplicate)**

Certificate No. 989 Abhinash Duan Dumper OPI In
Certified that Shri/Shrimati *employed as Dumper OPI mine, Form B No. 2022 has been
examined for an initial/periodical medical examination. He/she* appears to be 25
years of age. The findings of the the examining authority are given in the attached sheet. It is
considered that Shri/Shrimati* Abhinash Duan

(a)* is medically fit for any employment in mines.

(b)* is suffering from And is medically unfit for

- (i) any employment in mine; or
- (ii) any employment below ground; or
- (iii) any employment or work.....

©* is suffering from should get this disability* cured/controlled and
should be again examined within a period of months. He/She will appear for
re-examination with the result of test of and the opinion
of Specialist from He/She may be permitted/not*
permitted to carry on his duties during this period.

Space for affixing
Passport Size
Photograph of the
Candidate.

[Signature]
Signature of the examining authority

NTPC
Name and designation in Block letters

Place: Kalamegha Dispensary

Date: 23.11.20

* Patient who is not applicable.

** One copy of the certificate shall be handed over to the person concerned and another copy shall be sent
to the manager of the mine concerned by registered post; and the third copy shall be retained by the
examining authority.

(Issued vide Notification No. QSR 434, dated 22.1.1988)

714

(FORM - O)
(See rule 29F (2) and 22L)
Report of medical examination under rule 29B
(To be issued in triplicate)**

Certificate No. 720... Chaitanya Deep (Chaitanya Deep)

Certified that Shri/Shrimati *employed as..... In

.....mine, Form B No..... has been

examined for an initial/periodical medical examination. He/she* appears to be... 22...

years of age. The findings of the the examining authority are given in the attached sheet. It is

considered that Shri/Shrimati*... Chaitanya Deep...

(a)* is medically fit for any employment in mines.

(b)* is suffering from..... And is medically unfit for

(i) any employment in mine; or

(ii) any employment below ground; or

(iii) any employment or work.....

* is suffering from..... should get this disability* cured/controlled and

should be again examined within a period ofmonths. He/She will appear for

re-examination with the result of test of..... and the opinion

of..... Specialist from..... He/She may be permitted/not*

permitted to carry on his duties during this period.

Space for affixing
Passport Size
Photograph of the
Candidate.

U.S. Jaiswal
Signature of the examining authority
Dr. U. S. Jaiswal

Reg. No. 1116
Name and Designation in Block letters

Place: Kalamegha Dispensary

Date: 27/11/2020

* Delete whatever is not applicable.

** One copy of the certificate shall be handed over to the person concerned and another copy shall be sent to the manager of the mine concerned by registered post; and the third copy shall be retained by the examining authority.

1 Inserted vide Notification No. GSR 656, dated 5.6.1980

(FORM O - Cont.)

Report of the examining authority

(to be filled in for every medical examination whether initial or periodical or re-examination or after cure/control of disability). Annexure to Certificate No. 720 as a result of medical examination on 27/01/2020.

Identification Mark. b/fck - 1010 - 1010 - 1010

Left thumb impression of The candidate

1. General development- Good / Fair / Poor

2. Height.....1.60.....Cms.

3. Weight.....61.....kg.

4 Eyes : (R)

(i) Visual acuity-Distant vision (with or without glasses).

Right eye.....6/6.....Left eye.....6/6.....

(ii) Any organic disease of eyes

(iii) Night blindness

(iv) Colour blindness

(v) Squint

(* to be tested in special cases)

5. Ears : (R)

(i) Hearing-right ear.....6.00.....Left ear.....6.00.....

(ii) Any organic diseases. NO

6. Respiratory system.

Chest measurement (R)

(i) After full inspiration.....97.....cms.

(ii) After full expiration.....94.....cms.

7. Circulatory system:

Blood Pressure 130/90 mm Hg

Pulse 72 p.m

8. Abdomen : (R)

Tenderness. (R)

Liver. (R)

Spleen. (R)

Tumour. (R)

7. Nervous system: (R)

History of fits or epilepsy NO

Paralysis. NO

Mental health. Normal

10. Locomotory system. (R)

11. Skin. (R)

12. Hydrocele. (R)

13. Hernia. (R)

14. Any other abnormality NO

15. Urine :

Reaction. Acidic

Albumin. (H)

Sugar. Absent

16. Skiagram of chest. (R)

17. Any other test considered necessary by the examining authority. NO

18. Any opinion of specialist considered necessary. NO

19. ECG: (R)

20. Liver function test: (R)

21. Spirometry: (R)

22. Lipid profile: Normal.

Place: Kalamangla Dispensary

Groupis: B five.

Signature of the examining authority
Reg No. - 1116

27-27/1/2020

252

(FORM - O)
(See rule 29F (2) and 22L)
Report of medical examination under rule 29B
(To be issued in triplicate)**

Certificate No. 336.... Kusha Rohidas

Certified that Shri/Shrimati *employed as..... In
mine, Form B No..... has been
 examined for an initial/periodical medical examination. He/she* appears to be...23..
 years of age. The findings of the the examining authority are given in the attached sheet. It is
 considered that Shri/Shrimati*...Kusha Rohidas..

(a)* is medically fit for any employment in mines.

(b)* is suffering from.....And is medically unfit for

- (i) any employment in mine; or
- (ii) any employment below ground; or
- (iii) any employment or work.....

©* is suffering from..... should get this disability* cured/controlled and
 should be again examined within a period ofmonths. He/She will appear for
 re-examination with the result of test of..... and the opinion
 of.....Specialist from..... He/She may be permitted/not*
 permitted to carry on his duties during this period.



Dr. BIPRAV KESHARI NAIK
 Signature of the examining authority
 SMASL

.....
 Name and designation in Block letters

Place: Kalamnagha Dispensary.
 Date: 07.02.19

* Delete whatever is not applicable.

** One copy of the certificate shall be handed over to the person concerned and another copy shall be sent
 to the manager of the mine concerned by registered post; and the third copy shall be retained by the
 examining authority,

1 Inserted vide Notification No. GSR 656, dated 5.6.1980

(FORM O-Cont.)

Report of the examining authority

(to be filled in for every medical examination whether initial or periodical or reexamination or after control of disability) Annexure to certificate No. 336 as a result of medical examination on 07.2.19

Identification Mark. Black mole on neck.

Left thumb impression of the candidate

1. General development- Good/Fair/Poor

2. Height 160 Cms.

3. Weight 51.8 kg.

4. Eyes:

(i) Visual acuity-Distance vision (with or without glasses)

Right eye 6/6 Left eye 6/6

(ii) Any organic disease of eyes

(iii) Night blindness

(iv) Color blindness

(v) Squint

(* to be tested in special cases)

5. Ears:

(i) Hearing: right ear 600 cm Left ear 600 cm

(ii) Any organic diseases. NO

6. Respiratory system:

Chest measurement:

(i) After full inspiration 88 cms.

(ii) After full expiration 83 cms.

7. Circulatory system:

Blood Pressure 120/80 mmHg

Pulse 73 bpm

8. Abdomen

Tenderness

Liver

Spleen

Tumor

9. Nervous system:

History of fits or epilepsy NO

Paralysis NO

Mental health. Normal.

10. Locomotory system NAD

11. Skin. Normal

12. Hydrocele NO

13. Hernia NO

14. Any other abnormality NO

15. Urine:

Reaction. Acidic

Albumin. NIL

Sugar NIL

16. Skiagram of chest.

17. Any other test considered necessary by the examining authority. NO

18. Any opinion of specialist considered necessary. Consult cardiologist

19. ECG: Abnormal.

20. Liver function test: Normal

21. Spirometry: Normal

Grand total: 0 fine

Place: Kalamegha Dispensary

Dr. BIPLAV KESHARI NAIK
Signature of the examining authority
SMASL

(FORM-O)

(See rule 29 F(2) and 221)

Report of medical examination under rule 29B

(To be issued in triplicate)**

Certificate No. 1462

Certified that Shri/Shrimati M.D. Sahasrakh employed as _____ in _____

Mine, Form B No. _____ has been examined
For an Initial/Periodical Medical examination. He/she* appears to be 26 Years of age. The Findings of the
the Examining Authority Are given in The attached sheet. It is Considered That
Shri/Shrimati* M.D. Sahasrakh

(A)* is medically fit for any employment in mines.

(b)* is suffering from _____ And is medically unfit for

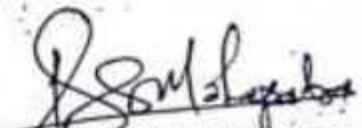
(I) Any Employment in Mine; or

(II) Any Employment below ground; or

(III) Any Employment or Work _____

(c)* is suffering From _____ should get this disability* cured/controlled and should be again
examined Within a period of _____ month. He/She Will appear For re Examination With the result of test
of _____ and the opinion of _____ Specialist from _____ He/she may
be permitted/not* permitted to carry on his duties during this period.




Signature of the Examining Authority

Dr. SRUTI SOURAV MOHAPATRA
MEDICAL OFFICER
Name and Designation in Block letters
Regd. No. 26569/2021

Place: First Aid Centre

Date: 28 3 22

*Delete whatever is not applicable

**One copy of the certificate shall be handed over to the person concerned and another copy shall be sent to the
manager of the mine concerned by registered post; and the third copy shall be retained by The Examining
authority.

Inserted vide Notification no GSR656, dated 5.6.1980

(FORM D Cont.)

Report of the Examining authority

(To be filled in for every medical examination whether initial or periodical or re-examination or after cure/control of disability). Annexure to certificate No. 11464

A result of medical examination on 25.2.22

Identification Mark Place male and H.M.B

Left thumb impression of the candidate

1. General development Good/fair/poor

2. Height 162 cms.

3. Weight 79 kg.

4. Eyes

(i) Visual acuity Distant Vision (with or without glasses)

Right eye 6/6 left eye 6/6

(ii) organic disease

(iii) Night blindness

(iv) Colour blindness

(v) Squint

(*to be tested in special cases)

5. Ears

(i) Hearing: right ear 6000 left ear 6000

(ii) Any organic diseases

6. Respiratory system:

Chest measurements:

(i) After full inspiration 115 cms.

(ii) After full expiration 110 cms.

7. Circulatory system:

Blood pressure 120/80

Pulse 76

8. Abdomen:

Tenderness

Liver

Spleen

Tumour.

9. Nervous system:

History of fits or epilepsy.

Paralysis.

Mental health

10. Locomotory system

11. skin

12. Hydrocele

13. Hernia

14. Any other abnormality

15. Urine:

Reaction

Albumin.

Sugar.

16. X-Ray P & (PA)

17. Any other test considered necessary by examining authority.

18. Any opinion of specialist considered necessary.

19. ECG: Normal

20. Liver function tests

21. Spirometry

22. Lipid profile tests

23. Renal Function tests

Place: Heart Aid Centre

Group: Physio: D. tue

Signature of the examining authority

Medical Officer
NTPC/SMASL Dispensary
Jalanga Coal Mining Project
Sundargarh

507

(FORM - O)
(See rule 29F (2) and 22L)
Report of medical examination under rule 29B
(To be issued in triplicate)**

Certificate No. 492 Umesh Singh
Certified that Shri/Umesh Singh *employed as Dumper Driver In
.....mine, Form B No. 507 has been
examined for an initial/periodical medical examination. He/she appears to be 32
years of age. The findings of the the examining authority are given in the attached sheet. It is
considered that Shri/Umesh Singh

(a)* is medically fit for any employment in mines.

(b)* is suffering from.....And is medically unfit for

(i) any employment in mine; or

(ii) any employment below ground; or

(iii) any employment or work.....

©* is suffering from..... should get this disability* cured/controlled and
should be again examined within a period ofmonths. He/She will appear for
re-examination with the result of test of..... and the opinion
of.....Specialist from..... He/She may be permitted/not*
permitted to carry on his duties during this period.



Signature of the examining authority

Name and designation in Block letters

Place: Kalamegha Dispensary
Date: 17.10.19

* Delete whatever is not applicable.

** One copy of the certificate shall be handed over to the person concerned and another copy shall be sent to the manager of the mine concerned by registered post; and the third copy shall be retained by the examining authority.

† Inserted vide Notification No. GSR 656, dated 5.6.1980

(FORM O-Cont.)

Report of the examining authority

(to be filled in for every medical examination whether initial or periodical or reexamination or after /control of disability) Annexure to certificate No. 492 as a result of medical examination on 17.11.19
Identification Mark. black mole on cheek.

Left thumb impression of the candidate

1. General development: Good/Fair/Poor
2. Height: 164 Cms.
3. Weight: 64 kg.
4. Eyes:
(i) Visual acuity: Distance vision (with or without glasses)
Right eye: 6/6 Left eye: 6/6
(ii) Any organic disease of eyes
(iii) Night blindness
(iv) Color blindness
(v) Squint
(* to be tested in special cases)
5. Ears:
(i) Hearing: right ear: 6.00 m Left ear: 6.00 m
(ii) Any organic diseases.
6. Respiratory system:
Chest measurement:
(i) After full inspiration: 92 cms.
(ii) After full expiration: 90 cms.
7. Circulatory system:
Blood Pressure: 130/90 mmHg
Pulse: 74/min.
8. Abdomen:
Tenderness
Liver: Normal
Spleen: NO
Tumor: NO
9. Nervous system:
History of fits or epilepsy: NO
Paralysis: NO
Mental health: Normal
10. Locomotory system: Normal
11. Skin: Normal
12. Hydrocele: NO
13. Hernia: NO
14. Any other abnormality: NO
15. Urine:
Reaction: Acid
Albumin: Trace
Sugar: 4.65
16. Skiagram of chest: Normal
17. Any other test considered necessary by the examining authority: NO
18. Any opinion of specialist considered necessary: NO
19. ECG: Normal
20. Liver function test: Normal
21. Spirometry: Mild Restriction

Group: 12th - B. Fve

Place: Kalamegha Dispensary

Dr. BIPLAV KESHARI NAIK
Signature of the examining authority
SMASL

461

(FORM - O)
(See rule 29F (2) and 22L)
Report of medical examination under rule 29B
(To be issued in triplicate)**

Certificate No. 470... Vinay Kumar
Certified that Shri/Shrimati *employed* as..... In
.....mine, Form B No..... has been
examined for an initial/periodical medical examination. He/she* appears to be 27,
years of age. The findings of the the examining authority are given in the attached sheet. It is
considered that Shri/Shrimati*..... Vinay Kumar.....
(a)* is medically fit for any employment in mines. yes
(b)* is suffering from..... And is medically unfit for

- (i) any employment in mine; or
- (ii) any employment below ground; or
- (iii) any employment or work.....

Q* is suffering from..... should get this disability* cured/controlled and
should be again examined within a period ofmonths. He/She will appear for
re-examination with the result of test of..... and the opinion
of..... Specialist from..... He/She may be permitted/not*
permitted to carry on his duties during this period.



Dr. BIPLAV KESHARI NAIK
(M.B.B.S.)
S.M.A.S.I.

Signature of the examining authority

.....
Name and designation in Block letters

Place: Kalamnagha Dispensary

Date: 28.8.19

* Delete whatever is not applicable.
** One copy of the certificate shall be handed over to the person concerned and another copy shall be sent
to the manager of the mine concerned by registered post; and the third copy shall be retained by the
examining authority.
† Inserted vide Notification No. GSR 656, dated 1.6.1980

(FORM O-Cont.)

Report of the examining authority

(to be filled in for every medical examination whether initial or periodical or reexamination or after /control of disability) Annexure to certificate No. 470 as a result of medical examination on Date 28/08/19

Identification Mark placard on left side below nose

Left thumb impression of the candidate

1. General development- Good/Fair/Poor
2. Height: 170 Cms.
3. Weight: 70 kg.
4. Eyes:
(i) Visual acuity: Distance vision (with or without glasses)
Right eye: 6/6 Left eye: 6/6
(ii) Any organic disease of eyes
(iii) Night blindness
(iv) Color blindness
(v) Squint
(* to be tested in special cases)
5. Ears:
(i) Hearing: right ear: 6000 Left ear: 6000
(ii) Any organic diseases.
6. Respiratory system:
Chest measurement:
(i) After full inspiration 97 cms.
(ii) After full expiration 92 cms.
7. Circulatory system:
Blood Pressure 120/80 mmHg.
Pulse 72 B/M
8. Abdomen
Tenderness
Liver
Spleen
Tumor
9. Nervous system:
History of fits or epilepsy
Paralysis
Mental health.
10. Locomotory system
11. Skin.
12. Hydrocele
13. Hernia
14. Any other abnormality
15. Urine:
Reaction.
Albumin.
Sugar
16. Skiagram of chest.
17. Any other test considered necessary by the examining authority
18. Any opinion of specialist considered necessary.
19. ECG: -
20. Liver function test:
21. Spirometry:

Group: RTKZ : B : fine

Dr. BIPLAV KESHARI NAIK
(M.B.B.S.)
SMAS

Signature of the examining authority

Place: Kalamnagha Digherang

SAFETY ZONE FENCING & GAP PLANTATION

ANNEXURE-XIX



SAFETY ZONE FENCING & GAP PLANTATION



Dust Suppression Activities in CHP Operation



Dust Suppression at Receiving Hopper



Dust suppression on haul roads near CHP



Dust suppression near MGR

Use of Wet Operated Drill in Mining





एनटीपीसी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)

दुलंगा / Dulanga

Ref.: 1070/NTPC/DLCMP/CCO/12

Date: 30/06/2023

To
The Coal Controller,
Office of the Coal Controller,
1, Council House Street,
Kolkata-700001.

Sub : Submission of Annual Mine Closure Activity Report for the period 2022-23 of Dulanga Coal Mining Project of NTPC Limited, Sundargarh, Odisha

Sir,
Please find attached herewith the Annual Mine Closure Activity Report for the period 2022-23 of Dulanga Coal Mining Project of NTPC Limited, Sundargarh, Odisha

Thanking You.

Yours Faithfully,

for

(Krovvidi Chandrasekhar)
General Manager

Encl: as above

Copy to: The OSD,
Sambalpur Regional Office,
Sambalpur, Odisha.

श्रीधर जेना / SRIDHAR JENA
अपर महाप्रबंधक (परियोजना) / AGM (Proj.)
दुलंगा सी.म.प. / Dulanga C.M.P.
खापुरिकछार, सुंदरगढ़,
Khapurikachhar, Sundargarh
In charge- HOP.

Dulanga Coal Mining Project, Khapurikachhar, PO - Sanghumuda, Tehsil-Hemgir, Dist- Sundargarh 770013

दुलंगा कोल माइनिंग प्रोजेक्ट, खापुरिकछार, पोस्ट - संघुमुदा, तहसील - हेमगीर, जिला - सुंदरगढ़ 760013

पंजीकृत कार्यालय: एन टी पी सी भवन, स्कोप कॉम्प्लेक्स, 7 इंस्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली 110003

कॉर्पोरेट पहचान नंबर: L40101DL1975GOI007966, टेलीफोन नं: 011-24387333, फैक्स नं: 011-24361018, ई मेल: ntpccc@ntpc.co.in, वेबसाइट: www.ntpc.co.in

Registered Office: NTPC Bhavan, Scope Complex, 7 Institutional Area, Lodhi Road, New Delhi - 110003

Corporate Identification No: L40101DL1975GOI007966, Telephone No: 011-24387333, Fax No: 011-24361018, Email: ntpccc@ntpc.co.in, Website: www.ntpc.co.in

YEARLY REPORT OF MINE CLOSURE ACTIVITIES

1	Name of the coal/lignite mine/block	Dulanga Coal Mining Project
	a) Type: OC/UG/Mixed	Open Cast
	b) Total life of mine:	24 years of operation (additional 6 years for mine closure including filling of void)
	c) Balance life of the mine:	20 Yrs
2	Name of the Owner:	NTPC Limited (Nominated Owner: Sh. Shivam Srivastava , Director (Fuel))
3	Address of the Owner:	NTPC Limited, NTPC Bhawan, SCOPE Complex, 7 Institutional Area, Lodhi Road, New Delhi 110003
4	i. Leasehold Area of the Mine: ii. Project Area of the Mine:	i. 762.42 Ha ii. 7.62 Sq. Km.
5	Mine Closure Plan approved by.....on(date)	Ministry of Coal, Dated 14.08.2012 (along with mining plan)
6	Escrow Account number:	A/c No: 35611468943
7	Name & Address of Escrow Agent:	State Bank of India 1. Corporate Office address – State Bank Bhawan, Corporate Centre, Madam Cama Marg, Nariman Point, Mumbai 400021) 2. Branch Address – CAG Branch, New Delhi, 11th and 12th Floor, Jawahar Vyapar Bhawan, 1 Tolstoy Marg, New Delhi 110001
	Closure Cost deposited for the year 2022-23	Rs. 3,67,00,000.00 (2022-23)
9	Cumulative Balance including interest in the account:	Rs. 21,46,03,008.84 (as on 31.03.2023) Certified Statement attached as Annexure-A
10	Report being submitted for: (Progressive or Final Mine Closure)	Progressive for Dulanga Coal Mining Project of NTPC Limited for 2022-23
11	Specific condition imposed .(if any, by Government agency):	NIL
12	Reserve of Coal/Lignite(as per Mining Plan):	Mineable Reserve - 152 Million Tonnes
	Coal/Lignite actually mined out during last year (2022-23)	Coal Production in FY 2022-23 – 70,00,000 Tonne against the permitted coal production of 70,00,000 Tonne.
13	Method of Mining:	Mechanized Opencast mining with Shovel Dumper combination and Surface Miner
14	Area Mined out (Ha): (Till March'22)	Mining Operations started from 28th February, 2018. Approximately 150 Ha is broken for coal excavation as on 31.03.2023.
15	Area reclaimed:	i) Physical – During 2022-23, 14,74,700 m3 of Solid waste has been dumped in the void created after mining.

YEARLY REPORT OF MINE CLOSURE

ACTIVITIES

		ii) Biological – After attaining final height of physical reclamation, this will be taken up.
16	Details of afforestation:	<p>The project has undertaken plantation activities from initial stage. During 2022-23, Total 10,147 no of sapling has been carried out during monsoon period. Cumulatively, about 42,500 Nos of saplings have been planted/ distributed in and around the ML area.</p> <p>(Photographs of Plantation Activities in different region has been attached in Annexure-I).</p>
17	Water Quality Management	
	a) Water bodies available in leasehold area:	<p>Garia Nalla and its tributaries flow within the block boundary, which are seasonal in nature. The diversion of Garia Nallah is in progress as per the diversion plan approved by Water Resources Department, Govt. of Odisha (Copy attached as Annexure-II).</p>
	b) Measures taken for protection: (Control of erosion, sedimentation, siltation, water treatment, diversion of water courses if any, measure for protection of contamination of groundwater from leaching etc shall be described)	<p>Measures taken for protection:</p> <p>Garland drain around topsoil dump, overburden dump, embankment along nalla, plantation for erosion control, settling pond for sedimentation, ETP for wastewater treatment.</p> <p>The photographs of Garland Drains & Settling Ponds is attached as Annexure-III.</p> <p>To manage soil erosion and to maintain the quality of the topsoil, garland drain provided near the toe of dump.</p> <p>About 10.00 Km of garland drain having width varying from 1.5m – 2 m and depth 2 m-4m have been excavated to protect mine workings/ to arrest the siltation of drained water from dumps, which is ultimately connected to sedimentation pond/ settling pit for collection of channelized run-off water. The drains and sedimentation ponds/ pits are regularly de-silted and maintained properly.</p> <p>ETP of 50 KLD capacity has been constructed for the treatment of vehicle washing water before reusing.</p> <p>The photograph of ETP is attached as Annexure-IV.</p>

YEARLY REPORT OF MINE CLOSURE ACTIVITIES

		The water so collected is being utilized for watering the mine area, roads, green belt development, etc.
	c) Quantity of water pumped out from mine/Quarry:	NA All the mine seepage water / Effluent generated are being reused
	d) Quality of water (as per test result):	Water quality parameters are within the prescribed limits as per the test result of the water samples collected from the open well from the villages. For water sampling and analysis, NABL accredited lab, M/s Environmental Research & Services (India) Pvt. Ltd., Bhubaneswar has been engaged. Water Quality report for 2022-23 is enclosed as Annexure-V .
	e) Corrective measures taken confronting to the permissible limit:	The test results shows the water quality parameters are within the permissible limit.
	f) Is there any acid mine drainage? if yes, the treatment method taken:	None
18	Air Quality Management:	
	i) Existing air quality parameters:	The existing air quality parameters being monitored are SPM, PM10, PM2.5, SO2, Nox, CO, Hg, Pb, Cr, As etc being tested by the NABL accredited laboratory M/s Environmental Research and Services (India) Pvt Ltd, Bhubaneswar. All the air quality parameters are within the permissible limit. Air Quality report for 2022-23 is enclosed as Annexure-VI .
	ii) Corrective measures taken for prevention of air pollution:	<ol style="list-style-type: none"> 1. Water sprinkling in the mine area is being done by 3 nos. of water tankers with 18KL capacity and 3 nos. of water tanker with 14KL capacity are working for dust suppression in the haul road, working area etc. 2. Fixed Sprinkler of about 900 m has been installed along the haul roads towards CHP and Mines View Point. 3. 02 Nos. Fog Cannons have been deployed for dust suppression. 4. Drilling machines with wet drilling arrangements are being used. 5. Surface Miners used for coal cutting are having interlocked water spraying arrangements at cutting drum. 6. Regular Air quality monitoring is being done regularly as per MoEF&CC guidelines. 7. Plantation has been done in the safety zone area along the boundary and diversion road and plantation in the mine area will be continued concurrent to mining operations.
19	Waste Management	

YEARLY REPORT OF MINE CLOSURE

ACTIVITIES

	a) Quantity of overburden removal:	Overburden removal during FY 2022-23: 1,13,51,239 Cum (including Topsoil). Cumulative OB removal since inception is 2,69,76,128 Cum (including Topsoil).
	b) Quantity of Coal/Lignite reject generated:	NIL
	c) Utilization of Waste Material done:	Waste materials are being used for making of haul roads and levelling of siding area. Rest all the wastes has been dumped in the dump yard.
	d) Protective Measures taken from prevention of siltation, erosion and dust generator for waste material:	Garland Drains made around the entire dump yard. Dust suppression carried out regularly for controlling fugitive emission and air-borne.
	e) Quantity of waste material re-handled/back-filled:	None
	f) Height of dump and its stability measures taken:	Dump Height of dump is 30m. The stability measures taken are: <ul style="list-style-type: none"> - Dedicated dozer deployed for proper dozing and compaction. - Dumping carried out under constant supervision. - Garland drain prepared to guide rainwater away from dump area. - Scientific studies for stability carried out through NIT Rourkela and all recommendations thereof are followed. - One Slope monitoring Officer has been deployed for monitoring of slope and dump management.
20	Topsoil Management	
	a) Topsoil available at site:	Topsoil available at site is 3,95,000 m ³ (approx.) upto March 2023.
	b) Utilization of topsoil during 2022-23	4,963.78 m ³ of topsoil was spread over inactive Overburden dump of 1.5 Ha during 2021-22 and has stabilised with Grassing and Sapling Plant over the Dump. In year 2022-23
21	a) Coal beneficiation facilities adopted:	No beneficiation is being done
	b) Maintenance of coal washeries being done:	Not applicable
	c) Dismantling of structure of washery (describe briefly):	Not applicable

22. Subsidence management (for UG mine): Not Applicable as the subject mine is an opencast mine.

23. Infrastructure:

Existing infrastructural facilities available	Future Utilisation	Maintenance
Roads	Yes	Being maintained
Aerial Ropeways	None	Not applicable
Conveyor Belts	Yes	Under Commissioning

YEARLY REPORT OF MINE CLOSURE ACTIVITIES

Railways	Yes	Being maintained
Bridges, Culverts	Yes	Being repaired and maintained
Power lines	Yes	Being maintained
Building & Structures	Yes	Being maintained
Water Treatment Plant	Yes	Being maintained
Water Supply Sources	Nil	Not applicable
Gas Pipeline	None	Not applicable
Sewer Line	Nil	Not applicable
Telephone Cable	Yes	Being maintained
Underground Tanks	Nil	Not applicable
Electric Cable	Yes	Being maintained
Transformers	yes	Being maintained
Describe if decommissioning, dismantling or disposal is done of above items during 2022-23 (if any): No dismantling, decommissioning or disposal done during 2022-23		

24. Disposal of Machinery: Decommissioning of Mining Machinery and their possible post mining utilization:	Not applicable during FY 2022-23
--	----------------------------------

25. Safety and Security:

a	Safety measures implemented to prevent access to surface opening for Underground working (barbed wire fencing done):	Not applicable
b	Safety measures implemented to prevent access to surface opening for excavation:	<p>Safety measures implemented to prevent access to surface opening for excavation:</p> <ul style="list-style-type: none"> • Barbed wire fencing at the top of excavation area • Bund all along the excavation area with garland drain/ Trench cutting. • Installation of barriers and posting of security guards at the entry point/ check gates. • Photograph of Safety Zone Fencing & is attached as Annexure-VII.
c	Arrangement made up to the site being opened for general public:	Visitors are being allowed to enter in mines only after the permission of Mine Manager and are assisted by competent person during their visit.
d	Sealing of mine entries:	Not applicable

26.*Economic Repercussions of Closure of Mine:

a	Number of local residents employed in the mine:	About 300 Nos. of local residents have been appointed through different associated agencies till March 2023.
b	Compensation given to the employees concerning their sustenance:	Not applicable
c	Vocational / Skill development training for sustainable income of affected people:	Various skill development programmes are being undertaken. Training to employed persons for different skills

YEARLY REPORT OF MINE CLOSURE ACTIVITIES

		like fitter, electrician, driving, welding, surface disinfectant making etc. are being taken up for the project affected people before employment in mine. Various other income generation schemes like Tie & dye training, mushroom cultivation, skill development etc. have been taken up. Project has spent a total of approx. Rs. 1.61 Cr under different head like health, education, infrastructure, drinking water, capacity building / skill development in FY 2022-23.
--	--	---

26. Any other closure activities as per approved Mine Closure Plan: Manpower has been engaged in Mining, Survey, Environment, Geology, Chemist for executing the mine closure activities.

OTHER CLOSURE ACTIVITIES AS PER APPROVED MINE CLOSURE PLAN

1. Mined area and waste management

- 1.1 Topsoil has been staked separately and will be spread over the slopes and dump area before plantation and garland drain made around topsoil dump. Photograph has been attached. Photograph of Topsoil Slope Grassing is attached as **Annexure-VIII**.
- 1.2 Overburden excavated from the mine is being dumped in the earmarked external dump Yard, partly over the coal bearing area after due approval of MoEF&CC which will be re-handled afterwards to extract coal and partly over the De-Coaled area of mine. After completion of external dump yard, this waste dump will be completely vegetated.
- 1.3 Hazardous waste authorization for Workshop & store obtained from SPCB. Used oil storage yard is provided at workshop with corner collection pit. Disposal of hazardous waste is being done as per statute.
- 1.4 Barbed wire fencing has been done along the mine boundary for about 12.5 Km till Mar'2023 and under progress for balance area. Safety Zone Fencing & Plantation is attached as **Annexure-VII**.

2. Environmental Management

- 2.1 Plantation done / distributed during various occasions of environment and social functions inside the site office/ Pit Office, mine boundary and other vacant patches. During 2022-23 total 10,157 no of saplings has been carried out during monsoon period. (Plantation Activities in different region. Cumulatively, about 42,500 No's of saplings have been planted/ distributed in and around the ML area.
- 2.2 Regular pollution monitoring of all vehicles involved in the mining project are in practice to control emission during operation of the mine.
- 2.3 Protective respiratory devices are available to personnel working in dusty areas. They are provided with adequate training and information on safety & health aspects once in a year.
- 2.4 Water sprinkling is being done through 6 nos. of mobile water sprinkling tankers (i.e. 3nos 18 KL and 3nos of 14 KL) in the coal transportation and Mine Haul road route.
- 2.5 0.9 km length of fixed water sprinkling system has been installed.
- 2.6 Water sprinkling through spray nozzles installed and under operation at Interim Crusher.

YEARLY REPORT OF MINE CLOSURE

ACTIVITIES

- 2.7 Proper maintenance of haul road and other roads in around the mine is being taken up.
- 2.8 Wet drilling is being practiced for drilling OB benches for OB removal.
- 2.9 Surface Miner used for coal extraction are equipped with Water suppression measures through nozzles at cutting drum.
- 2.10 Transporting vehicles carrying the loaded materials are fully covered with tarpaulins covers to avoid dust generation and spillage.
- 2.11 Water seepage from the benches is drained to the sump in the bottom of the mine pit. Clear water from this sump is used in mining activity.
- 2.12 To reduce the mine working/ OB dump, Catchment water drain / Garland drain has been made which are connected to the Sedimentation Pond /Settling Ponds. The details of garland drains are as follows:

Garland/catch drains having width and depth of 1.5m to 2.0m have been constructed along OB Dumps. Details of the same is as under:

- OB dump-1A : 2350 m
 - OB dump-1B : 2840 m
 - Khuntijharia OB dump : 257 m
 - Beldihi OB dump : 860 m
 - Up-side of the mine : 2350 m (This prevents entry of outside storm water into the mine pit)
- 2.13 ETP having 50KLD capacity has been started operational from January'20 onwards and is being used for treatment of Effluent water generated during Washing of Wheel.
 - 2.14 For offices a septic tank followed by a soak pit has been provided. The township of NTPC Dulanga is integrated with NTPC Darlipalli and STP of 1200 KLD is provided in the integrated township.
 - 2.15 The treated effluents are as per prescribed standards and are being reused for horticultural purpose.
 - 2.16 The water so collected is being utilized for watering the mine area, roads, green belt development, etc.
 - 2.17 The project has de-silted 08 nos. ponds in the surrounding villages.
 - 2.18 The post project air / water / noise quality/ ground water level is being monitoring through a NABL Accredited laboratory.

3. Management of Infrastructure and Mining Machineries

- 3.1. The site office/ Pit office has been established and is being maintained as per requirement of DGMS.
- 3.2. Coal handling plant and Silo for rapid loading has is operational.

4. Action for safety and security of local community around the mine or part of the mine

- 4.1. For regular inspection of the OB Dumps, drains, a safety officer assisted with the mine overman has been posted.
- 4.2. OISF has been deployed to keep access control in the Mine area.

5. Social and Economic Aspects.

- 5.1. 300 No's of local residents have been appointed through different associated agencies till March 2022.
- 5.2. Project has spent a total of approx. Rs. 1.61 Cr under different head like health,

YEARLY REPORT OF MINE CLOSURE

ACTIVITIES

education, infrastructure, drinking water, capacity building / skill development in FY 2022-23 towards CD / CSR activities.

6. Execution and supervision

- 6.1. Two Nos. of JCBs have been hired for the toe wall and garland drains and de-silting.
- 6.2. Environment Management Cell has been formed for execution of the progressive closure and environment related works in addition to ensure compliance of Environment & Forest related compliance.
- 6.3. For catchment drain survey, boundary survey and demarcation of total project area and updating the quarterly plans, one Mine surveyor assisted with 02 nos of Asstt Surveyor, 01 nos chainman and 2 Nos Survey helper have been posted for survey related work for execution of the closure work.
- 6.4. For regular inspection of the OB Dumps, peripheral and internal drains, a safety officer assisted with the mine overman has been posted.
- 6.5. Towards CD / CSR activities a dedicated team under the leadership of E-6 executive assisted with 5 executives has been formed to execute community development activities. Additionally, 02 nos. doctors led by CMO and assisted by dresser and attendants have been posted for regular medical camps and also 24x7 two no's of ambulance has been deployed for the above.
- 6.6. Security personnel from Odisha Industrial security Force (OISF) have been deployed to keep access control in the mine and also for security of local communities.

27. Post Environmental Monitoring for 3 years (to be given after closure of mine): Will be submitted after closure of the mine.



(Signature of Competent Authority)

Name: Krovvidi Chandrasekhar

Designation: General Manager

Date with seal: 30.06.2023

श्रीधर जेना / SRIDHAR JENA
अपर महाप्रबंधक (परियोजना) / AGM (Proj.)
दुलंगा सी.म.प. / Dulanga C.M.P.
खपुरिकछार, सुन्दरगढ़,
Khapurikachhar, Sundargarh
In charge - HEP



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

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)

NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	M/s Ntpc Ltd.		
Project Address:	M/s Ntpc Ltd. , Dulanga Coal Mining Project		
Village:	Dulinga	Block:	Hemgir
District:	Sundargarh	State:	Odisha
Pin Code:			
Communication Address:	M/s Ntpc Ltd, Dulanga Coal Mining Project, At- Khapurikachhar , P.o: Sanghumuda, Hemgir, Sundargarh, Odisha - 770013		
Address of CGWB Regional Office :	Central Ground Water Board South Eastern Region, Bhujal Bhawan, Khandagiri Square, Nh-5, Bhubaneshwar, Khordha, Odisha - 750001		

1. NOC No.:	CGWA/NOC/MIN/REN/2/2022/7124												
2. Application No.:	21-4/513/OR/MIN/2013				3. Category: (GWRE 2020)	Safe							
4. Project Status:	Existing Ground Water				5. NOC Type:	Renewal							
6. Valid from:	04/12/2021				7. Valid up to:	03/12/2023							
8. Ground Water Abstraction Permitted:													
Fresh Water		Saline Water		Dewatering		Total							
m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year						
91.00	33215.00			318.00	116070.00								
9. Details of ground water abstraction /Dewatering structures													
Total Existing No.:4							Total Proposed No.:2						
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu	
Abstraction Structure*	0	0	3	0	0	0	0	0	2	0	0	0	
Dewatering Structure*	0	0	0	0	1	0	0	0	0	0	0	1	
*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps													
10. Ground Water Abstraction/Restoration Charges paid (Rs.):							304569.50						
11. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.				No. of Piezometers		Monitoring Mechanism							
						Manual	DWLR**	DWLR With Telemetry					
**DWLR - Digital Water Level Recorder				1		0	1	0					

(Compliance Conditions given overleaf)

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

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

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: cgwa-noc.gov.in

पानी बचाये - जीवन बचाये
SAVE WATER - SAVE LIFE

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

Mandatory conditions:

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

General conditions:

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

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



CIN - U73100OR1995PTC003889



GSTIN : 21AAACE6224D1ZE

ANNEXURE-XXIV

Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

DEPTH OF GROUND WATER TABLE

Date: 27 Nov 2023

Name and Address of the Customer : Dulanga Coal Mine of M/s NTPC Limited in Sundargarh district, Odisha.
Date of Measurement : 07-08/11/2023
Measurement Taken by : Representative of ERS (I) Pvt. Ltd.
Measurement carried out in presence of : Representative of the Customer

Sl. No.	Location	Depth (Below Surface level in meter)
01	Bore well near Weigh Bridge No.3 &4	1.88
02	Bore Well R & R Colony, Kalamegha (near Market Complex)	8.94
03	Open well in Village Khuntjharia	5.00
04	Open well in Village Bendrichua	5.12
05	Open well in Village Kathfali	3.10
06	Open well in Village Kalamegha	4.47
07	Open well in Village Kanaktora	1.37

(Authorized Signatory)

S.P.Pattanayak
Tech.Manager

.....END OF TEST REPORT.....



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

DEPTH OF GROUND WATER TABLE

Date: 28 Feb 2024

Name and Address of the Customer : Dulanga Coal Mine of M/s NTPC Limited in Sundargarh district, Odisha.
Date of Measurement : 12-13/01/2024
Measurement Taken by : Representative of ERS (I) Pvt. Ltd.
Measurement carried out in presence of : Representative of the Customer

Sl. No.	Location	Depth (Below Surface level in meter)
01	Bore well near Weigh Bridge No.3 &4	1.91
02	Bore Well R & R Colony, Kalamegha (near Market Complex)	8.89
03	Open well in Village Khuntjharua	5.03
04	Open well in Village Bendrichua	5.12
05	Open well in Village Kathfali	3.15
06	Open well in Village Kalamegha	4.50
07	Open well in Village Kanaktora	1.35

Note-

1. The test results relate only to the items sampled and tested.
2. Total liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P.Pattanayak
Team Manager

.....END OF TEST REPORT.....



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

PLOT No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000624F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (WATER/WASTE WATER)

Pg No: 1 of 1

Date: 02 Nov 2023

Test Report No: ERSIPL/TR/WA/320

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 13.10.2023

Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.10.2023

Analysis Started on : 20.10.2023

Analysis Completed on : 30.10.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 31 °C

Sample ID. No.

1. ERSIPL/WA/727
2. ERSIPL/WA/728

Location

1. ETP Inlet Water
1. ETP Outlet Water

TEST FINDINGS:

S. No.	Test Parameters	Test Method	Unit	Result		Permissible Limit As per CTO Issued by SPCB
				ERSIPL/ WA/ 727	ERSIPL/ WA/ 728	
1	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	7.21	7.28	6.5 – 8.5
2	Oil & Grease	IS 3025:Part 39: 2021	mg/L	3.26	3.01	10.0
3	Total Suspended Solids	IS 3025:Part 17: 1984 Reaffirmed-2022	mg/L	21.4	7.7	50.0
4	COD	IS 3025:Part 58:2006 Reaffirmed-2022	mg/L	20.0	8.0	150.0

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000641F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (WATER/WASTE WATER)

Pg No: 1 of 1

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/WA/328

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 07.11.2023

Sample Collected by : S. Samantaray, Field assistant, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.11.2023

Analysis Started on : 20.11.2023

Analysis Completed on : 27.11.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 30 °C

Sample ID. No.

1. ERSIPL/WA/761

2. ERSIPL/WA/762

Location

1. ETP Inlet Water

1. ETP Outlet Water

TEST FINDINGS:

S. No.	Test Parameters	Test Method	Unit	Result		Permissible Limit As per CTO Issued by SPCB
				ERSIPL/ WA/ 761	ERSIPL/ WA/ 762	
1	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	7.06	7.12	6.5 – 8.5
2	Oil & Grease	IS 3025:Part 39: 2021	mg/L	3.36	2.41	10.0
3	Total Suspended Solids	IS 3025:Part 17: 1984 Reaffirmed-2022	mg/L	27.4	8.9	50.0
4	COD	IS 3025:Part 58:2006 Reaffirmed-2022	mg/L	20.0	12.0	150.0

Note-

- The test results relate only to the items sampled and tested.
- Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
- This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
- Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
- This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P.Pattanayak



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000743F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (WATER/WASTE WATER)

Pg No: 1 of 1

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/WA/379

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 13.12.2023

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 20.12.2023

Analysis Started on : 20.12.2023

Analysis Completed on : 29.12.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Scattered Clouds

Atmospheric Temperature : 23 °C

Sample ID. No.

1. ERSIPL/WA/898

2. ERSIPL/WA/899

Location

1. ETP Inlet Water

1. ETP Outlet Water

TEST FINDINGS:

S. No.	Test Parameters	Test Method	Unit	Result		Permissible Limit As per CTO Issued by SPCB
				ERSIPL/ WA/ 898	ERSIPL/ WA/ 899	
1	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	7.02	7.09	6.5 – 8.5
2	Oil & Grease	IS 3025:Part 39: 2021	mg/L	3.06	2.01	10.0
3	Total Suspended Solids	IS 3025:Part 17: 1984 Reaffirmed-2022	mg/L	23.4	6.5	50.0
4	COD	IS 3025:Part 58:2006 Reaffirmed-2022	mg/L	20.0	16.0	150.0

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com



TC-7440

ULR-TC744024000000056F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (WATER/WASTE WATER)

Pg No: 1 of 1

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/WA/28

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.01.2024

Sample Collected by : R K Jena, Field Supervisor, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 15.01.2024

Analysis Started on : 15.01.2024

Analysis Completed on : 25.01.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Sunny

Atmospheric Temperature : 26 °C

Sample ID. No.

1. ERSIPL/WA/020

2. ERSIPL/WA/021

Location

1. ETP Inlet Water

1. ETP Outlet Water

TEST FINDINGS:

S. No.	Test Parameters	Test Method	Unit	Result		Permissible Limit As per CTO Issued by SPCB
				ERSIPL/ WA/ 020	ERSIPL/ WA/ 021	
1	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	7.05	7.12	6.5 – 8.5
2	Oil & Grease	IS 3025:Part 39: 2021	mg/L	2.96	1.81	10.0
3	Total Suspended Solids	IS 3025:Part 17: 1984 Reaffirmed-2022	mg/L	20.4	8.1	50.0
4	COD	IS 3025:Part 58:2006 Reaffirmed-2022	mg/L	16.0	8.0	150.0

Note-

- The test results relate only to the items sampled and tested.
- Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
- This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
- Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
- This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak
Tech. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

TC-7440

ULR-TC744024000000113F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (WATER/WASTE WATER)

Pg No: 1 of 1

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/WA/58

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 12.02.2024

Sample Collected by : T S Mohanta, Dy QM, ERS(I) Pvt. Ltd.

Sample Collected in presence of : Representative of the Customer.

Sample Received on : 18.02.2024

Analysis Started on : 18.02.2024

Analysis Completed on : 28.02.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 3 ltrs

Type of Container : Glass Bottle, HDPE Bottle

Weather Condition : Scattered Cloud

Atmospheric Temperature : 24 °C

Sample ID. No.

1. ERSIPL/WA/128

2. ERSIPL/WA/129

Location

1. ETP Inlet Water

2. ETP Outlet Water

TEST FINDINGS:

S. No.	Test Parameters	Test Method	Unit	Result		Permissible Limit As per CTO Issued by SPCB
				ERSIPL/ WA/ 128	ERSIPL/ WA/ 129	
1	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	6.97	7.03	6.5 – 8.5
2	Oil & Grease	IS 3025:Part 39: 2021	mg/L	3.26	1.91	10.0
3	Total Suspended Solids	IS 3025:Part 17: 1984 Reaffirmed-2022	mg/L	27.8	8.7	50.0
4	COD	IS 3025:Part 58:2006 Reaffirmed-2022	mg/L	12.0	8.0	150.0

Note-

- The test results relate only to the items sampled and tested.
- Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
- This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
- Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
- This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P. Pattanayak
Toun. Mar. agar



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000189F

Test Report Format No.: ERSIPL/FM/40

TEST REPORT (WATER/WASTE WATER)

Pg No: 1 of 1

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/WA/94

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Date of Sampling : 11.03.2024
Sample Collected by : R K Jena, Field Supervisor ERS(I) Pvt. Ltd.
Sample Collected in presence of : Representative of the Customer.
Sample Received on : 18.03.2024
Analysis Started on : 18.03.2024
Analysis Completed on : 28.03.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 3 ltrs
Type of Container : Glass Bottle, HDPE Bottle
Weather Condition : Sunny
Atmospheric Temperature : 34 °C

Sample ID. No.

1. ERSIPL/WA/176
2. ERSIPL/WA/177

Location

1. ETP Inlet Water
2. ETP Outlet Water

TEST FINDINGS:

S. No.	Test Parameters	Test Method	Unit	Result		Permissible Limit As per CTO Issued by SPCB
				ERSIPL/ WA/ 176	ERSIPL/ WA/ 177	
1	pH value	IS 3025:Part 11: 1983 Reaffirmed-2022	--	6.99	7.05	6.5 – 8.5
2	Oil & Grease	IS 3025:Part 39: 2021	mg/L	3.36	2.01	10.0
3	Total Suspended Solids	IS 3025:Part 17: 1984 Reaffirmed-2022	mg/L	26.3	8.9	50.0
4	COD	IS 3025:Part 58:2006 Reaffirmed-2022	mg/L	16.0	12.0	150.0

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S. P. Pattanayak



एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)

दुलंगा / Dulanga
Dated: 01.02.2018

Ref: 0100/NTPC/DLCMP/MIN/DGMS/01/122

To,

The Director General of Mine Safety,
O/o the DGMS, Hirapur,
Dhanbad, Jharkhand- 826001

Sub: Notice of opening under Sec.16 of Mines Act 1952 and Regulation 3 of the Coal Mines Regulation (CMR), 2017 for Dulanga Coal Mining Project.

Ref.: (1) NTPC Letter No-0100/NTPC/DLCMP/MIN/DGMS/01/59 dated 22.08.2017 for Notice of Opening of Dulanga Coal Mining Project.

(2) DGMS Letter No:S-29020/35/2017/CR/11121/3046/ Chaibasa dated 26/12/2017

Sir,

Vide NTPC letter cited in Ref. (1), the Notice of Opening for commencement of mining operations in Dulanga Coal Mining project of NTPC Limited under Section 16 of the Mines Act, 1952 & Reg. 3 of CMR, 1957 had been submitted in Form-I to your good office. The Mine is about to open shortly.

DGMS vide Ref. (2), have communicated to take suitable action as per the provisions of CMR-2017 enforced vide Gazette notification No. G.S.R. 1449 (E) dated 27th November, 2017.

In compliance to the requirement of **Reg. 3 of the CMR, 2017** pertaining to the **Notice of Opening for Commencement of Mining Operations**, we are hereby submitting the following documents along with Form-I (as prescribed in CMR 1957):

1. A copy of the **Surface Plan** No- NTPC/DLCMP/MIN/2017/SP-02, prepared under Clause (a) of Sub-regulation (1) of Reg. 65.
2. A copy of **Safety Management Plan** prepared under Reg. 104.

Further, as the Notice of opening in compliance to Section 16 of Mines Act and Reg.3 of erstwhile CMR 1957 had already been submitted to the DGMS vide Ref (1), we request your good office that the notice period of one month before the commencement of any mining operation shall be deemed to have been complied with under Sub-section 16(2) of Mines Act 1952.

This is for your information and kind consideration please.

Thanking you,

Yours faithfully,

(Vickram Chandra Dubey)

Agent

Designation: Addl. General Manager

Enclosure: As above

CC:

1. **The Dy. Director General of Mine Safety**, South Eastern Zone, CMPDIL Campass, 3rd floor, old building, Kanke Road, Ranchi, Jharkhand-834002.
2. **The Director of Mine Safety**, Chaibasa Region, Chaibasa, West Singbhum, Jharkhand-833201.
3. **The Collector and District Magistrate**, Sundargarh, Odisha-770001

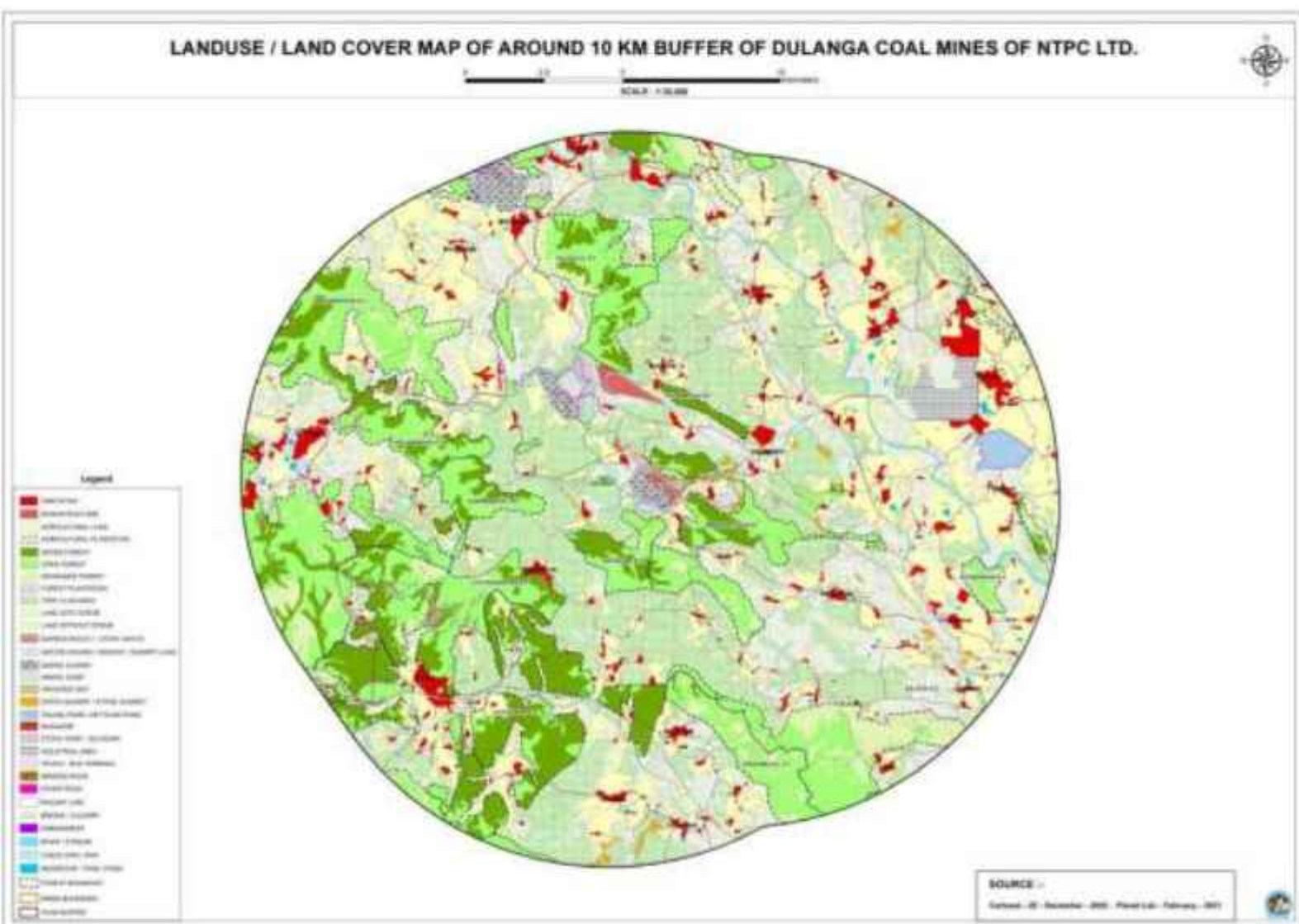
दुलंगा कोल माइनिंग प्रोजेक्ट, द्वितीय तल, मेघ मल्लहार, मिशन रोड, सुन्दरगढ़-770001 (ओडिशा), दूरभाष : 06622-275501 (कार्यालय), फैक्स : 06622-275178
Dulanga Coal Mining Project, 2nd Floor, Megh Mallahar, Mission Road, Sundargarh-770001 (Odisha), Phone : 06622-275501 (O), Fax : 06622-275178

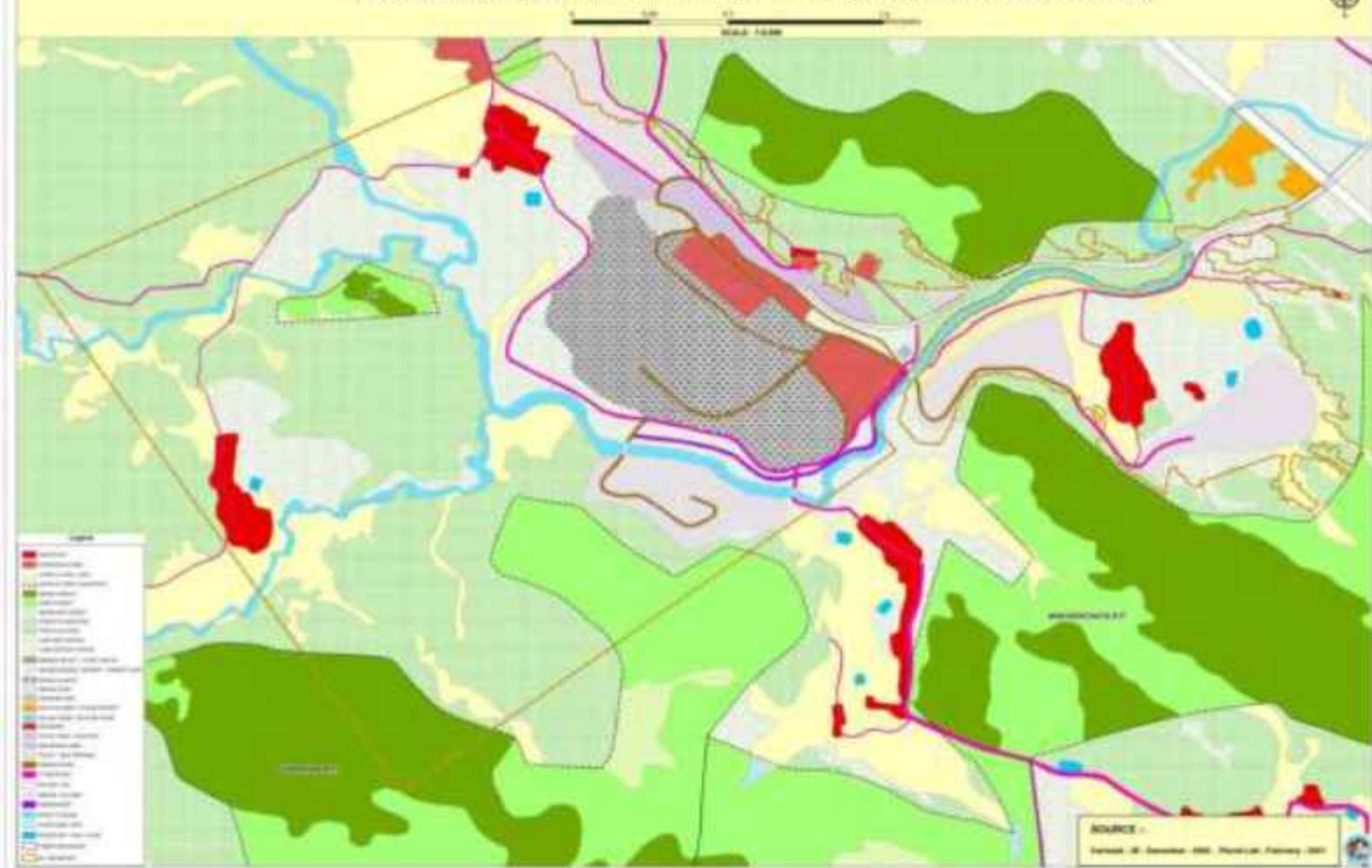
पंजीकृत कार्यालय : एन टी पी सी भवन, स्कोप कॉम्प्लेक्स, 7 इन्स्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली - 110 003

कार्पोरेट पहचान नम्बर : L40101DL1975GOI007966, टेलीफोन नं. : 011-24387333, फैक्स नं. : 011-24381018, ईमेल : ntpccc@ntpc.co.in, वेबसाइट : www.ntpc.co.in

Registered Office : NTPC Bhawan, Scope Complex, 7 Institutional Area, Lodhi Road, New Delhi - 110 003

Corporate Identification No. : L40101DL1975GOI007966, Telephone No. : 011-24387333, Fax No. : 011-24381018, E-mail : ntpccc@ntpc.co.in, Web Site : www.ntpc.co.in





No.13016/27/2012-CA-I
Government of India
Ministry of Coal

....

New Delhi, the 14 August, 2012

To,

Shri A.K.Dash,
Addl GM(PE-Mine Planning & Design)
5th Floor, Engineering Officer Complex,
Sector-24
NTPC Limited,
NOIDA- 201 301

Subject: Approval of Revised Mining Plan including Mine Closure Plan (1st Revision) (April 2012) of Dulanga coal block of IB Valley Coalfield, Distt. Sundergarh, Orissa -Reg.

Sir,

I am directed to refer to your letter no. CC:PEM:7015:MP:30 dated 17th October, 2011 submitting therewith Revised Mining Plan including Mine Closure Plan (1st Revision) (April 2012) of Dulanga coal block of IB Valley coalfield, Distt Sundergarh, Orissa and to say that the matter has been considered and the approval of the Central Government thereon is hereby conveyed under Section 5(2)(b) of the Mines & Minerals(Development & Regulation) Act, 1957 subject to the following conditions:-

- (i) The mining company shall take all necessary precautions regarding safety of mine workings, persons deployed therein.
- (ii) Mining Lease to be acquired shall not encroach into any other coal block.
- (iii) The approval of the Mining Plan is without prejudice to the requirement of approvals from competent/prescribed authority under the relevant rules/regulations etc.

2. Two copies of the approved Revised Mining Plan including Mine Closure Plan (1st Revision) duly signed by the competent authority are returned herewith with the request that a copy of the approved Revised Mining Plan including Mine Closure Plan (1st Revision) may be submitted to the concerned State Government for necessary action and also a photocopy of the approved Revised Mining Plan including Mine Closure Plan (1st Revision) may be sent to the Coal Controller for monitoring the block.

Yours faithfully,


(Sandeep Gupta)

Under Secretary to the Govt. of India

Encl: as above

Copy to:

The Under Secretary, CPAM Section, Ministry of Coal for information and record.

Public Hearing Commitments

The Public Hearing of Dulanga Coal Mining project of M/s NTPC Ltd. for production of 7 MTPA was held at Gram Panchayat Office, Sanghumuda, Sundargarh on 02.07.2010. The points raised by the public during the hearing and its compliance status are as follows:

Sl. No.	Points raised in Public Hearing	Compliance status
1	The mine authority should submit a specific plan for development of Hemgir block	<p>Complied.</p> <p>Plan for carrying out developmental activities in Project affected villages and peripheral villages within Hemgir block is being prepared on an annual basis and is being implemented after getting the same duly approved by the Collector and District Magistrate, Sundargarh. These activities are being carried out by NTPC under its ICD banner.</p>
2	The mine authority should inform the public about mitigative measures to be adopted to address the problem due to blasting	<p>Complied.</p> <p>It is clarified herein that NTPC is carrying out Controlled Blasting methods so as to reduce the environmental nuisances due to generation of dusts, noises and also for controlling ground vibrations within specified levels.</p> <p>It is further clarified that such blasting is being carried out under the approval of DGMS based on a scientific study to be carried out through an Institute / Agency of repute.</p>
3	The mine authority should inform the public about peripheral development programme proposed for the area	<p>Complied.</p> <p>It is to state that all peripheral development activities undertaken by NTPC Dulanga CMP under its ICD banner over the years has been finalized based on requests from local villagers.</p> <p>Villagers have been actively made a part of our peripheral development activities and were well informed of the same.</p>
4	The mine authority should go for massive plantation and develop an artificial forest in region	<p>Complied / Being complied.</p> <p>NTPC Dulanga has already committed to the State Forest Department and the MoEF for carrying out plantation as per the stipulations laid down in its Stage-II Forest Clearance.</p> <p>Plantation and Grassing Activities has been carried out over non-active Overburden Dump which</p>

		<p>spread over about 1.5 Ha of area with total 6120 no's of sapling over the Dump and 1200 kg of Stylo Hamata seeds all along the slope of non-active dump.</p> <p>Additionally, Plantation and Grassing, activities have been carried out over the Top Soil. About 400 nos of sapling over 1.27 Ha of area with 1200 kg of Stylo Hamata seeds all along the slope of Top Soil Dump.</p> <p>Till the end of Sept 2023, total numbers 9350 sapling has been planted for year 2023-24. Cumulative 52,092 saplings have been planted since inception. 1300 nos. Fruit bearing saplings were distributed to the residents of R&R Colony in July 2023 during Vanmahotsav taking the cumulative distribution of fruit bearing sapling and 12,000 since inception.</p> <p>Further activities planned in future:</p> <ul style="list-style-type: none"> • Plantation in Safety Zone • Plantation in blank areas as and when they are developed during the course of mining. • Plantation over area reclaimed in due course of mining operations.
5	The mine authority should take initiation for maintenance of Ghodamunda Ghat road	<p>Complied and bettered.</p> <p>NTPC Dulanga CMP has undertaken additional road strengthening works as per the following:</p> <ul style="list-style-type: none"> • Road repairing, Guard Walls, Culvert repairing, road strengthening in Sanghumuda and Kanaktura GP (Rs. 33 Lakhs) • Sarasmal, bandapali, kalobahal (Rs. 15 lakhs) • CC Road in Khuntijharia (Rs. 49.5 lakhs) • Masina, Luhurpada (Rs. 199.76 Lakhs) • Tangarpali Block (Rs. 10 Lakhs) • Diverted village road (Rs. 4 Crores) • Bridge over Garia Nala (Rs. 60 Lakhs) • Kanaktura village Bypass road (Rs 89 Lakhs) <p>All such road strengthening and repair works have been undertaken by NTPC on requests from local villagers for general public use and in interest of Road Safety.</p>
6	The mine authority should establish a Sishu Mandir at	<p>Complied and bettered.</p>

	<p>Hemgir for primary education of the area</p>	<p>In its commitment towards education, NTPC Dulanga CMP has undertaken the following infrastructure activities towards education in Hemgir block and in R&R Colony, Kalamegha:</p> <ul style="list-style-type: none"> • Nodal Highschool building (including Primary & Secondary classes) constructed by NTPC Dulanga at R&R Colony, Kalamegha which caters to the students of the four displaced and 02 affected villages and other peripheral villages. • Additional School building with boundary wall at Kalamegha, Dhumamunda (Rs. 36 Lakhs) • School Development at Masina, Kanaktura, Kulamani (Rs. 22 Lakhs) • Science Block at Duduka College (Rs. 12 Lakhs) • Electrification of Schools and distribution of LED bulbs, fans (Rs. 6 Lakhs) • Development of Navodaya Vidyalaya, Zinc Nagar Vidyalaya, Vivekanand English Medium School (Rs. 26 Lakhs) <p>Apart from the above, NTPC has also contributed to the cause of education through:</p> <ol style="list-style-type: none"> i. Utkarsh Merit Scholarship ii. Furnitures (Desk, Benches, Computers) for schools and colleges iii. Distribution of Study Kits, Test Papers, School Bags, Solar Lanterns etc. iv. Distribution of Test papers to ClassX students. v. Smart Classrooms at R&R Colony, Kalamegha, Kanaktura Highschool, Duduka College etc. vi. Teachers training programme organised for enhancing the skills of teachers vii. Career counselling programmes organised for the students of the peripheral schools.
7	<p>The mine authority should adopt necessary air pollution control measures to control fugitive emissions in the area to maintain SPM level</p>	<p>Complied / Being complied.</p> <p>Necessary air pollution control are adopted as mentioned hereunder by NTPC Dulanga CMP:</p> <ul style="list-style-type: none"> • Surface Miners deployed for mining equipped with Interlocked Dust Suppression system. • Water spraying at faces before and after blasting. • Wet Drilling is being adopted. • Deployment of mobile Fog cannons at loading & unloading points.

		<ul style="list-style-type: none"> • Mist type dust suppression arrangements through nozzles at Receiving hopper during unloading of coal. • Dust suppression arrangement at chute of Rapid loading system during loading of coal in wagons. • Water sprinkling on roads through 6 Nos. truck mounted water tankers of 14 KL each. • Overloading on dumpers from excavation area is strictly ensured along. <p>Also, monitoring of air quality parameters are being done on a regular basis and reports thereof are being submitted to MoEF&CC along with half-yearly compliance reports.</p>															
8	The mine authority should install a mine drainage treatment plant to treat the coal bearing mine drainage water before being discharged to outside agricultural fields and they should clarify whether the mine drainage water will reach Hirakud Reservoir or not	<p>Being complied.</p> <p>The mine drainage water is utilized in mining activity purposes like dust suppression, road sprinkling, washing etc. and waste water generated thereof from workshops is being treated in ETPs. Further, the mine drainage water is collected in mine sumps, mine voids and sedimentation ponds etc. which acts as natural rain water harvesting structures.</p> <p>It is further clarified that the mine drainage water is not being discharged into any surface water body and hence it shall not reach the Hirakud reservoir.</p>															
9	The mine authority should carry out adequate water sprinkling on the coal transportation road from the mine to its Coal Handling plant and from there to its proposed Darlipali Power plant	<p>Being complied.</p> <p>At present, the coal is being transported through MGR to Darlipali Super Thermal Power Station.</p> <p>The mine has CHP of capacity 1325 TPH consisting of 2 nos of screen (-200mm and -50mm) and 1 no crusher of capacity 800 TPH. It has installed dust suppression system at the following points:-</p> <table border="1"> <thead> <tr> <th>Dust generating areas</th><th>Type of water Sprinklers</th><th>Numbers</th></tr> </thead> <tbody> <tr> <td>Ground Hopper (2 nos)</td><td>Mist Type</td><td>10 each</td></tr> <tr> <td>Screen (-200 mm)</td><td>Mist Type</td><td>16</td></tr> <tr> <td>Screen (-50 mm)</td><td>Mist Type</td><td>16</td></tr> <tr> <td>Conveyor belts and Transfer</td><td>Mist Type</td><td>75</td></tr> </tbody> </table>	Dust generating areas	Type of water Sprinklers	Numbers	Ground Hopper (2 nos)	Mist Type	10 each	Screen (-200 mm)	Mist Type	16	Screen (-50 mm)	Mist Type	16	Conveyor belts and Transfer	Mist Type	75
Dust generating areas	Type of water Sprinklers	Numbers															
Ground Hopper (2 nos)	Mist Type	10 each															
Screen (-200 mm)	Mist Type	16															
Screen (-50 mm)	Mist Type	16															
Conveyor belts and Transfer	Mist Type	75															

		House (5 nos)		
		Silo (1 nos) of capacity 4000 T with two discharge chutes	Mist Type provided at the telescopic chute of each silo	10 each
		It has also a temporary skid mounted mobile crusher of capacity 350 TPH which is operated as per the requirement. The crusher is provided with water sprinkling arrangement for control of air pollution from emission of dust.		
10	The mine authority should give priority for health, education and local employment in the area.	<p>Complied.</p> <p>Health, Education has been a major activity head under its Initial Community Development (ICD) banner and is being ensured thereof.</p> <p>Some of the major activities undertaken in education have already been highlighted above under Sl. No 6.</p> <p>Activities undertaken in health front are given below:</p> <ul style="list-style-type: none"> • Free Medical Health Camps. Additionally, free medical check-up is being administered at dispensary on every Tuesday and Friday. • Veterinary / Animal Health Camps • Distribution of Mosquito Nets • Construction of Dispensary building, • Dedicated ambulance equipped with all facilities has been deployed at Site office. • A PHC has been established with Doctor and paramedical staffs with distribution of free medicines for villagers. <p>Activities undertaken for local employment are:</p> <ul style="list-style-type: none"> • Skill Development training (fully sponsored by NTPC) through CIPET, Bhubaneswar has been provided. 160 persons from PAPs has been trained • Vehicle Training to 35 numbers of PAP's have been provided. • Tailoring training for Women • Tie and Dye training for Women • Livelihood study, mapping & training for village SHGs. 		

		<ul style="list-style-type: none"> About 30 nos of local employment has been provided by NTPC through different contractual agencies. Inducting local village youths as trainees with our Mine Developer cum Operator (MDO) for making them employable in mines. Preference to PAPs for employment based on their suitability is given through MDO. MDO has engaged PaPs of about 250 Nos from peripheral peripheral villages.
11	The mine authority should take initiation to form a village coordination committee between the villagers and the mine authority to carry out peripheral development works in the area.	<p>Complied.</p> <p>Networks of village mobilisers have been established by appointing villagers from each village so as to form a link between the villages and NTPC Dulanga CMP. Those villagers mobilisers are kept in action even after displacement of all project displaced families to R&R Colony, Kalamegha.</p> <p>Such villagers have been entrusted with the task of conveying to NTPC, the request from village masses regarding their needs so as to incorporate the same while planning for peripheral development works.</p>
12	The mine authority should inform the public about the facilities to be provided to the Scheduled Tribe people of the area.	<p>Complied.</p> <p>Eligible meritorious Scheduled Tribe students are being provided with UTKARSH merit scholarship for their education.</p> <p>Skill Upgradation training has been provided for women folk in areas of tailoring, tie and dye and other livelihood mapping through reputed agencies.</p> <p>Skill Development training have been imparted for village youths.</p> <p>NTPC Dulanga CMP has also sponsored for Tribal sports like National Tribal Archery competition etc.</p> <p>A Tribal Centre/Training Centre has been constructed in its R&R Colony for PAPs.</p>
13	The date and venue of the public hearing was not widely published and the villages were not properly informed about this for which there was less attendance in the meeting.	<p>Complied.</p> <p>Date and venue of Public hearing was published in accordance with provisions laid down by MoEF. Newspaper publications were done in two widely circulated newspapers namely, New Indian</p>

	Hence the public hearing should be rescheduled.	Express (English) dated 29 th May 2010 and Pragatibadi (Odiya) dated 29 th May 2010. Copy of newspaper notifications were also handed over to the Gram Panchayat offices and staffs from NTPC had visited these villages 4-5 days prior to the scheduled Public Hearing date so as to convey them the venue and date details.
--	---	---

Environment Policy-2021

I. Purpose:

NTPC being country's largest power generator, with its presence across the energy value chain, recognizes that protection of environment is essential for sustainable business.

In the context of Environment Policy, the definition of environment covers all the domains of environment - Physical, Chemical, Biological and Socio- economic aspect.

NTPC hereby adopts Environment Policy-2021, superseding its earlier policy document of 2017.

The intent of this policy is to meet environmental expectations and provide actionable guidance, as NTPC strives to foster a culture of excellence and challenges itself for continual improvement.

II. Policy Statement:

"To provide cleaner energy by committing to highest possible levels of performance in environmental compliance, practices and stewardship."

III. Applicability:

This policy shall apply to all establishments of NTPC and each employee shall be made a partner in implementing the policy.

IV. Principles:

This policy is based on the following principles:

1. Consideration of Environmental factors right from the stage of planning, design and operation of project/station to ensure that mandatory principles of conservation and sustainability are adhered to.

This document contains:

- I. Purpose***
- II. Policy Statement***
- III. Applicability***
- IV. Principles***
- V. Institutional Framework***
- VI. Policy***
 - o Stewardship
 - o Compliance & Assurance
 - o Stakeholder Engagement
 - o Capacity Building
- VII. Review***



2. Adopting the best possible Environment management practices and state-of the-art technology to minimize impact of business on Environment.
3. NTPC's commitment as a responsible corporate citizen is demonstrated by striving to achieve and setting benchmarks not limited to statutory compliance.
4. Innovation by carrying out Research & Developmental activities, coupled with enablers leading to continual improvement.
5. Accepting accountability for all operations and expeditiously respond to any aberration.
6. Continuous monitoring and sharing of environmental indicators with stakeholders.
7. Develop each employee as environmental steward by improving his awareness levels while soliciting his commitment.

V. Institutional Framework:

Three tier structure for environmental systems implementation:

1. Corporate Level Functions - Engineering, planning and monitoring
2. Regional Level Functions – Compliance monitoring, Facilitators to stations and Coordination between Stations & Corporate.
3. Stations: Functions - Execution and reporting





Note: These charts do not reflect the organizational structure/reporting arrangement, but serve to identify responsible departments within NTPC.

VI. Policy:

NTPC shall achieve these objectives by:

1. Stewardship:

NTPC shall:

- Adopt a pro-active approach, place environmental aspects as one of the prime consideration in decision-making process.
- Identify and manage environmental impacts due to business activities, by adopting possible latest environment management technologies and practices.
- Act to manage risks, as identified by Risk Management Committee (RMC)*.
- Evaluate performance of Environment protection equipment, program and practices, with respect to legal provisions and prepare action plans for concerned functional groups.



- e. Ensure efficient and optimal use of resources such as land, water, fuel, construction materials, oils, and chemicals etc, especially the non-renewables.
- f. Spearhead waste management by 3Rs principles (reducing, re-using, and recycling) and safe disposal.
- g. Adopt more environment friendly and energy-efficient inputs.
- h. Provide innovative technological solutions to environment related issues.
- i. Benchmark parameters to establish and adopt best practices.
- j. Take up environmentally befitting projects in areas of climate change, renewable energy, conservation and responsible consumption of natural resources under Sustainable Development initiatives.
- k. Adopt principles of green procurement by incorporating appropriate provisions in contracts and procurements.
- l. To formulate and adopt separate Policies for Ash, Rehabilitation & Resettlement, Community Development – Corporate Social Responsibility and Sustainable Development.
- m. Creation of carbon sink by adding green cover in and around NTPC Stations.

*RMC comprises of members from senior functionaries of management as per provisions of Companies Act 2016.

2. Compliance and Assurance:

- a. NTPC shall continue to comply with all relevant environmental regulations, standards and other codes of practice, by operating and maintaining the assets within the boundary of permits, consents, and licenses.
- b. Risk Management Committee, shall establish system for reporting environment related parameters, deviations and constraints to Management. Environmental risks perceived shall be reviewed through risk management mechanism for appropriate action.
- c. Concerned group shall oversee compliance assurance of operating stations through reviews and appraisals.



- d. Requirement stipulated in all obtained clearances shall be complied with, including in new establishments and expansions.

3. Stakeholder Engagement:

NTPC shall continue to identify all stakeholders and engage with them at appropriate levels, to exchange views on environmental concerns and mitigation measures thereof.

4. Capacity Building:

- a. NTPC shall ensure all employees are made environmentally aware, to enable them to integrate its principles into their activities and decisions by conducting the suitable trainings/skill development programmes.
- b. Environment Management Group shall come up with focused requirements (including skill training and culture building), clearly bringing out the desired objectives, audience and responsibility.

VII. Review:

This policy shall be reviewed at opportune time, but not later than once in three years.





Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000613F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 02 Nov 2023

Test Report No: ERSIPL/TR/AA/242

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by : Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of : Representative of Customer.

Date of Sampling/Monitoring : 12-13.10.2023

Sample Received on : 20.10.2023

Analysis Started on : 20.10.2023

Analysis Completed on : 30.10.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 01 sample for each parameter

Weather Condition : Sunny

Atmospheric Temperature (Min/Max) : 24.0 - 34.0 °C

Atmospheric Pressure (Min/Max) : 1011-1013 mbar

Sample ID. No.

1. ERSIPL/AA/820

Locations (Core Zone)

1. Near Site Office (NTPC), Kapurikachhar

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results
					ERSIPL/ AA/ 820
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	209.77
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	74.91
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24): 2019, Gravimetric Method	µg/m ³	60.0	33.55
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	7.01
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	80.0	12.54

- Note-
- The test results relate only to the items sampled and tested.
 - Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 - This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 - Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 - This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000614F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 02 Nov 2023

Test Report No: ERSIPL/TR/AA/243

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by : Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of : Representative of Customer

Date of Sampling/Monitoring : 13-14.10.2023

Sample Received on : 20.10.2023

Analysis Started on : 20.10.2023

Analysis Completed on : 30.10.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 01 sample for each parameter

Weather Condition : Sunny

Atmospheric Temperature (Min/Max) : 25.0 - 35.0 °C

Atmospheric Pressure (Min/Max) : 1011-1015 mbar

Sample ID. No.

1. ERSIPL/AA/824
2. ERSIPL/AA/825
3. ERSIPL/AA/826
4. ERSIPL/AA/827

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjharia
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/824	ERSIPL/AA/825	ERSIPL/AA/826	ERSIPL/AA/827
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	207.62	204.43	200.23	208.78
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	74.05	70.76	71.43	73.24
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24): 2019, Gravimetric Method	µg/m ³	60.0	36.34	30.93	33.32	35.50
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	9.65	9.21	7.60	8.87
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	80.0	11.51	11.61	11.45	13.25

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total liability of ERS (I) Pvt. Ltd. is limited to the invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001 : 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg-1/1

Date: 02 Nov 2023**Test Report No: ERSIPL/TR/AA/T:242-243**

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by : Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of : Representative of Customer.

Date of Sampling/Monitoring : 12-14.10.2023

Sample Received on : 20.10.2023

Analysis Started on : 20.10.2023

Analysis Completed on : 30.10.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 01 sample for each parameter

Weather Condition : Sunny

Atmospheric Temperature (Min/Max) : 24.0 - 35.0 °C

Atmospheric Pressure (Min/Max) : 1011-1015 mbar

Sample ID. No.**Locations**

1. ERSIPL/AA/820
2. ERSIPL/AA/824
3. ERSIPL/AA/825
4. ERSIPL/AA/826
5. ERSIPL/AA/827

1. Near Site Office (NTPC), Kapurikachhar
2. Near Village Bendrichua
3. Near Village Rengalmunr
4. Near Village Khuntjharia
5. Near Village Kathfali

TEST FINDINGS:

Sl. No	Place of Monitoring/ Sample ID. No	Result of Parameters Analyzed
		Carbon Monoxide (CO) (in mg/m ³)
1	ERSIPL/AA/820	<1.14
2	ERSIPL/AA/824	<1.14
3	ERSIPL/AA/825	<1.14
4	ERSIPL/AA/826	<1.14
5	ERSIPL/AA/827	<1.14
Permissible Limit		2.0

(Authorized Signatory)
S.P. Pattanayak
Tech. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000615F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 02 Nov 2023

Test Report No: ERSIPL/TR/AA/244

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by : Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of : Representative of Customer.

Date of Sampling/Monitoring : 12-13.10.2023

Sample Received on : 20.10.2023

Analysis Started on : 20.10.2023

Analysis Completed on : 30.10.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 01 sample for each parameter

Weather Condition : Sunny

Atmospheric Temperature (Min/Max) : 24.0 - 34.0 °C

Atmospheric Pressure (Min/Max) : 1011-1013 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/821

1. Near Coal Lab

2. ERSIPL/AA/822

2. Near Work Shop

3. ERSIPL/AA/823

3. Near Weigh Bridge 3 & 4 (Village Dulanga)

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results		
					ERSIPL/AA/821	ERSIPL/AA/822	ERSIPL/AA/823
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	308.13	304.66	293.15
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	141.16	146.74	141.38
3	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	9.43	8.79	8.65
4	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	14.93	13.38	13.93

Note-

- The test results relate only to the items sampled and tested.
- Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
- This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
- Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
- This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Signature)



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000616F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 02 Nov 2023

Test Report No: ERSIPL/TR/AA/245

Name and Address of the Customer

: Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by

: Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of

: Representative of Customer.

Date of Sampling/Monitoring

: 29-30.10.2023

Sample Received on

: 01.11.2023

Analysis Started on

: 01.11.2023

Analysis Completed on

: 02.11.2023

Method of Sampling

: As per Applicable Test Method

Quantity of Sample

: 01 sample for each parameter

Weather Condition

: Sunny/Haze

Atmospheric Temperature (Min/Max)

: 18.0 - 31.0 °C

Atmospheric Pressure (Min/Max)

: 1012-1016 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/856

1. Near Site Office (NTPC), Kapurikachhar

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results
					ERSIPL/ AA/ 856
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	210.98
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	73.91
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS: 5182 (Part 24): 2019, Gravimetric Method	µg/m ³	60.0	32.47
4	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	8.08
5	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	80.0	12.59

Note-

- The test results relate only to the items sampled and tested.
- Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
- This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
- Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
- This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000617F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 02 Nov 2023

Test Report No: ERSIPL/TR/AA/246

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer
Date of Sampling/Monitoring : 30-31.10.2023
Sample Received on : 01.11.2023
Analysis Started on : 01.11.2023
Analysis Completed on : 02.11.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny/Haze
Atmospheric Temperature (Min/Max) : 19.0 - 31.0 °C
Atmospheric Pressure (Min/Max) : 1012-1016 mbar

Sample ID. No.

1. ERSIPL/AA/860
2. ERSIPL/AA/861
3. ERSIPL/AA/862
4. ERSIPL/AA/863

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjharia
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/860	ERSIPL/AA/861	ERSIPL/AA/862	ERSIPL/AA/863
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	206.28	206.36	202.73	205.72
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	69.69	70.20	74.65	72.03
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24): 2019, Gravimetric Method	µg/m ³	60.0	29.10	28.52	32.91	31.97
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	8.74	8.79	7.92	8.89
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	80.0	13.48	14.68	11.96	13.28

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg-1/1

Date: 02 Nov 2023**Test Report No: ERSIPL/TR/AA/T:245-246**

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 29-31.10.2023
Sample Received on : 01.11.2023
Analysis Started on : 01.11.2023
Analysis Completed on : 02.11.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny/Haze
Atmospheric Temperature (Min/Max) : 18.0 - 31.0 °C
Atmospheric Pressure (Min/Max) : 1012-1016 mbar

Sample ID. No.**Locations**

1. ERSIPL/AA/856
2. ERSIPL/AA/860
3. ERSIPL/AA/861
4. ERSIPL/AA/862
5. ERSIPL/AA/863

1. Near Site Office (NTPC), Kapurikachhar
2. Near Village Bendrichua
3. Near Village Rengalmunr
4. Near Village Khuntjharia
5. Near Village Kathfali

TEST FINDINGS:

Sl. No	Place of Monitoring/ Sample ID.No	Result of Parameters Analyzed
		Carbon Monoxide (CO) (in mg/m ³)
1	ERSIPL/AA/856	<1.14
2	ERSIPL/AA/860	<1.14
3	ERSIPL/AA/861	<1.14
4	ERSIPL/AA/862	<1.14
5	ERSIPL/AA/863	<1.14
	Permissible Limit	2.0

(Authorized Signatory)

S.P.Pattanayak
Tech. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000618F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 02 Nov 2023

Test Report No: ERSIPL/TR/AA/247

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 29-30.10.2023
Sample Received on : 01.11.2023
Analysis Started on : 01.11.2023
Analysis Completed on : 02.11.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny/Haze
Atmospheric Temperature (Min/Max) : 18.0 - 31.0 °C
Atmospheric Pressure (Min/Max) : 1012-1016 mbar
Sample ID. No. Locations (Core Zone)

1. ERSIPL/AA/857
2. ERSIPL/AA/858
3. ERSIPL/AA/859

1. Near Coal Lab
2. Near Work Shop
3. Near Weigh Bridge 3 & 4 (Village Dulanga)

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results		
					ERSIPL/ AA/ 857	ERSIPL/ AA/ 858	ERSIPL/ AA/ 859
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4): 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	306.77	308.25	299.37
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	145.12	148.82	141.05
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	8.90	7.09	9.17
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed-2022	µg/m ³	120.0	14.09	10.82	14.59

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signature)



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000630F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/AA/251

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 07-08.11.2023
Sample Received on : 20.11.2023
Analysis Started on : 20.11.2023
Analysis Completed on : 27.11.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny
Atmospheric Temperature (Min/Max) : 15.0 - 33.0 °C
Atmospheric Pressure (Min/Max) : 1012-1016 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/865

1. Near Site Office (NTPC), Kapurikachhar

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results
					ERSIPL/ AA/ 865
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)-1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	209.58
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23); 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	74.85
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24); 2019, Gravimetric Method	µg/m ³	60.0	34.05
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2); 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	7.22
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6); 2006, Reaffirmed -2022	µg/m ³	80.0	13.56

- Note-
- The test results relate only to the items sampled and tested.
 - Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 - This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 - Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 - This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000631F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/AA/252

Name and Address of the Customer

: Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by

: Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of

: Representative of Customer

Date of Sampling/Monitoring

: 08-09.11.2023

Sample Received on

: 20.11.2023

Analysis Started on

: 20.11.2023

Analysis Completed on

: 27.11.2023

Method of Sampling

: As per Applicable Test Method

Quantity of Sample

: 01 sample for each parameter

Weather Condition

: Sunny

Atmospheric Temperature (Min/Max)

: 16.0 - 32.0 °C

Atmospheric Pressure (Min/Max)

: 1012-1016 mbar

Sample ID. No.

1. ERSIPL/AA/869
2. ERSIPL/AA/870
3. ERSIPL/AA/871
4. ERSIPL/AA/872

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjharia
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No. 4169, dtd. 20.03.23	Results			
					ERSIPL/AA/869	ERSIPL/AA/870	ERSIPL/AA/871	ERSIPL/AA/872
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	209.07	205.00	203.44	213.97
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	73.07	71.75	71.62	73.80
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24): 2019, Gravimetric Method	µg/m ³	60.0	32.66	35.45	30.29	32.63
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	8.63	7.72	9.07	8.37
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	80.0	13.82	14.14	13.38	12.53

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001 : 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg-1/1

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/AA/T:251-252

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 07-09.11.2023
Sample Received on : 20.11.2023
Analysis Started on : 20.11.2023
Analysis Completed on : 27.11.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny
Atmospheric Temperature (Min/Max) : 15.0 - 33.0 °C
Atmospheric Pressure (Min/Max) : 1012-1016 mbar

Sample ID. No.**Locations**

1. ERSIPL/AA/865
2. ERSIPL/AA/869
3. ERSIPL/AA/870
4. ERSIPL/AA/871
5. ERSIPL/AA/872

1. Near Site Office (NTPC), Kapurikachhar
2. Near Village Bendrichua
3. Near Village Rengaimunr
4. Near Village Khuntjharia
5. Near Village Kathfali

TEST FINDINGS:

Sl. No	Place of Monitoring/ Sample ID. No	Result of Parameters Analyzed
		Carbon Monoxide (CO) (in mg/m ³)
1	ERSIPL/AA/865	<1.14
2	ERSIPL/AA/869	<1.14
3	ERSIPL/AA/870	<1.14
4	ERSIPL/AA/871	<1.14
5	ERSIPL/AA/872	<1.14
Permissible Limit		2.0

(Authorized Signatory)
S.P. Pattanayak
Tech. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000632F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/AA/253

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 07-08.11.2023
Sample Received on : 20.11.2023
Analysis Started on : 20.11.2023
Analysis Completed on : 27.11.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny
Atmospheric Temperature (Min/Max) : 15.0 - 33.0 °C
Atmospheric Pressure (Min/Max) : 1012-1016 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/866
2. ERSIPL/AA/867
3. ERSIPL/AA/868

1. Near Coal Lab
2. Near Work Shop
3. Near Weigh Bridge 3 & 4 (Village Dulanga)

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results		
					ERSIPL/ AA/ 866	ERSIPL/ AA/ 867	ERSIPL/ AA/ 868
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	313.30	301.77	321.04
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	145.92	141.26	154.83
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	9.30	7.88	8.62
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	14.73	12.01	13.88

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000633F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/AA/254

Name and Address of the Customer

Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by

Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of

Representative of Customer.

Date of Sampling/Monitoring

20-21.11.2023

Sample Received on

24.11.2023

Analysis Started on

24.11.2023

Analysis Completed on

27.11.2023

Method of Sampling

As per Applicable Test Method

Quantity of Sample

01 sample for each parameter

Weather Condition

Haze

Atmospheric Temperature (Min/Max)

18.0 - 30.0 °C

Atmospheric Pressure (Min/Max)

1014-1018 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/915

1. Near Site Office (NTPC), Kapurikachhar

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results
					ERSIPL/ AA/ 915
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	212.73
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	75.97
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24): 2019, Gravimetric Method	µg/m ³	60.0	36.23
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method.	µg/m ³	80.0	8.46
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	80.0	12.59

Note-

- The test results relate only to the items sampled and tested.
- Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
- This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
- Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
- This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P. Pattnayak



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000634F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/AA/255

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer
Date of Sampling/Monitoring : 19-20.11.2023
Sample Received on : 24.11.2023
Analysis Started on : 24.11.2023
Analysis Completed on : 27.11.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Haze
Atmospheric Temperature (Min/Max) : 18.0 - 30.0 °C
Atmospheric Pressure (Min/Max) : 1014-1018 mbar

Sample ID. No.

1. ERSIPL/AA/919
2. ERSIPL/AA/920
3. ERSIPL/AA/921
4. ERSIPL/AA/922

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjaria
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/919	ERSIPL/AA/920	ERSIPL/AA/921	ERSIPL/AA/922
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	209.17	211.61	211.39	207.92
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	72.22	72.63	71.61	71.81
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24): 2019, Gravimetric Method	µg/m ³	60.0	34.17	34.00	33.40	31.75
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	8.23	8.99	8.14	8.68
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	80.0	12.27	11.33	12.39	12.72

- Note:
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

**Environmental Research and Services (India) Pvt. Ltd.**

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg-1/1

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/AA/T:254-255

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 19-21.11.2023
Sample Received on : 24.11.2023
Analysis Started on : 24.11.2023
Analysis Completed on : 27.11.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Haze
Atmospheric Temperature (Min/Max) : 18.0 - 30.0 °C
Atmospheric Pressure (Min/Max) : 1014-1018 mbar

Sample ID. No.Locations

1. ERSIPL/AA/915
2. ERSIPL/AA/919
3. ERSIPL/AA/920
4. ERSIPL/AA/921
5. ERSIPL/AA/922

1. Near Site Office (NTPC), Kapurikachhar
2. Near Village Bendrichua
3. Near Village Rengalmunr
4. Near Village Khuntjharla
5. Near Village Kathfali

TEST FINDINGS:

Sl. No	Place of Monitoring/ Sample ID, No	Result of Parameters Analyzed
		Carbon Monoxide (CO) (in mg/m ³)
1	ERSIPL/AA/915	<1.14
2	ERSIPL/AA/919	<1.14
3	ERSIPL/AA/920	<1.14
4	ERSIPL/AA/921	<1.14
5	ERSIPL/AA/922	<1.14
	Permissible Limit	2.0

(Authorized Signatory)
S.P. Pattanayak
Tech. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000635F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 27 Nov 2023

Test Report No: ERSIPL/TR/AA/256

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 20-21.11.2023
Sample Received on : 24.11.2023
Analysis Started on : 24.11.2023
Analysis Completed on : 27.11.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Haze
Atmospheric Temperature (Min/Max) : 18.0 - 30.0 °C
Atmospheric Pressure (Min/Max) : 1014-1018 mbar
Sample ID. No. Locations (Core Zone)

1. ERSIPL/AA/916
2. ERSIPL/AA/917
3. ERSIPL/AA/918

1. Near Coal Lab
2. Near Work Shop
3. Near Weigh Bridge 3 & 4 (Village Dulanga)

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results		
					ERSIPL/AA/916	ERSIPL/AA/917	ERSIPL/AA/918
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	302.86	294.11	300.08
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part :23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	133.66	137.07	137.95
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	9.89	8.05	9.79
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	13.65	13.12	12.26

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC7440230000007321F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/AA/291

Name and Address of the Customer

: Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by

: Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of

: Representative of Customer

Date of Sampling/Monitoring

: 11-12.12.2023

Sample Received on

: 20.12.2023

Analysis Started on

: 20.12.2023

Analysis Completed on

: 29.12.2023

Method of Sampling

: As per Applicable Test Method

Quantity of Sample

: 01 sample for each parameter

Weather Condition

: Sunny/Fog

Atmospheric Temperature (Min/Max)

: 13.0 - 27.0 °C

Atmospheric Pressure (Min/Max)

: 1014-1018 mbar

Sample ID. No.

1. ERSIPL/AA/1012
2. ERSIPL/AA/1013
3. ERSIPL/AA/1014
4. ERSIPL/AA/1015

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjharla
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/1012	ERSIPL/AA/1013	ERSIPL/AA/1014	ERSIPL/AA/1015
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	$\mu\text{g}/\text{m}^3$	Not Prescribed	206.18	201.83	210.33	206.43
2	Particulate Matter (size less than 10 μm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	$\mu\text{g}/\text{m}^3$	100.0	74.41	73.12	73.22	72.22
3	Particulate Matter (size less than 2.5 μm) or PM 2.5	IS 5182 (Part 24): 2019, Gravimetric Method	$\mu\text{g}/\text{m}^3$	60.0	34.57	35.24	34.27	32.74
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	$\mu\text{g}/\text{m}^3$	80.0	8.32	9.01	8.43	7.36
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	$\mu\text{g}/\text{m}^3$	80.0	12.66	13.19	13.30	12.30

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I)



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg-1/1

Date: 30 Dec 2023
Test Report No: ERSIPL/TR/AA/T:291
Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 11-12.12.2023
Sample Received on : 20.12.2023
Analysis Started on : 20.12.2023
Analysis Completed on : 29.12.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny/Fog
Atmospheric Temperature (Min/Max) : 13.0 - 27.0 °C
Atmospheric Pressure (Min/Max) : 1014-1018 mbar

Sample ID. No.

1. ERSIPL/AA/1012
2. ERSIPL/AA/1013
3. ERSIPL/AA/1014
4. ERSIPL/AA/1015

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjaria
4. Near Village Kathali

TEST FINDINGS:

Sl. No	Place of Monitoring/ Sample ID. No	Result of Parameters Analyzed
		Carbon Monoxide (CO) (in mg/m ³)
1	ERSIPL/AA/1012	<1.14
2	ERSIPL/AA/1013	<1.14
3	ERSIPL/AA/1014	<1.14
4	ERSIPL/AA/1015	<1.14
	Permissible Limit	2.0

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000733F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/AA/292

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 12-13.12.2023
Sample Received on : 20.12.2023
Analysis Started on : 20.12.2023
Analysis Completed on : 29.12.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny/Fog
Atmospheric Temperature (Min/Max) : 14.0 - 26.0 °C
Atmospheric Pressure (Min/Max) : 1013-1017 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/1006
2. ERSIPL/AA/1007
3. ERSIPL/AA/1008
4. ERSIPL/AA/1009

1. Near Excavation Area
2. Near Haul Road
3. Near Dump
4. Near Workshop

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/1006	ERSIPL/AA/1007	ERSIPL/AA/1008	ERSIPL/AA/1009
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	315.38	329.29	308.51	332.18
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	142.71	139.13	144.42	150.04
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	9.20	7.98	8.93	8.93
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	14.12	13.69	13.05	13.59

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000734F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/AA/293

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 13-14.12.2023
Sample Received on : 20.12.2023
Analysis Started on : 20.12.2023
Analysis Completed on : 29.12.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Haze/Passing Clouds
Atmospheric Temperature (Min/Max) : 13.0 - 28.0 °C
Atmospheric Pressure (Min/Max) : 1014-1019 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/1010

1. Near Drilling Area

2. ERSIPL/AA/1011

2. Near Coal Handling Plant

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results	
					ERSIPL/AA/1010	ERSIPL/AA/1011
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	305.47	320.16
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	142.24	148.10
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	9.19	7.58
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	14.40	12.29

- Note-
- The test results relate only to the items sampled and tested.
 - Total Liability of ERS (I) Pvt. Ltd. is limited to the invoice Amount.
 - This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 - Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 - This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000735F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/AA/294

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by : Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of : Representative of Customer

Date of Sampling/Monitoring : 20-21.12.2023

Sample Received on : 25.12.2023

Analysis Started on : 25.12.2023

Analysis Completed on : 29.12.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 01 sample for each parameter

Weather Condition : Haze

Atmospheric Temperature (Min/Max) : 10.0 - 24.0 °C

Atmospheric Pressure (Min/Max) : 1014-1021 mbar

Sample ID. No.

1. ERSIPL/AA/1022
2. ERSIPL/AA/1023
3. ERSIPL/AA/1024
4. ERSIPL/AA/1025

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjharla
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/1022	ERSIPL/AA/1023	ERSIPL/AA/1024	ERSIPL/AA/1025
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	207.50	210.89	208.48	202.20
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23)- 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	74.40	72.21	70.86	71.18
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24)- 2019, Gravimetric Method	µg/m ³	60.0	36.08	32.56	32.44	30.33
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2)- 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	8.81	9.57	8.95	7.11
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6)- 2006, Reaffirmed -2022	µg/m ³	80.0	13.14	14.02	14.11	11.13

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

81



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg-1/1

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/AA/T:294

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 20-21.12.2023
Sample Received on : 25.12.2023
Analysis Started on : 25.12.2023
Analysis Completed on : 29.12.2023
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Haze
Atmospheric Temperature (Min/Max) : 10.0 - 24.0 °C
Atmospheric Pressure (Min/Max) : 1014-1021 mbar

Sample ID, No.

1. ERSIPL/AA/1022
2. ERSIPL/AA/1023
3. ERSIPL/AA/1024
4. ERSIPL/AA/1025

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjharla
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Place of Monitoring/ Sample ID. No	Result of Parameters Analyzed
		Carbon Monoxide (CO) (in mg/m ³)
1	ERSIPL/AA/1022	<1.14
2	ERSIPL/AA/1023	<1.14
3	ERSIPL/AA/1024	<1.14
4	ERSIPL/AA/1025	<1.14
	Permissible Limit	2.0

Note:-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak
Tech. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000736F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/AA/295

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by : Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of : Representative of Customer.

Date of Sampling/Monitoring : 18-19.12.2023

Sample Received on : 25.12.2023

Analysis Started on : 25.12.2023

Analysis Completed on : 29.12.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 01 sample for each parameter

Weather Condition : Haze

Atmospheric Temperature (Min/Max) : 10.0 - 25.0 °C

Atmospheric Pressure (Min/Max) : 1016-1021 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/1016
2. ERSIPL/AA/1017
3. ERSIPL/AA/1028
4. ERSIPL/AA/1019

1. Near Excavation Area
2. Near Haul Road
3. Near Dump
4. Near Workshop

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/1016	ERSIPL/AA/1017	ERSIPL/AA/1018	ERSIPL/AA/1019
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	311.47	313.07	318.81	329.24
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part: 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	141.77	138.04	144.50	148.88
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part: 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	8.19	7.34	9.44	8.74
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part: 6): 2006, Reaffirmed -2022	µg/m ³	120.0	12.56	11.99	14.09	12.75

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744023000000737F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Dec 2023

Test Report No: ERSIPL/TR/AA/296

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by : Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of : Representative of Customer.

Date of Sampling/Monitoring : 19-20.12.2023

Sample Received on : 25.12.2023

Analysis Started on : 25.12.2023

Analysis Completed on : 29.12.2023

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 01 sample for each parameter

Weather Condition : Scatter Clouds

Atmospheric Temperature (Min/Max) : 10.0 - 26.0 °C

Atmospheric Pressure (Min/Max) : 1016-1021 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/1020

1. Near Drilling Area

2. ERSIPL/AA/1021

2. Near Coal Handling Plant

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results	
					ERSIPL/AA/1020	ERSIPL/AA/1021
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	303.19	315.06
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	136.32	143.22
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	8.95	7.59
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	12.65	13.64

- Note-
- The test results relate only to the items sampled and tested.
 - Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 - This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 - Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 - This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S. P. Pattanayak



CIN - U73100OR1995PTC003889



GSTIN : 21AAACE6224D1ZE

Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Ref. No. ERSIPL/ES & GA/SMASL-R&B/2024-02-01/29

Date..... 01.02.2024

To

The Vice President,

Sainik Mining And Allied Services Limited,

At-Majhapada, Po-Sanghumuda,

Sundargarh – Odisha-770013

Sub. : Annual contract work order for Regular (monthly/quarterly/bi-annually/annually) monitoring of the environmental parameters within and surrounding are (core zone & buffer zone) of Dulanga open cast Coal Mining project of M/s NTPC Limited at Majhapara, district Sundergarh, Odisha - **Report for the month JAN-2024**

Ref. : Work Order No- SMASL/ DLCMP/ EMD/W.O / 2023-24/230 dated 20/01/2024.

Dear Sir,

With reference to the above we are enclosing here with the following documents to you regarding Monthly Monitoring for your kind reference and need full action please.

- Ambient Air Quality Monitoring and Analysis Report for the month of **JAN-2024**, (fortnightly-10 monitoring stations).
- Surface Water Sample Analysis Report for the month **JAN-2024**(04 Samples).
- Ground Water Sample Analysis Report for the month of **JAN-2024**(09 Samples).
- Mines Pit Water Sample Analysis Report for the month of **JAN-2024**(02 Samples).
- ETP Sample Analysis Report for the month of **JAN-2024**(02 Samples).
- Noise Level Measurement Report for the month of **JAN-2024**. (Fortnightly-10 monitoring stations).
- Meteorological Data for **JAN-2024** (27/12/2023 to 26/01/2024)

Thanking you,

Yours truly,

for Environmental Research and Services (India) Pvt. Ltd.

(Managing Director)

Encl: As above



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibsr@gmail.com

ULR-TC744024000000045F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/AA/19

Name and Address of the Customer

: Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by

: Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of

: Representative of Customer

Date of Sampling/Monitoring

: 13-14.01.2024

Sample Received on

: 15.01.2024

Analysis Started on

: 15.01.2024

Analysis Completed on

: 25.01.2024

Method of Sampling

: As per Applicable Test Method

Quantity of Sample

: 01 sample for each parameter

Weather Condition

: Sunny/Fog

Atmospheric Temperature (Min/Max)

: 10.0 - 30.0 °C

Atmospheric Pressure (Min/Max)

: 1013-1018 mbar

Sample ID. No.

1. ERSIPL/AA/034
2. ERSIPL/AA/035
3. ERSIPL/AA/036
4. ERSIPL/AA/037

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjaria
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/034	ERSIPL/AA/035	ERSIPL/AA/036	ERSIPL/AA/037
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4): 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	209.24	205.08	195.61	191.09
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	74.37	72.10	70.03	70.40
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24): 2019, Gravimetric Method	µg/m ³	60.0	32.89	34.02	30.50	30.40
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	8.70	9.75	7.50	7.32
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	80.0	12.33	13.09	12.68	12.96

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg-1/1

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/AA/T:19

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by : Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of : Representative of Customer.

Date of Sampling/Monitoring : 13-14.01.2024

Sample Received on : 15.01.2024

Analysis Started on : 15.01.2024

Analysis Completed on : 25.01.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 01 sample for each parameter

Weather Condition : Sunny/Fog

Atmospheric Temperature (Min/Max) : 10.0 - 30.0 °C

Atmospheric Pressure (Min/Max) : 1013-1018 mbar

Sample ID. No.

1. ERSIPL/AA/034
2. ERSIPL/AA/035
3. ERSIPL/AA/036
4. ERSIPL/AA/037

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjharua
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Place of Monitoring/ Sample ID. No	Result of Parameters Analyzed
		Carbon Monoxide (CO) (in mg/m ³)
1	ERSIPL/AA/034	<1.14
2	ERSIPL/AA/035	<1.14
3	ERSIPL/AA/036	<1.14
4	ERSIPL/AA/037	<1.14
	Permissible Limit	2.0

Note:-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak
Tech. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000046F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/AA/20

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 12-13.01.2024
Sample Received on : 15.01.2024
Analysis Started on : 15.01.2024
Analysis Completed on : 25.01.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny
Atmospheric Temperature (Min/Max) : 12.0 - 29.0 °C
Atmospheric Pressure (Min/Max) : 1014-1019 mbar

Sample ID. No.

1. ERSIPL/AA/028
2. ERSIPL/AA/029
3. ERSIPL/AA/030
4. ERSIPL/AA/031

Locations (Core Zone)

1. Near Excavation Area
2. Near Haul Road
3. Near Dump
4. Near Workshop

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/028	ERSIPL/AA/029	ERSIPL/AA/030	ERSIPL/AA/031
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4): 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	303.40	309.01	296.42	305.01
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	133.89	130.56	137.16	144.55
3	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	9.78	8.38	8.77	7.50
4	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	13.62	12.41	13.80	13.49

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000047F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/AA/21

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 12-13.01.2024
Sample Received on : 15.01.2024
Analysis Started on : 15.01.2024
Analysis Completed on : 25.01.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny
Atmospheric Temperature (Min/Max) : 12.0 - 29.0 °C
Atmospheric Pressure (Min/Max) : 1014-1019 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/032
2. ERSIPL/AA/033

1. Near Drilling Area
2. Near Coal Handling Plant

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results	
					ERSIPL/AA/032	ERSIPL/AA/033
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4): 1999, Reaffirmed 2019, Gravimetric Method	$\mu\text{g}/\text{m}^3$	500.0	302.74	306.18
2	Particulate Matter (size less than 10 μm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	$\mu\text{g}/\text{m}^3$	250.0	133.62	142.52
3	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	$\mu\text{g}/\text{m}^3$	120.0	7.14	7.58
4	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	$\mu\text{g}/\text{m}^3$	120.0	13.07	13.58

- Note:-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak
Tech. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000048F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/AA/22

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer
Date of Sampling/Monitoring : 22-23.01.2024
Sample Received on : 29.01.2024
Analysis Started on : 29.01.2024
Analysis Completed on : 31.01.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny
Atmospheric Temperature (Min/Max) : 14.0 – 26.0 °C
Atmospheric Pressure (Min/Max) : 1016-1020 mbar

Sample ID. No.

1. ERSIPL/AA/060
2. ERSIPL/AA/061
3. ERSIPL/AA/062
4. ERSIPL/AA/063

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjaria
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/060	ERSIPL/AA/061	ERSIPL/AA/062	ERSIPL/AA/063
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	200.40	201.01	199.89	208.46
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	73.19	73.68	69.46	70.28
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24): 2019, Gravimetric Method	µg/m ³	60.0	32.12	30.12	30.36	32.63
4	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	9.16	8.83	8.20	7.76
5	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	80.0	13.85	12.09	10.73	12.91

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

PG-1/1

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/AA/T:22

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Sample Collected in presence of : Representative of Customer
Date of Sampling/Monitoring : 22-23.01.2024
Sample Received on : 29.01.2024
Analysis Started on : 29.01.2024
Analysis Completed on : 31.01.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny
Atmospheric Temperature (Min/Max) : 14.0 – 26.0 °C
Atmospheric Pressure (Min/Max) : 1016-1020 mbar

Sample ID: No.

1. ERSIPL/AA/060
2. ERSIPL/AA/061
3. ERSIPL/AA/062
4. ERSIPL/AA/063

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjharua
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Place of Monitoring/ Sample ID. No	Result of Parameters Analyzed
		Carbon Monoxide (CO) (in mg/m ³)
1	ERSIPL/AA/060	<1.14
2	ERSIPL/AA/061	<1.14
3	ERSIPL/AA/062	<1.14
4	ERSIPL/AA/063	<1.14
Permissible Limit		2.0

Note:-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P. Pattanayak
Tech. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

TC-7440

ULR-TC744024000000049F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/AA/23

Name and Address of the Customer :

Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by :

Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of :

Representative of Customer.

Date of Sampling/Monitoring :

20-21.01.2024

Sample Received on :

29.01.2024

Analysis Started on :

29.01.2024

Analysis Completed on :

31.01.2024

Method of Sampling :

As per Applicable Test Method

Quantity of Sample :

01 sample for each parameter.

Weather Condition :

FOG

Atmospheric Temperature (Min/Max) :

12.0 - 24.0 °C

Atmospheric Pressure (Min/Max) :

1014-1027 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/054

1. Near Excavation Area

2. ERSIPL/AA/055

2. Near Haul Road

3. ERSIPL/AA/056

3. Near Dump

4. ERSIPL/AA/057

4. Near Workshop

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4109, dtd.20.09.23	Results			
					ERSIPL/AA/054	ERSIPL/AA/055	ERSIPL/AA/056	ERSIPL/AA/057
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	297.34	275.86	306.27	287.92
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	120.67	129.51	134.76	128.62
3	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	8.15	7.80	8.74	7.61
4	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	13.51	11.38	13.76	13.38

Note-

- The test results relate only to the items sampled and tested.
- Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
- This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
- Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
- This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000050F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 31 Jan 2024

Test Report No: ERSIPL/TR/AA/24

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 21-22.01.2024
Sample Received on : 29.01.2024
Analysis Started on : 29.01.2024
Analysis Completed on : 31.01.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : FOG
Atmospheric Temperature (Min/Max) : 12.0 - 24.0 °C
Atmospheric Pressure (Min/Max) : 1014-1020 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/058

1. Near Drilling Area

2. ERSIPL/AA/059

2. Near Coal Handling Plant

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dt.20.09.23	Results	
					ERSIPL/AA/058	ERSIPL/AA/059
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	$\mu\text{g}/\text{m}^3$	500.0	298.89	296.50
2	Particulate Matter (size less than 10 μm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	$\mu\text{g}/\text{m}^3$	250.0	123.08	129.48
3	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	$\mu\text{g}/\text{m}^3$	120.0	9.61	7.27
4	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	$\mu\text{g}/\text{m}^3$	120.0	10.77	13.02

- Note-
- The test results relate only to the items sampled and tested.
 - Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 - This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 - Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 - This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P.Pattanayak
Tech. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

TC-7440

ULR-TC744024000000102F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/AA/39

Name and Address of the Customer

: Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by

: Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of

: Representative of Customer

Date of Sampling/Monitoring

: 13-14.02.2024

Sample Received on

: 18.02.2024

Analysis Started on

: 18.02.2024

Analysis Completed on

: 28.02.2024

Method of Sampling

: As per Applicable Test Method

Quantity of Sample

: 01 sample for each parameter

Weather Condition

: Partly Sunny/Fog

Atmospheric Temperature (Min/Max)

: 17.0 - 29.0 °C

Atmospheric Pressure (Min/Max)

: 1015-1019 mbar

Sample ID. No.

1. ERSIPL/AA/136
2. ERSIPL/AA/137
3. ERSIPL/AA/138
4. ERSIPL/AA/139

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjharua
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4189, dtd.20.03.23	Results			
					ERSIPL/AA/136	ERSIPL/AA/137	ERSIPL/AA/138	ERSIPL/AA/139
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	202.02	200.34	195.69	202.82
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	74.91	71.28	71.44	73.51
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24): 2019, Gravimetric Method	µg/m ³	60.0	34.14	34.70	33.44	34.53
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	8.35	7.17	7.54	8.58
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	80.0	11.27	13.81	13.07	12.54

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg-1/1

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/AA/T:39

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by : Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of : Representative of Customer.

Date of Sampling/Monitoring : 13-14.02.2024

Sample Received on : 18.02.2024

Analysis Started on : 18.02.2024

Analysis Completed on : 28.02.2024

Method of Sampling : As per Applicable Test Method

Quantity of Sample : 01 sample for each parameter

Weather Condition : Partly Sunny/Fog

Atmospheric Temperature (Min/Max) : 17.0 - 29.0 °C

Atmospheric Pressure (Min/Max) : 1015-1019 mbar

Sample ID. No.

1. ERSIPL/AA/136
2. ERSIPL/AA/137
3. ERSIPL/AA/138
4. ERSIPL/AA/139

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjharia
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Place of Monitoring/ Sample ID. No	Result of Parameters Analyzed
		Carbon Monoxide (CO) (in mg/m ³)
1	ERSIPL/AA/136	<1.14
2	ERSIPL/AA/137	<1.14
3	ERSIPL/AA/138	<1.14
4	ERSIPL/AA/139	<1.14
	Permissible Limit	2.0

Note:-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P. Pattanayak
Tech. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000103F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/AA/40

Name and Address of the Customer

Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by

Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of

Representative of Customer.

Date of Sampling/Monitoring

12-13.02.2024

Sample Received on

18.02.2024

Analysis Started on

18.02.2024

Analysis Completed on

28.02.2024

Method of Sampling

As per Applicable Test Method

Quantity of Sample

01 sample for each parameter

Weather Condition

Scattered Clouds

Atmospheric Temperature (Min/Max)

18.0 - 26.0 °C

Atmospheric Pressure (Min/Max)

1016-1021 mbar

Sample ID. No.

1. ERSIPL/AA/130
2. ERSIPL/AA/131
3. ERSIPL/AA/132
4. ERSIPL/AA/133

Locations (Core Zone)

1. Near Excavation Area
2. Near Haul Road
3. Near Dump
4. Near Workshop

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/130	ERSIPL/AA/131	ERSIPL/AA/132	ERSIPL/AA/133
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	304.00	303.99	298.64	299.25
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	138.22	136.00	132.63	136.20
3	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	7.34	8.52	8.50	9.45
4	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	12.77	12.48	13.10	13.87

- Note:-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000104F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/AA/41

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 12-13.02.2024
Sample Received on : 18.02.2024
Analysis Started on : 18.02.2024
Analysis Completed on : 28.02.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Scattered Clouds
Atmospheric Temperature (Min/Max) : 18.0 - 26.0 °C
Atmospheric Pressure (Min/Max) : 1016-1021 mbar

Sample ID. No.

- ERSIPL/AA/134
- ERSIPL/AA/135

Locations (Core Zone)

- Near Drilling Area
- Near Coal Handling Plant

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results	
					ERSIPL/AA/134	ERSIPL/AA/135
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4): 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	311.72	304.13
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	144.34	140.70
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	7.68	9.38
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	11.21	13.44

- Note-
- The test results relate only to the items sampled and tested.
 - Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 - This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 - Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 - This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.


(Authorized Signatory)
S.P. Pattanayak
Toun. Manager



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg-1/1

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/AA/T:42

Name and Address of the Customer : Dulanga open cast Coal Mining project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 21-22.02.2024
Sample Received on : 24.02.2024
Analysis Started on : 24.02.2024
Analysis Completed on : 28.02.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Scattered Clouds
Atmospheric Temperature (Min/Max) : 19.0 – 33.0 °C
Atmospheric Pressure (Min/Max) : 1007-1012 mbar

Sample ID. No.

1. ERSIPL/AA/156
2. ERSIPL/AA/157
3. ERSIPL/AA/158
4. ERSIPL/AA/159

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjharua
4. Near Village Kathfall

TEST FINDINGS:

Sl. No	Place of Monitoring/ Sample ID. No.	Result of Parameters Analyzed
		Carbon Monoxide (CO) (in mg/m ³)
1	ERSIPL/AA/156	<1.14
2	ERSIPL/AA/157	<1.14
3	ERSIPL/AA/158	<1.14
4	ERSIPL/AA/159	<1.14
	Permissible Limit	2.0

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P.Pattanayak

Techn. Manager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000106F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/AA/43

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 19-20.02.2024
Sample Received on : 24.02.2024
Analysis Started on : 24.02.2024
Analysis Completed on : 28.02.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Overcast/Haze
Atmospheric Temperature (Min/Max) : 21.0 - 34.0 °C
Atmospheric Pressure (Min/Max) : 1012-1015 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/150
2. ERSIPL/AA/151
3. ERSIPL/AA/152
4. ERSIPL/AA/153

1. Near Excavation Area
2. Near Haul Road
3. Near Dump
4. Near Workshop

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/ AA/ 150	ERSIPL/ AA/ 151	ERSIPL/ AA/ 152	ERSIPL/ AA/ 153
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	309.10	318.86	307.29	308.95
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	131.14	142.24	132.89	140.62
3	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	8.68	9.89	7.15	9.61
4	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	14.50	14.49	11.01	12.04

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S. P. Pattanayak



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000107F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 28 Feb 2024

Test Report No: ERSIPL/TR/AA/44

Name and Address of the Customer :

Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by :

Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of :

Representative of Customer.

Date of Sampling/Monitoring :

20-21.02.2024

Sample Received on :

24.02.2024

Analysis Started on :

24.02.2024

Analysis Completed on :

28.02.2024

Method of Sampling :

As per Applicable Test Method

Quantity of Sample :

01 sample for each parameter

Weather Condition :

Sunny

Atmospheric Temperature (Min/Max) :

19.0 - 34.0 °C

Atmospheric Pressure (Min/Max) :

1009-1014 mbar

Sample ID, No.

Locations (Core Zone)

1. ERSIPL/AA/154

1. Near Drilling Area

2. ERSIPL/AA/155

2. Near Coal Handling Plant

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results	
					ERSIPL/AA/154	ERSIPL/AA/155
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4): 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	318.24	295.46
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	142.73	136.69
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	8.69	8.03
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	12.60	12.58

Note-

- The test results relate only to the items sampled and tested.
- Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
- This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
- Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
- This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)

S.P. Pattanayak
Teun. Mar. ager



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC74402400000177F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/AA/74

Name and Address of the Customer

Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by

Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of

Representative of Customer

Date of Sampling/Monitoring

12-13.03.2024

Sample Received on

18.03.2024

Analysis Started on

18.03.2024

Analysis Completed on

28.03.2024

Method of Sampling

As per Applicable Test Method

Quantity of Sample

01 sample for each parameter

Weather Condition

Partly Sunny/HAZE

Atmospheric Temperature (Min/Max)

21.0 - 35.0 °C

Atmospheric Pressure (Min/Max)

1010-1014 mbar

Sample ID. No.

1. ERSIPL/AA/215
2. ERSIPL/AA/216
3. ERSIPL/AA/217
4. ERSIPL/AA/218

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjaria
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/215	ERSIPL/AA/216	ERSIPL/AA/217	ERSIPL/AA/218
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	212.86	200.06	199.30	208.05
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	70.84	73.98	75.68	72.82
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24): 2019, Gravimetric Method	µg/m ³	60.0	34.85	31.90	33.14	30.91
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	9.15	7.45	8.21	7.69
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	80.0	13.30	12.67	12.39	11.36

Note:-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I)



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha

Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000178F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/AA/75

Name and Address of the Customer :

Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by :

Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of :

Representative of Customer.

Date of Sampling/Monitoring :

11-13.03.2024

Sample Received on :

18.03.2024

Analysis Started on :

18.03.2024

Analysis Completed on :

28.03.2024

Method of Sampling :

As per Applicable Test Method

Quantity of Sample :

01 sample for each parameter

Weather Condition :

Partly Sunny/HAZE

Atmospheric Temperature (Min/Max) :

21.0 - 35.0 °C

Atmospheric Pressure (Min/Max) :

1010-1017 mbar

Sample ID. No.

1. ERSIPL/AA/209

2. ERSIPL/AA/210

3. ERSIPL/AA/211

4. ERSIPL/AA/212

Locations (Core Zone)

1. Near Excavation Area

2. Near Haul Road

3. Near Dump

4. Near Workshop

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/209	ERSIPL/AA/210	ERSIPL/AA/211	ERSIPL/AA/212
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4): 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	300.66	292.76	296.61	296.74
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	137.51	135.42	133.50	134.38
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	8.65	8.28	9.53	8.10
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	12.80	11.13	13.90	12.16

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000179F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/AA/76

Name and Address of the Customer

Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by

Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of

Representative of Customer.

Date of Sampling/Monitoring

11-12.03.2024

Sample Received on

18.03.2024

Analysis Started on

18.03.2024

Analysis Completed on

28.03.2024

Method of Sampling

As per Applicable Test Method

Quantity of Sample

01 sample for each parameter

Weather Condition

Partly Sunny/HAZE

Atmospheric Temperature (Min/Max)

22.0 - 34.0 °C

Atmospheric Pressure (Min/Max)

1012-1017 mbar

Sample ID. No.

1. ERSIPL/AA/213

2. ERSIPL/AA/214

Locations (Core Zone)

1. Near Drilling Area

2. Near Coal Handling Plant

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results	
					ERSIPL/AA/213	ERSIPL/AA/214
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	310.08	294.24
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	143.42	139.34
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	7.68	9.18
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	1.73	12.26

Note-

- The test results relate only to the items sampled and tested.
- Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
- This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
- Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
- This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001: 2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/AA/T:74-76

Name and Address of the Customer :

Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by :

Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of :

Representative of Customer.

Date of Sampling/Monitoring :

11-13.03.2024

Sample Received on :

18.03.2024

Analysis Started on :

18.03.2024

Analysis Completed on :

28.03.2024

Method of Sampling :

As per Applicable Test Method

Quantity of Sample :

01 sample for each parameter

Weather Condition :

Partly Sunny/HAZE

Atmospheric Temperature (Min/Max) :

21.0 - 35.0 °C

Atmospheric Pressure (Min/Max) :

1010-1017 mbar

Sample ID. No.

1. ERSIPL/AA/209
2. ERSIPL/AA/210
3. ERSIPL/AA/211
4. ERSIPL/AA/212
5. ERSIPL/AA/213
6. ERSIPL/AA/214
7. ERSIPL/AA/215
8. ERSIPL/AA/216
9. ERSIPL/AA/217
10. ERSIPL/AA/218

Locations (Core Zone/Buffer Zone)

1. Near Excavation Area
2. Near Haul Road
3. Near Dump
4. Near Workshop
5. Near Drilling Area
6. Near Coal Handling Plant
7. Near Village Bendrichua
8. Near Village Rengalmunra
9. Near Village Khuntjharia
10. Near Village Kathfali

TEST FINDINGS:

Place of Monitoring	Result of Parameters Analyzed					
	Mercury (Hg) (in $\mu\text{g}/\text{m}^3$)	Arsenic (As) (in ng/m^3)	Nickel (Ni) (in ng/m^3)	Cadmium (Cd) (in $\mu\text{g}/\text{m}^3$)	Chromium (Cr) (in $\mu\text{g}/\text{m}^3$)	Carbon Monoxide (CO) (in mg/m^3)
ERSIPL/AA/209	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/210	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/211	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/212	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/213	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/214	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/215	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/216	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/217	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/218	ND	ND	ND	ND	ND	<1.14
Permissible Limit as per CTO No.4169, dtd.20.03.23	Not Prescribed	06	20.0	Not Prescribed		2.0

Note-

1. The test results relate only to the items sampled and tested.
2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000180F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/AA/77

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer
Date of Sampling/Monitoring : 25-26.03.2024
Sample Received on : 27.03.2024
Analysis Started on : 27.03.2024
Analysis Completed on : 30.03.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny
Atmospheric Temperature (Min/Max) : 21.0 – 37.0 °C
Atmospheric Pressure (Min/Max) : 1008-1013 mbar

Sample ID. No.

1. ERSIPL/AA/250
2. ERSIPL/AA/251
3. ERSIPL/AA/252
4. ERSIPL/AA/253

Locations (Buffer Zone)

1. Near Village Bendrichua
2. Near Village Rengalmunra
3. Near Village Khuntjharla
4. Near Village Kathfali

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/250	ERSIPL/AA/251	ERSIPL/AA/252	ERSIPL/AA/253
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	Not Prescribed	218.62	201.59	208.64	200.71
2	Particulate Matter (size less than 10 µm) or PM 10	IS 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	100.0	72.09	74.44	73.08	69.79
3	Particulate Matter (size less than 2.5 µm) or PM 2.5	IS 5182 (Part 24): 2019, Gravimetric Method	µg/m ³	60.0	34.90	33.71	31.82	32.53
4	Sulphur Dioxide (SO ₂)	IS 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	80.0	8.60	7.39	7.37	8.91
5	Oxides of Nitrogen (NO _x)	IS 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	80.0	12.27	11.72	11.48	12.17

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

92



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000181F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/AA/78

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 23-24.03.2024
Sample Received on : 27.03.2024
Analysis Started on : 27.03.2024
Analysis Completed on : 30.03.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny
Atmospheric Temperature (Min/Max) : 21.0 – 35.0 °C
Atmospheric Pressure (Min/Max) : 1006-1012 mbar

Sample ID. No.

1. ERSIPL/AA/244
2. ERSIPL/AA/245
3. ERSIPL/AA/246
4. ERSIPL/AA/247

Locations (Core Zone)

1. Near Excavation Area
2. Near Haul Road
3. Near Dump
4. Near Workshop

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results			
					ERSIPL/AA/244	ERSIPL/AA/245	ERSIPL/AA/246	ERSIPL/AA/247
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	306.07	314.15	308.16	301.42
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	133.08	139.62	129.65	142.64
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2003, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	9.07	8.43	7.95	8.49
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	14.07	12.03	13.98	11.31

- Note-
1. The test results relate only to the items sampled and tested.
 2. Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 4. Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 5. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)



Environmental Research and Services (India) Pvt. Ltd.

(An ISO/IEC 17025 : 2017 (NABL) Accredited Laboratory)



TC-7440

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

ULR-TC744024000000182F

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/AA/79

Name and Address of the Customer :

Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.

Sample Collected by :

Representative of ERS (I) Pvt. Ltd.

Sample Collected in presence of :

Representative of Customer.

Date of Sampling/Monitoring :

24-25.03.2024

Sample Received on :

27.03.2024

Analysis Started on :

27.03.2024

Analysis Completed on :

30.03.2024

Method of Sampling :

As per Applicable Test Method

Quantity of Sample :

01 sample for each parameter

Weather Condition :

Scattered Clouds

Atmospheric Temperature (Min/Max) :

21.0 – 36.0 °C

Atmospheric Pressure (Min/Max) :

1009-1012 mbar

Sample ID. No.

Locations (Core Zone)

1. ERSIPL/AA/248

1. Near Drilling Area

2. ERSIPL/AA/249

2. Near Coal Handling Plant

TEST FINDINGS:

Sl. No	Test Parameters	Test method	Unit	Permissible Limit as per CTO No.4169, dtd.20.03.23	Results	
					ERSIPL/AA/248	ERSIPL/AA/249
1	Suspended Particulate Matter (SPM)	IS: 5182 (Part 4)- 1999, Reaffirmed 2019, Gravimetric Method	µg/m ³	500.0	319.78	287.07
2	Particulate Matter (size less than 10 µm) or PM 10	IS: 5182 (Part 23): 2006, Reaffirmed-2022, Gravimetric Method	µg/m ³	250.0	136.96	135.09
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part 2): 2001, Reaffirmed-2022, Improved West & Gaeke Method	µg/m ³	120.0	8.59	7.52
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part 6): 2006, Reaffirmed -2022	µg/m ³	120.0	13.43	12.04

- Note-
- The test results relate only to the items sampled and tested.
 - Total Liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
 - This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
 - Samples (Filter Papers & Thimbles) received shall be destroyed after 01 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
 - This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

(Authorized Signatory)
S.P. Pattanayak



Environmental Research and Services (India) Pvt. Ltd.

(OSPCB 'A' Category Empanelled Laboratory and ISO 9001:2015 Certified Company)

Plot No: B-22, Sector-B, Industrial Estate Chandaka, Infocity Road, Bhubaneswar-751024, Odisha
Tel: +91-9437021932, +91-9937690329, E-mail: ersibbsr@gmail.com

Test Report Format No.: ERSIPL/FM/37

TEST REPORT (AMBIENT AIR)

Pg No: 1 of 1

Date: 30 Mar 2024

Test Report No: ERSIPL/TR/AA/T:78-79

Name and Address of the Customer : Dulanga open cast Coal Mining, Project of M/s NTPC Limited in Sundargarh district, Odisha.
Sample Collected by : Representative of ERS (I) Pvt. Ltd.
Sample Collected in presence of : Representative of Customer.
Date of Sampling/Monitoring : 23-25.03.2024
Sample Received on : 27.03.2024
Analysis Started on : 27.03.2024
Analysis Completed on : 30.03.2024
Method of Sampling : As per Applicable Test Method
Quantity of Sample : 01 sample for each parameter
Weather Condition : Sunny/Scattered Clouds
Atmospheric Temperature (Min/Max) : 21.0 – 37.0 °C
Atmospheric Pressure (Min/Max) : 1006-1013 mbar

Sample ID. No.

1. ERSIPL/AA/244
2. ERSIPL/AA/245
3. ERSIPL/AA/246
4. ERSIPL/AA/247
5. ERSIPL/AA/248
6. ERSIPL/AA/249
7. ERSIPL/AA/250
8. ERSIPL/AA/251
9. ERSIPL/AA/252
10. ERSIPL/AA/253

Locations (Core Zone/Buffer Zone)

1. Near Excavation Area
2. Near Haul Road
3. Near Dump
4. Near Workshop
5. Near Drilling Area
6. Near Coal Handling Plant
7. Near Village Bendrichua
8. Near Village Rengalmunra
9. Near Village Khuntjharia
10. Near Village Kathfall

TEST FINDINGS:

Place of Monitoring	Result of Parameters Analyzed					
	Mercury (Hg) (in $\mu\text{g}/\text{m}^3$)	Arsenic (As) (in ng/m^3)	Nickel (Ni) (in ng/m^3)	Cadmium (Cd) (in $\mu\text{g}/\text{m}^3$)	Chromium (Cr) (in $\mu\text{g}/\text{m}^3$)	Carbon Monoxide (CO) (in mg/m^3)
ERSIPL/AA/244	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/245	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/246	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/247	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/248	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/249	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/250	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/251	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/252	ND	ND	ND	ND	ND	<1.14
ERSIPL/AA/253	ND	ND	ND	ND	ND	<1.14
Permissible Limit as per CTO No.4169, dtd.20.03.23	Not Prescribed	06	20.0	Not Prescribed		2.0

Note:-

1. The test results relate only to the items sampled and tested.
2. Total liability of ERS (I) Pvt. Ltd. is limited to the Invoice Amount.
3. This certificate shall not be reproduced fully or in part without prior written consent of ERS (I) Pvt. Ltd.
4. Samples (Filter Papers & Thimbles) received shall be destroyed after 03 year & Gaseous/Liquid samples received shall be destroyed after 07 days from the date of issue of the test report, unless otherwise specified.
5. This report shall not used in any advertising media or as evidence in the court of law without prior written consent of ERS (I) Pvt. Ltd.

Continuous Ambient Air Quality Monitoring Station

ZERO DISCHARGE EFFLUENT TREATMENT PLANT OF 50 KLD



Flow Chart of ETP



Washing Platform



Clarifier



Filter Feed Tank



Activated Charcoal Filter(ACF)

Environment Expenditure at NTPC Dulanga (In Lakh INR)						
Expenditure Head	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Dump Slope Stabilisation	170.71	221.77	16.49	270.69	546.66	1226.32
Dust Supression	12.36	33.39	61.24	63.44	86.48	256.91
Environment Monitoring	12.07	16.66	29.3	134.95	27.05	220.03
Env Staff Salary	1.35	5.72	7	10.17	10.17	34.41
Plantation	5.16	3	5.84	5.29	32.11	51.4
ETP + Water Purifier		15.9				15.9
Safety Zone & Protective measures			47.04			47.04
Awareness			0.12			0.12
Study on Fly ash utilisation			30.08			30.08
Pond Construction			2			2
	201.65	296.44	199.11	484.54	702.47	1884.21

କଟାଛାଟା ଚିନ୍ତା ରଣ।

ସାବୁର ଶିକ୍ଷା
ବିଦ୍ୟୁତ୍ ଅଫିସର
ବନା ରୁଚି
ରଖିଥିବା ସ୍ତ୍ରୀ
ପଣ । ଗତ
ମାସରେ କେନ୍ଦ୍ରୀୟ
ରାଷ୍ଟ୍ର ସିଦ୍ଧାନ୍ତରେ ଦୁର୍ଗା ଶ୍ରେଣୀ
କାହା ବିଦୁଷୀ ଭଣା ୨୦୧୧
ଶିକ୍ଷାବର୍ଷରେ ଦୁର୍ଗା ଶ୍ରେଣୀ ଦୃଶ୍ୟ
ପ୍ରଦର୍ଶନରେ ନେଇ ବଡ଼ ପରିବର୍ତ୍ତନ
ପାଇବାର ସାବୁର ଶିକ୍ଷା ବିଭାଗର
ଦୁର୍ଗା ସ୍ତ୍ରୀ ପ୍ରଦର୍ଶନ କରିଥିଲେ ।
ସ୍ତ୍ରୀ ଶିକ୍ଷା ଓ ଶାସ୍ତ୍ରର ଲୋକପ୍ରିୟ
ଭାବ ଅଟେ । ତାହା ଶାସ୍ତ୍ରର ପ୍ରକାର
ବିବେଚନା ଶିକ୍ଷା ଦେଇଥିବା ଓ ଶାସ୍ତ୍ର
ପ୍ରକାର ଶିକ୍ଷାଦାତା ବାମା । ଶାସ୍ତ୍ରର
ଆଦର୍ଶ ପଡ଼ିଛି ।

କୃତୀକାବିଆଦ୍ୟାଶା ଜେନା

[illegible]

ମିତେଇ, କଟକ ବିଜୁର ବିଜୁର

₹ 874.00 ₹

ଏ ସ୍ୱାସ୍ଥ୍ୟ ସୁରକ୍ଷା ଓ ସମାଜୀୟ ଶାନ୍ତିର ସର୍ବୋତ୍କୃଷ୍ଟ ସୁରାଘ ସମ୍ପାଦନ, ନିମ୍ନ
ଲୋକସେବକ ଆଉ ଶିକ୍ଷାସୁରକ୍ଷା ଆଉ ପାଠନାମ୍ବୁସାଧନ ଆନ୍ଦୋଳନ ଆଉ
ଆ ଉପକରଣ (ଏକପୋଷାମେକ) ରୂପ ୨୦୦୭ର ନିର୍ମାଣ-୯ ଅନୁସାରେ
କିଛି ବିଶେଷ ନିମ୍ନଲିଖିତ ଉପକରଣାଂଶ / ଉପକରଣାଂଶ / ଆମିନ ବାଉଁଶ ଓ ଗାଈ
ସିରିଙ୍ଗା ଏବଂ ସ୍ୱାସ୍ଥ୍ୟସେବକ ବିଶେଷ କରିବା ନିମନ୍ତେ ଆବଶ୍ୟକ ଆୟୁର୍ବିଦ୍ୟ

1/ ଚଳଚ୍ଚିତ୍ର	ସଂଗୃହୀତ ପ୍ରାଣୀ (ଟଙ୍କାରେ)	ଅନାମିତ ପ୍ରାଣୀ (ଟଙ୍କାରେ)
ଉତ୍କଳ ଶୂଦ୍ର, ପଦ୍ମାବତୀ 1.5, ଶାନ୍ତିର ସେବିତ୍ରୀ 1.5, ଶ୍ରୀମତୀ ସୁମିତ୍ରା ପ୍ରସିଦ୍ଧା, ପ୍ରମିଳା ପ୍ରସାଦ, ମେଘା ପରିଡ଼ା ମୋହନା: ଶରତ ଚାରଣ ଶର୍ମା, ୧୦.୫୮, ୧୦.୫୮ ୧୦.୫୮ ଟଙ୍କାରେ, ୧୦.୫୮ ଟଙ୍କାରେ ଟଙ୍କାରେ।	୧,୧୦,୦୦,୦୦୦.୦୦	୧୧,୦୦,୦୦୦.୦୦
	<p align="center">ଉଚ୍ଚ ପରିମାଣ (ଟାଙ୍କା ୧୭.୭୦୧୩ ଦିନ ପର୍ଯ୍ୟନ୍ତ) ୧,୫୫,୦୮,୫୫୫.୦୦</p>	
ମୁକ୍ତା, ୧୫୦୦୦୦ ଟଙ୍କା ୧୦୮: ୧ - ମୁକ୍ତା		

[illegible][illegible]

ସ୍ୱା. - ଜଗତସ୍ୱାସ୍ଥ୍ୟ ଅନୁବାଚନ
 ଓ ସ୍ୱା. - ପ୍ରତିରୋଧକ ଦ୍ୱାରା ଶିକ୍ଷା, ଚଳନ


एनटीपीसी
NTPC

**DULANGA COAL MINING PROJECT
NOTICE**

It is to inform all concerned that Environmental Clearance has been accorded to Durgam Chalk Mining Project (T MTPA) in its Valley Coalfield Block, Sullugahalli, Odisha by the Ministry of Environment and Forest on 23rd March, 2014. The copy of the clearance letter is available with the Odisha State Pollution Control Board and may also be seen at the website of the Ministry of Environment and Forests at <http://www.mef.nic.in>

NTPC Limited, Oulange Coal Mining Project
GEISD, Mission Road, Sundergarh, PIN - 770307, Odisha

Power of India



STEEL AUTHORITY OF INDIA LIMITED
RAW MATERIALS DIVISION
Industry House, 10, Camac Street, Kolkata-700 005

Sealed Tenders are invited for supply and installation of School Furniture
Bolan One Mine, P.O. Bolan, Dist. Karachi, Sindh-75003.
Tender ref : RMD/CRMS/Capes/BOL-0211 dated 06.03.2014
Last date of sale of Tender Documents : 27.03.2014
Last date and time of submission of Tenders: upto 1100 hours on 28.03
Issuing Authority : Deputy General Manager (Materials Management)
For details and downloading please visit SAIL website: www.saitenders.com
Registered Office: Hapt Bhawan, Lodi Road, New Delhi-110003
There's a little bit of SAIL in everybody's life

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
HEAVY WATER PLANT, TALCHER

e-TENDER NOTICE NO.: HWP/TAL/CIVIL/2014/01

Online tenders are invited through e-tendering mode by the Gas Manager, Heavy Water Plant, Talcher, PO: Vikrampur Dist: Angul (Odisha) behalf of the President of India in two bid, from eligible contractors for the work details given below:-

NIT No: HWP/TAL/CIVIL/2014/01, Name of the work **HOUSEKEEPING BUILDINGS AND INDUSTRIAL AREAS AT HWP TALCHER FOR YEAR 2014-15**. Estimated Cost **₹11,22,903.00**, Earnest Money **₹22,45,000.00**. Period of completion **12(TWELVE) Months**. Last time and date of submit of bid **24.03.2014 (14.30 Hrs.)**. The bid forms and other details can be obtained from the website www.tandwarilized.com/DAE

NEELACHAL ISPAT NIGAM LIMIT
 WFO-Durgam, Bhatnagar, Calcutta - 750025, Ph (06726) 254000, Fax-2

TENDER NOTICE

TENDER NOTICE NO.: NN/LIC/M/R5/SULPHURIC ACID/NT-DTD. 06.03.2014
Name of the works : Supply of 2200 MT of Sulphuric Acid (concentrated) as per IS-2061/1977A to NNPL Plant Site. EMD amount to be deposited : Rs. 1,00,000/-.

TENDER NOTICE NO.: NIN/LCM/RS/CAUSTIC SODA /YENT
DTD: 06.03.2014

NOTE: Please fill EMD amount to be deposited: Rs. 75,000/-

1. Date of issue of Tender documents : 06.03.2014 onwards.
2. Last date & Time for the submission : On or before 03:00 P.M. of Tender 24.03.2014
3. Date & Time of Tender opening : 03:00 P.M. of 24.03.2014

Tender papers can be obtained from the office of J. Mc (Commercial). The same may be downloaded from website www.nhl.com. NHL reserves the right to cancel the tender / bids in part or in whole without appearing any reason whatsoever.

NIT No: NIN/CM/CRK/CC/CON/897/NIT-899 DT 06.03.1999
NIN invites firm bids for Manufacture & Supply of Ultra High

Graphite Electrodes (18 MT) from Indian manufacturers. Bids filed in along with all requisite credentials and an **END of Rs.35.00** prescribed format to be submitted on or before **12.00 hrs of 28.03**. Details of tender along with terms & conditions may be downloaded the web site www.nril.in. Contact person: Manager (commercial) - enr_nril@yahoo.co.in. **NRIIL** reserves the right to accept or reject any or all bids without giving reasons for such acceptance.

By General Manager (Comm)

ଚି ଅର୍ଦ୍ଧର ଘୋ-ଅପରେସନ୍ ଶ୍ୟାଫ୍ ସି. ୧୯୭୯

ବି ଅର୍ଦ୍ଧନ ଶୋ-ଅପରେଟିଭ ବ୍ୟାଞ୍ଜ ଦି. ୧୯୯୯

9/ - 800000 200000

Dy General Manager (Commercial)



NTPC Limited

(A Govt. of India Enterprise)

DULANGA COAL MINING PROJECT NOTICE

"It is to inform all concerned that Environmental Clearance has been accorded to Dulanga Coal Mining Project (7 MTPA) in its Valley Coalfields, Dist. Sundergarh, Odisha by the Ministry of Environment and Forests on 03rd March, 2014. The copy of the clearance letter is available with the Odisha State Pollution Control Board and may also be seen at the website of the Ministry of Environment and Forests at <http://emf.mef.nic.in>."

AGM (IC)

NTPC Limited, Dulanga Coal Mining Project
881/26, Mission Road, Sundergarh, PIN - 750001, Odisha

Power of India

PFC CONSULTING LIMITED

TIME EXTENSION FOR SUBMISSION OF RESPONSE TO BIDS FOR
"Consultancy assignment for development of coal blocks
allocated for Odisha UMFP, Bhedabhat, Odisha"

The last date of submission of Response to Bids which was earlier on March 10, 2014 on or before 11.00 hrs (IST) is extended to March 20, 2014 on or before 11.00 hrs (IST). The Response to Bids will be opened on the same day at 11:30 hrs (IST). The other time lines as specified in the Bid document shall stand extended accordingly. The Bid document is available on PFC & PFCCL website www.pfcindia.com & www.pfcclindia.com.

Note: PFC Consulting Limited reserves the right to cancel or modify the process without assigning any reason and without any liability. This is not an offer.

Sriwatah Verma, Dy. Manager
PFC Consulting Limited

A Wholly owned Subsidiary of Power Finance Corporation Ltd.
(A Govt. of India Undertaking)

Registered Office: First Floor 'Ujjashti', 1, Bankswara Lane, Connaught Place,
New Delhi 110001, India Ph: 91-11-23450123; Fax: 91-11-23450170;
e-mail: odishaumfp_coalblock@pfcindia.com



COMPUTER CENTRE UTKAL UNIVERSITY VANI VIHAR, BHUBANESWAR-751004

TENDER NOTICE

Sealed tenders are invited from the reputed Manufacturing Firms/Authorized Dealers for supply of rack mounted Servers / up-gradation of existing three nos. of IBM X-3650 rack mounted servers, Desktop Computers, Digital Managed I.2 switch, 5KVA on-line UPS, 0.6KVA offline UPS, Wireless LAN (Bridging), Wi-Fi, IP Camera with NVR, Window AC, Water cooler with Water purifier, battery for UPS, Computer Paper, Repairing of existing computer chairs & tables, 11 watt ceiling mounted CFL Bulb (Philips), Computer Consumables, 18.5 LED Monitors, Server based Anti-Virus for this centre. Tender documents with terms & condition to be downloaded from our website www.utkaluniversity.ac.in from 10.03.2014. Sealed tender complete in all respect along with EMD (amount mentioned in tender document) and Tender form cost of Rs.500/- (non-refundable) in shape of Banker's cheque/DD in favour of Prof. in Charge, Computer Centre payable at Syndicate Bank, Utkal University Campus Branch, Bhubaneswar must reach the office of the undersigned on or before 22.03.2014 by 3.00 P.M. Tender will be opened on 22.03.2014 at 4.00 P.M. in presence of tenderers/their representatives. For repairing and up-gradation work the firm should inspect the location from 10.00 A.M. to 5.00 P.M. in working days.

The right to accept or reject the lowest or any tender in part or full without assigning any reason is reserved.

Sd/- Prof. in Charge



PSPCL Punjab State Power Corporation Limited

Regd. Off.: PSEB H.O., The Mall, Patna-141001

NOTICE INVITING TENDER

OFFICE OF CHIEF ENGINEER/SEW MIN SECRETARIATE OPP.
PRU GATE NO. 1, PSPCL, LUDHIANA

Tender Enquiry No.: QN/207/PO dated 03.03.2014

Tender Notice for: Supply of Mild Steel Sections of following sizes conforming to IS 2622:2005 with latest amendments (Trade-A Quality) and PSPCL's specifications QN/207 dated 03.03.2014.



KARNATAKA

Sampige Road
Phone: 080 - 23

No. ED/KEA/ADMN/CR-12/2013-14

ADMISSION TO PROFESSIONAL COURSES

- Applications are invited from eligible candidates of Karnataka for admission to Professional Courses detailed herein under for the seats to be notified.
- Academic Eligibility

Sl. No.	For Admission to 1st Year	In Qualifying
1.	Medical / Dental (MBBS / BDS)	Passed in 2nd PUC / Languages and obt Physics, Chemistry, and 3B category can
2.	Ayurveda, Homoeopathy, Unani, Naturopathy and Yoga (ISM & H)	Passed in 2nd PUC / Languages and obt Physics, Chemistry, and 3B category can
3.	Engineering / Technology (B.E. / B.Tech)	Passed in 2nd PUC / Languages and obt Physics and Mathe Biology / Electronics 3B category candida
4.	Architecture (B.Arch)	Passed in 2nd PUC / Compulsory optional aggregate in all the category candidates
5.	B.Sc. (Agriculture), B.Sc. (Forestry), B.Sc. (Sericulture), B.Sc. (Agri.Biotech), B.Sc. (Horticulture), B.H.Sc., (Home Science)	Passed in 2nd PUC / and Biology as option
6.	Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc. & A.H.)	Passed in 2nd PUC / aggregate minimum English subjects. (4 candidates)
7.	B.Tech. (Food Technology), B.Tech. (Dairy Technology), B.F.Sc. (Bachelor of Fisheries Science), B.Tech. (Food Science & Tech.) and B.Sc. (Ag. Marketing and Co-operation)	Passed in 2nd PUC / Mathematics and Bio
8.	B.Tech. (Agriculture Engineering)	Passed in 2nd PUC / and Mathematics as c
9.	B-Pharma	Passed in 2nd PUC / and Biology or Phys Minimum of 45% of M 1, 2A, 2B, 3A and 3B Passed in Diploma in by the Pharmacy Co and has secured mini 3A and 3B category c
10.	2nd Year B. Pharma	Passed in Diploma in by the Pharmacy Co and has secured mini

Monitoring data of the stipulated environmental quality parameters being displayed at the entrance of the mine office

