

एनटीपीसी लिमिटेड

NTPC Limited

(A Govt. of India Enterprise)

नॉर्ध करणपुरा/NORTH KARANPURA

Ref: NKSTPP/EMG/MoEF&CC/EC/02

Dated: - 29.06,2023

To The Regional Officer, Ministry of Environment and Forests, Regional office (ECZ), Bungalow No - A2, Shyamali Colony, Ranchi-834002

Ref. No: J-13011/26/89-IA-II(T) dated 29.11.2004 & J-13011/26/89-IA-II(T) dated 19.02.2014

Sub: Half Yearly compliance Report of conditions stipulated in Environmental Clearance of North Karanpura Super Thermal Power Project (3x660MW) for the period October, 2022 to March, 2023.

In reference to your letter under reference No.J-13011/26/89-IA-II (T) dated 19.02.2014, the half yearly compliance report regarding compliance of conditions stipulated in Environmental Clearance for the period October 2022 to March 2023 of North Karanpura Super Thermal Power Project (3 x 660 MW) is attached herewith.

This is for your kind information please.

Thanking you,

Yours Sincerely,

Ajay Kumar Shukla GM (O&M) (NKSTPP)

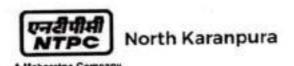
Enc: As Above:

Copy to:

Member Secretary, Jharkhand Pollution Control Board, T.A Division Building, HEC (i) Campus, P.O. Dhurwa, Ranchi-834004, Jharkhand.

R.O. JSPCB, Hazaribagh. (ii)

उतरी करणपुरा वृहत ताप विद्युत परियोजना (3x660मेनाबाट) ग्रामः टंडवा, जिलाः चतरा, झारखण्ड (825415) North karanpura Super Thermal Power Project (3x600 MW) Village: Tandwa, Dist: Chatra, Jharkhand (825415) पंजीकृत कार्यालयः एनटीपीसी भवन, स्कोप कॉम्पलेक्स, ७ इंस्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली-110003 Registered Office: NTPC Bhawan, Scope Complex, 7 Institutional Area, Lodhi Road, New Delhi-110003 www.ntpc.co.in



HALF-YEARLY COMPLIANCE REPORT FOR ENVIRONMENTAL CLEARANCE (EC) FOR NORTH KARANPURA STPP (3X660 MW)

Date-29-06-2023

A. Compliance Report for Conditions Stipulated vide MOEF Letter No. J- 13011/26/89-IA-II(T) dated 29.11.2004

Sl. No.	Stipulations of conditions	Status (As on 31.03.2023)
i.	The conditions stipulated by Bihar State Pollution Control Board (BSPCB) vide their letter no. BS/60 dated 31.12.2001 shall be strictly implemented	Strictly implemented. Details are attached as Annexure-I
ii.	Environmental clearance for construction of dam and Forest clearance if Forest land is involved for MGR, shall be obtained separately from the Ministry of Environment and Forests (MoEF)	Environmental Clearance for Garhi Dam has been accorded by MOEF vide letter dated 09.09.2005. Forest Clearance-NKSTPP Project Area Stage-I Forest Clearance has been accorded by MOEF&CC vide their letter no F.No.8-76/2007-FC dated 08.06.2009. Stage-II Forest Clearance has been accorded by MOEF&CC vide their letter no F.No.8-76/2007-FC dated 03.11.2015 for the forest land involved in project (Copy already submitted with Haly Yearly EC compliance report vide our letter no NKSTPP/EMG/MoEF&CC/EC/04/271 dated 25.04.2016). NTPC reviewed the proposal for construction of dam on Garhi River for withdrawal of water. Due to huge submergence of forest land after construction of dam, NTPC has change the technology to reduce its water requirement. Government of Jharkhand granted NOC for construction of weir across the Garhi River vide letter no 468 dated 22/06/2015. Agreement between M/s DVC and NKSTPP has already been done.

Son Stan(Eme)

AND SON CONTROL OF SON

Sl. No.	Stipulations of conditions	Status (As on 31.03.2023)
iii.	R&R Plan shall be prepared in consultation with Govt. of Jharkhand and the same shall be submitted to MoEF within a period of 6 months from the date of clearance letter.	R&R Plan was formulated earlier but with the revival of project, affected persons approached Govt. for enhanced package. The enhanced package has been finalized in the VDAC meeting held on 04.12.2013 in consultation with District Administration/ Govt. of Jharkhand. The enhanced compensation is being disbursed to beneficiaries. A total amount of Rs. 316.01 Cr has been disbursed till March' 2023.
		The Community Development activities are being implemented in consultation with stakeholders. A provision of Rs 56.01 Cr has been kept for Community Development activities broadly related to Health Activities, Education Activities, Sports, Arts, Culture Activities, Infrastructure Activities, Training & Implementation Activities, Drinking water facilities, Solar Power facilities etc. Rs 1.48 Cr spent during this period and total cumulative amount of Rs 39.87 Cr has been spent till March 2023.
iv.	It shall be ensured that there is no leaching of heavy metals from the Ash Ponds and necessary corrective measures including clay blanketing shall be taken, A copy of the detailed design of the ash pond along with a note on necessary corrective measures to be taken shall be furnished to MoEF within 3 months.	North Karanpura STPP envisages High Concentration Slurry Disposal System (HCSD) for Ash Disposal. In HCSD system, the disposed layers of ash is solidified and treated as impermeable layer as found by reputed institute like IIT Roorkee and there is no free water for overflow and no leachate or no risk of ash dyke getting breached.
v.	No earth shall be taken out from the ash pond area for any purpose.	Being complied
vi.	A minimum distance of 500 m from plant boundary to the riverine system including the submergence level shall be maintained	Complied. In the design of layout, a minimum distance of 500 m from plant boundary to riverine system has been maintained.
rii.	Copy of the permission for re-alignment of the road passing through the ash pond area shall be submitted to MoEF within 3 months from the grant of clearance.	Consent letter from RCD, GoJ has been submitted in our earlier compliance report vide our letter no 043/GM/NK/ dated 23.04.2014.
/iii.	List of flora / fauna duly authenticated by the PCCF / CWLW or Academic	Already submitted.



Sl. No.	Stipulations of conditions	Status (As on 31.03.2023)
	Institution / University shall be submitted within 3 months from the grant of clearance.	
ix.	Copy of the necessary coal linkage shall be submitted to MoEF within 6 months from the grant of clearance.	Copy of Coal Linkage attached, as Annexure-II
x.	Two stacks (one bi-flue and one single flue) of 275 m each shall be provided with continuous online monitoring system. Exit velocity of 22 m/sec shall be maintained.	Three stacks (single flue) of 275 m each are provided with Online Continuous Stack Emission Monitoring System (CSEMS). The exit velocity of 22 m/sec is being maintained during operation. Construction of stacks is in under progress and details are as bellow. Stack of Unit-I, II & III - Shell casting of all the
		three Chimneys completed. Unit I completed and are under in operation from 1st March,2023. Work of Unit II and III is under progress.
xi.	Electrostatic Precipitators (ESP) having efficiency of 99.9 % shall be installed to limit SPM emission up to 100 mg/Nm3.	This Condition no (xi) is deleted now vide the MoEF letter no J-13011/26/89-IA.II(T) dated 31.10.2014 regarding amendment of EC.
xii.	Ash generation will be 13,394 TPD. Ash will be utilised in cement and brick manufacturing, roads / embankments, agriculture / wasteland development and for backfilling of abandoned mines. This shall be used in a phased manner as per provisions of the notification on Fly ash Utilisation issued by the Ministry in September 1999 and its subsequent amendments. Full fly ash utilisation shall be ensured by the end of 9th year from the date of commissioning of the plant.	The quantity of ash generation has been revised as 11000 Tons/day dated 19.02.2014. NTPC will make best efforts to utilise ash in manufacturing of cement, ready mix concrete and
xiii.	Water requirement shall not exceed 10,100 m ³ /hr. Waste water shall be recycled and reused in the plant.	The water requirement has been revised as per EC dated 19.02.2014. This is likely to reduce further after adoption of dry cooling system, for which an amendment in EC is already received from MOEF vide their letter no J-13011/26/89-IA.II(T) dated 31.10.2014.
	M Kumar	The requirement is being maintained within the final stipulated quantity 2,180 m3/hr instead of 10,100 m3/hr.

SI. No.	Stipulations of conditions	Status (As on 31.03.2023)
		Waste water is treated and recycled & reused in the plant during operation stage. Effluent treatment plant is under operation.
xiv.	Appropriate rainwater harvesting technology shall be finalised in consultation with the Central Groundwater Authority / Board within a period of 2 months from the date of clearance.	CGWB, Patna has approved the rainwater harvesting scheme for following areas. (i) Enabling Township: Vide their letter no CGWB/MER/CGWA/2014/227 dated 26.02.2015 (ii) Main Plant area: Vide their letter no CGWB/MER/CGWA/2017/1014 dated 11.08.2017 Status of Construction of Rain Water Harvesting (i) Enabling Township: Completed. (ii) Main Plant Area: Recharge pit completed. Civil work for Recharge pond is under progress. Recharge pond (80000 Cum capacity) for rainwater harvesting scheme to be constructed Construction of One recharge pond of about 40000 cum capacity has been completed and slope protection works is under progress.
xv.	Regular monitoring of water quality including heavy metals shall be undertaken around the ash dyke and the project area to ascertain that there is no leaching of contaminants from ash disposal area.	Being complied.
xvi.	Noise level shall be limited to 75 dB Leq. Necessary personal protection equipment like ear plug etc. shall be provided to the persons working in the area of generator and other high noise area.	Regular maintenance of equipment is undertaken to maintain the designed noise level of 75 dB Leq. Personal protective equipments are provided to all persons working in the area of generator and other high noise areas during the operation stage. Monitoring of noise level inside project area is going on and reports are attached as Annexure-III
xvii.	Greenbelt of 100 m width shall be developed around the plant boundary covering an area of 87 Ha.	Greenbelt is being developed around the plant boundary as mentioned in General Layout Plan. 1. NKSTPP has already planted 32500 no. of trees and donated 2500 no. fruit bearing trees among project affected villages. It will be developed in phased manner. This year target of tree plantation is 2000 in which 500 no. are already planted near township and surrounding area.
xviii.	Regular monitoring of the air quality shall be carried out in and around the power plant and records shall be maintained. 6	Regular monitoring of air quality is started from January,2021 and reports from October to March, 2023 are attached as Annexure-IV .



Sl. No.	Stipulations of conditions	Status (As on 31.03.2023)	
	monthly monitoring report shall be submitted to the ministry.		
xix	For controlling fugitive dust, regular sprinkling of water in vulnerable areas of the plant shall be ensured.	For controlling fugitive dust, regular sprinkling of water is being done in project areas.	
XX.	All other mitigate measures shall be taken as enumerated in chapter V of the EIA report.	Being complied.	
xxi.	The project proponent shall advertise at least in two local newspapers widely circulated in the region around the project, one of which should be in the vernacular language of the locality concerned, informing that the project has been accorded environmental clearance and copy of clearance letter is available with the State Pollution Control Board / Committee and may also be seen at website of the Ministry of Environment and Forests at http://envfor.nic.in	Complied.	
xxii.	A separate environment-monitoring cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	A separate environment monitoring cell known as Environmental Management Group, (EMG) is already setup and functional at NKSTPP sites for implementation of the stipulated environmental safeguards.	
xxiii	Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards shall be submitted to the Ministry / Regional Office / CPCB / SPCB.	Being complied. Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards is being submitted regularly to the following. (i) MOEF&CC - Regional officer, of MOEF&CC, Ranchi, (ii) CPCB- Regional Director, CPCB, Kolkata and (iii) JSPCB - Member Secretary, Jharkhand State Pollution Control Board Ranchi.	
		(Last half yearly report already submitted to the above vide through letter no	



SI. No.	Stipulations of conditions	Status (As on 31.03.2023)
		NKSTPP/EMG/MoEF&CC/EC/021 dated 17.02.2023
xxiv.	Regional office of the Ministry of Environment & Forest located at Bhubaneswar will monitor the implementation of the stipulated conditions. Complete set of Environmental Impact Assessment report and management plan shall be forwarded to the regional office.	Complied. Details already submitted to Regional office of MoEF, Bhubaneswar vide our letter no CC:ESE:4100:2005:GEN:02B, dated 7th Feb, 2005.
xxv.	Separate funds shall be allocated for implementation of environmental protection measures. Break-up of the funds for various activities shall be submitted to MoEF. This cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for any other purposes and year-wise expenditure shall be reported to the MoEF.	Being complied. An amount of Rs. 1125.34 Crores have been earmarked in the Feasibility Report for North Karanpura STPP towards environmental protection measures. (Break-up of the funds for various activities is already submitted with Half Yearly EC compliance report vide our letter no NKSTPP/EMG/MoEF&CC/ EC/04/ 271 dated 25.04.2016). Total expenditure up to March 2023 is Rs. 8524.50 Millions. In addition to above, An amount of Rs 11.11 Crores (Rs.2.93 Crores towards Compensatory Afforestation and Rs. 8.18 Crores towards Cost of Net Present Value) have been paid by NKSTPP to Jharkhand State Forest Department for diversion of forest land to NKSTPP, as on 31st March 2023.
xxvi.	Full cooperation shall be extended to the scientists / officers from the Ministry / Regional offices of the ministry at Bhubaneswar / CPCB / SPCB for monitoring the compliance of environmental norms and safeguards.	Full cooperation is being extended to the scientists / officers from the Ministry / Regional offices of the ministry at Ranchi / the CPCB / the SPCB during monitoring of the project.



B. Compliance Report for Additional Conditions Stipulated vide MOEF Letter No. J-13011/26/89-IA-II(T) dated 19.02.2014 Date: 29.06.2023

Sl. No.	Stipulations vide EC letter dated 19.02.2014	Status on 31.03.2023
xxvii.	Vision document specifying prospective plan for the site shall be formulated and submitted to Regional Office of the Ministry within six months.	Vision document has been submitted with the compliance report submitted on 23.04.2014.
xxviii.	Harnessing solar power within the premises of the plant particularly at available roof tops shall be undertaken and status of implementation shall be submitted periodically to the Regional Office of the ministry.	Rooftop solar PV (1500 KWp) of estimated capacity: 1. 1100KWp (approx.) has been envisaged inside NKSTPP premises on rooftop of following buildings: (a) Ash Water pump house. (b) CHP MCC – 1B. © O&M Workshop building. (d) Permanent store building. (e)Compressor house building. (f) Fire station building. (g) Fire water PH building. (h) Switchyard control building. (i) Vishvesvaraiya office complex building. Work has been awarded to M/s Solluz Energy Private Limited, N. Delhi. Target completion date: November,2023.
xxix.	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.5% and 48% at any given time. In case of variation of coal quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to environmental clearance condition wherever necessary.	Being complied.
XXX.	A long term study on radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute.	Shall be complied.



SI. No.	Stipulations vide EC letter dated 19.02.2014	Status on 31.03.2023
	Thereafter, mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	
хххі.	Mercury emissions from stack shall also be monitored on periodic basis.	Complied.
xxxii.	High Efficiency Electrostatic Precipitation (ESPs) shall be installed to ensure that particulate emission from the proposed plant does not exceed 50mg/Nm3.	Complied. Installation of High Efficiency Electrostatic Precipitation (ESPs) is in under progress and details are as below.
		(i). Unit-I - Completed.
		(ii) Unit-II - 10963 MT/11008 MT (% progress: 99.59 %)
		(iii). Unit III - 8155 MT/11008 MT (% progress: 74.08 %)
		All ESPs are designed to meet prevailing emission standard.
xxxiii.	Provision for installation of FGD shall be provided for future use.	Space has been kept in the lay out for installation of FGD plant. FGD package awarded to M/s BHEL.
		Work is under progress.
Xxxiv	Adequate dust extraction system such as cyclones/bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	Adequate dust extraction system has been provided in coal handling and ash handling points, transfer areas and other vulnerable dusty areas.
XXXV.	COC of at least 5.0 shall be adopted, the water requirement shall not exceed 5,835 m3/h.	NTPC proposes to adopt of Air Cooled Condenser System for the project instead of wet cooling system. This will reduce the overall water requirement from 10,100 m3/hr to 2,180 m3/hr.
		An amendment in Environmental Clearance is received from MOEF in this regard vide their letter no J-13011/26/89-IA.II(T) dated 31.10.2014 (Copy already submitted with Half Yearly EC compliance report dated 08.04.2015).



Sl. No.	Stipulations vide EC letter dated 19.02.2014	Status on 31.03.2023
		Hence this condition no (xxxv) is deleted now.
xxxvi.	No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up/operation of the power plant.	No water bodies are disturbed due to activities associated with the setting up/operation of the power plant.
xxxvii	Hydrogeology of the area shall be reviewed annually from an institute/organization of repute to assess impact of surface water and ground regime (especially around ash dyke). In case any deterioration is observed specific mitigation measures shall be undertaken and reports/data of water quality monitored regularly and maintained shall be submitted to the Regional Office of the Ministry.	Study of Hydrogeology of the area has been awarded to M/s IIT Roorkee and its 3 rd report is attached as Annexure-V.
xxxviii	Monitoring of surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.	Monitoring of Surface water quantity and quality is also included with Hydrogeological study to M/s IIT Roorkee and its 3 rd report is attached as Annexure-IV.
xxxix	Waste water generated from the plant shall be treated before discharge to comply limits prescribed by the SPCB/CPCB.	All waste water generated from the plants are treated at ETP and reused at Bottom Ash Slurry tank.
		ETP at Plant site & STP at enabling township are in operation. Commissioning of STP at plant site is in progress.
xl.	Additional soil for levelling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improve.	Being complied.
xli.	Utilization of 100% fly ash generated shall be made from 4th year of operation. Status of implementation of the Fly Ash Utilization Notification and its amendments shall be reported in the Regional Office of the Ministry from time to time.	
xIii.	Fly Ash shall not be used for agricultural purpose. No mine void filling will be	Shall be complied during operation stage.



Page 9 of 19

Sl. No.	Stipulations vide EC letter dated 19.02.2014	Status on 31.03.2023
	undertaken as an option for ash utilization without adequate lining of mine with suitable media such that no Leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close co-ordination with the State Pollution Control Board.	
xliii.	Fly Ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry form. Mercury and other heavy metals (As Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low lying area.	Being complied.
xliv.	Ash pond shall be lined with HDPE/LDPE lining or any other suitable impermeable media such that no Leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.	North Karanpura STPP envisages High Concentration Slurry Disposal System (HCSD) for Ash Disposal. In HCSD system, the disposed layers of ash is solidified and treated as impermeable layer as found by reputed institute like IIT Roorkee and there is no free water for overflow and leachate or no risk of ash dyke getting breached.
xlv.	Fugitive emission of fly ash (dry or wet) shall be controlled such that no agricultural or non- agricultural land is affected. Damage to any land shall be mitigated and suitable compensation provided in consultation with the local Panchayat.	Being complied
xlvi.	Green Belt consisting of three tiers of plantations of native species around plant and at least 50 m width shall be raised. Wherever 50 m width is not feasible a 20 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not be less than 2500 per ha with survival rate not less than 80%.	Space for Green Belt has been earmarked in General Layout Plan. Native / Local plants species will be planted and density of 2500/ha shall be maintained with survival rate of not less than 80%. 1. NKSTPP has already planted 23500 no. of trees and also donated 2500 no. fruit bearing trees among project affected villages.



SL No.	Stipulations vide EC letter dated 19.02.2014	Status on 31.03.2023
		It will be developed in phased manner. This year target of tree plantation is 2000 in which 1000 no. are already planted near township and surrounding area.
xlvii.	A common green endowment fund shall be created and the interest earned out of it shall be used for the development and management of green cover of the area.	Annual adequate budget provision kept for development and management of green cover of the area. In FY22-23 Fund allocated: 1.5 Crore
xlviii.	The project proponent shall also adequately contribute in the development of the neighbouring villages. Special package with implementation schedule for free potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.	Being complied. Project proponent adequately contributing in the development of the neighbouring villages through Community Development activities like Infrastructure development in Village, Schools, Health check-up to villagers, Education and Training to student, Solar lighting in village, Provision of drinking water to villagers etc. Special package with implementation schedule for free potable drinking water supply in the nearby villages and schools is being undertaken. Existing water supply system has been strengthen.
		Supply of potable drinking water by water tanker in each Project Affected Villages. Water bottle have been provided to school students. Provision of Solar water system at Project Affected Villages is being done.
xlix.	A minimum amount of 0.4 % of the project cost shall be earmarked as one time capital cost for activities to be taken up under CSR during construction phase of the project. Subsequently, a recurring expenditure of 1/5 th	Being complied. Provision of Rs 56.01 Crs (0.4 % of project cost) has been kept for Community Development activities



Sl. No.	Stipulations vide EC letter dated 19.02.2014	Status on 31.03.2023
	of the capital cost of the CSR budget shall be earmarked for CSR activities per annum till life of the plant. Social audit by a reputed University or an Institute shall be carried out periodically as per CSR guidelines of Govt. of India and details to be submitted to MOEF besides putting it on Company's website	broadly related to Health, Education, Drinking water, Welfare, Infrastructure, etc. Rs 3.5 Cr spent during this period and total cumulative amount of Rs 36.94 Cr has been spent till March 2023. Social audit: Social Audit work has been awarded to M/s KPMG. Report attached as Annexure-VI
L	CSR schemes identified based on need based assessment shall be implemented in consultation with the village Panchayat and District Administration starting from the development of project itself. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Company shall provide separate budget for community development activities and income generating programmes.	Being complied. The community development activities are being implemented in consultation with stakeholders. A provision of Rs 48 Cr has been kept for Community Development activities broadly related to Health-Medical Camp, Education-Merit award, sponsorship of student, furtinure, lab items, books to Vananchal collage, Welfare-Blanket, stationeries, Financial assistance for cultural program, cleaning & renovation of chhath Talab, sports & culture, Infrastructure development-Restoration of Drinking water facilities, construction of road, drain, provision of electric transformer, DG set and training-physically handicapped to PAP women on domestic solar electrification etc. The said activities would also include provisions to provide training to local employable youth and income generating programmes.
li.	An Environmental Cell comprising of at least one expert in environmental science/engineering, occupational health and social scientist, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the head of the cell shall directly report to the head of the organization who would be accountable for	An Environmental cell [known as Environmental Management Group(EMG)] is already created at project site and functional.



STREET STREET

SI. No.	Stipulations vide EC letter dated 19.02.2014	Status on 31.03.2023		
	implementation of environmental regulations and social impact improvement/mitigation measures.			
lii.	The treated effluents conforming to the prescribed standards only shall be re-circulated and re-used within the plant. Arrangements shall be made that effluents and storm water do not get mixed.	 Arrangements has been made that effluents and storm water do not 		
lin.	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/plantation.	Sewage Treatment Plant having capacity of 300 KLD is in operation at enabling township area. Commissioning of a Sewage Treatment Plant having capacity of 100 KLD is in progress at plant site.		
liv.	Adequate safety measures shall be provided in the plant area to check / minimise spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.	Being complied.		
lv.	Storage Facilities for auxiliary liquid fuel such as LDO/HFO/LSHS shall be made in the plant area in consultation with Department of explosives, Nagpur. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	Complied. Disaster Management Plan is prepared and available at site. Copy of DMP is enclosed as Annexure-VII.		
lvi.	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Complied. First Aid and sanitation arrangements has been made available to the drivers and contract workers at project site.		
lvii	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 85 dB(A) from source. For people working in high noise area, requisite personal protective equipment like earplugs/ ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non noisy / less noisy areas.	Being complied.		



SL No.	Stipulations vide EC letter dated 19.02.2014	Status on 31.03.2023	
lviii,	Regular monitoring of ambient air ground level concentration of SO ₂ , NO _x , PM _{2.5} and PM ₁₀ and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.		
lix.	Provision shall be made for the housing of construction labour (as applicable) within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Provision has been made available for the housing of construction labour within the site with all necessary infrastructure i.e. Toilet, safe drinking water with RO Plant, Medical check-up facilities.	
lx.	The proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB. The criteria pollutant levels namely; SPM, RSPM (PM25 and PM10), SO2, NOx(ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.	Being complied.	
lxi.	The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.	Being complied.	
lxii.	The project authorities shall inform the Regional Office as well as the Ministry	Investment approval for the project has been accorded by the Board of	



Sl. No.	Stipulations vide EC letter dated 19.02.2014	Status on 31.03.2023	
	regarding date of Financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of the plant.	Directors of NTPC on 28.01.2014. The award for main plant has been placed on 28.02.2014. COD of Unit-1 done on 01.03.2023 Construction work of Unit-2 & 3 is under progress at project site and date of Commissioning of Units are as below. Unit-II – December 2023 Unit-III – July 2024	



Compliance report for condition stipulated vide through Jharkhand State Pollution
Control Board letter no PC/NOC/HBG/176/14/D-12318 dated 11.01.2014 and old NOC of
BSPCB vide letter NO B- 8160 dated 31.12.2001.

Date: 29.06.2023

SI. No.	Stipulation of Conditions of BSPCB, Letter No. B-1860 dated 31.12.2001	Status (As on 31.03.2023)		
i,	The unit Shall obtained consent to operate under sections 25 of the Water Act, 1974 and section 21 of the Air Act, 1981, prior to commissioning of the plant from pollution control board.	CTO has been taken from Jharkhand Pollution Control Board Vide ref. no. JSPCB/HO/RNC/CTO- 9389769/2022/122 DTD 01/02/2022.		
ii,	The effluent (Domestic & Trade) and emission, if any shall confirm to the standard prescribed by the board.			
iii.	Minimum height of the proposed stacks (one single flue steel lined RCC stacks & one twin flue steel lined RCC stack) shall be 275 meters each with port hole and platform as per norms of the central pollution control board.	flue) is 275 meters. Online Continuous Stack Emission		
iv.	High efficiency ESP shall be provided to achieve standard prescribed by the board.	Installation of High Efficiency Electrostatic Precipitation (ESPs) is in under progress and details are as below. (i). Unit-I - Completed. (ii) Unit-II - 10963 MT/11008 MT (% progress: 99.59 %) (iii). Unit III - 8155 MT/11008 MT (% progress: 74.08 %) Standard prescribed by the board being achieved.		



Sl. No.	Stipulation of Conditions of BSPCB, Letter No. B-1860 dated 31.12.2001	Status (As on 31.03.2023)	
v	Effective measures shall be taken to control Fugitive dust pollution within plant premises and around Ash disposal area.	control fugitive dust pollution within plant premises and around ash disposal area. Water spraying through tanker is being carried out on regular basis. Trade effluent from plant and domestic effluent from the captive colony is being suitable stored and treated in ETP and	
vi	Trade effluent from plant and domestic effluent from the captive colony shall be suitable stored and treated to the standards: treated effluent shall be recycled and reused to the maximum extent.		
vii.	Analysis report of the raw and treated effluent shall be submitted to the board immediately after commissioning of the plant and thereafter monthly.	313000000000000000000000000000000000000	
viii.	Ambient air quality report of the area (station as in EIA) shall be submitted to the board before and after commissioning of the plant along with the stack monitoring report monthly.	Annexure-IV.	
ix.	Unit shall submit detailed scheme for management of the ash. The scheme shall include measures taken for manufacturing ash bricks and utilization of ash within one year.	Fly ash/ Pond ash is being offered to	
x.	Detailed EIA shall be submitted to the board within one year which should also include detailed hydrological scenario of surface and subsurface water level, besides litho-	Detail's already submitted to Regional	



SI. No.	Stipulation of Conditions of BSP Letter No. B-1860 dated 31.12.2001	CB, Status (As on 31.03.2023)
	section at plant and ash disposal area such hydrological study, correlation of available water table at plant and disposal area shall be made a incorporated.	the detect 7th P. t. 2005.1100.2005.GEN:02
xi.	The unit shall set up a modern laboratory regular monitoring of the impact on lar air, underground and surface water. For the purpose, an area having 10 km radius from the plant zone of influence, shall considered.	Lab is being done.
xii.	The unit shall explore the feasibility using washed coal and in this context CC should be especially requested.	of The unit shall explore the feasibility of using washed coal.
xiii.	The unit shall not commence its operation without the environmental clearance of MOEF, GOI.	North Karanpura Super Thermal Power Project received its Environmental Clearance from MoEF & CC, GOI vide through MoEF Letter No. J-13011/26/89-IA-II(T) dated 29.11.2004 and it is revalidated by MoEF & C vide through Letter No. J-13011/26/89-IA-II(T) dated 19.02.2014.
	Three tier plantations with a minimum 100 meters width shall be done all around the plant site and around the captive colony and maintained plantation shall also be done on the slope and abandoned ash disposal area.	Space for Green Belt has been earmarked in General Layout Plan. Native / Local plants species will be planted and density of 2500/ha shall be maintained.
t	in order to neutralise the adverse impact on he captive colony physical barrier between he captive colony and the plant site shall be nade.	NKSTPP has already planted 23500 no. of trees and also donated 2500 no. fruit bearing trees among project affected villages.
1		It will be developed in phased manner.



Sl. No.	Stipulation of Conditions of BSPCB, Letter No. B-1860 dated 31.12.2001	Status (As on 31.03.2023)		
XV.	Suitable space will be provided for retrofitting the FGD system. The design and layout of steam generator and its auxiliaries would be such that a wet/dry FGD system can be installed.	Suitable space is already provided in General layout Plan for retrofitting the FGD system. A provision has been incorporated in General layout plan for installation of FGD in North Karanpura STPP. FGD package awarded to M/s BHEL. Work is under progress.		
xvi.	The unit shall fix permanent sampling stations up and down stream of effluent disposal points on Garhi River	Complied.		

Charles Asher Check

MODIFIED-MODEL

COAL SUPPLY AGREEMENT

BETWEEN

CENTRAL COALFIELDS LIMITED

AND

NTPC LIMITED

FOR

NORTH KARANPURA SUPER THERMAL POWER PLANT UNIT 1-3 (3x660 MW)

[23/02/2023]



Government of Jharkhand

Receipt of Online Payment of Stamp Duty

NON JUDICIAL

Receipt Number: f8d35f55fd5e79102f39

Receipt Date: 21-Feb-2023 04:45:10 pm

Receipt Amount: 100/-

Amount In Words: One Hundred Rupees Only

Document Type: Agreement or Memorandum of an

Agreement

District Name : Ranchi

Stamp Duty Paid By : NTPC LTD

Purpose of stamp duty paid : AGREEMENT

First Party Name: NTPC LTD

Second Party Name : CCL RANCHI

GRN Number: 2315890786

-: This stamp paper can be verified in the jharnibandhan site through receipt number :-

Fuel Supply Agreement between CCL &M/s NTPC Ltd for North Karanpu Unit 1 to 3 (3x660 MW)

This Receipt is to be used as proof of payment of stamp duty only for one document. The use of the same receipt as proof of payment of stamp duty in another document through reprint, photo copy or other means is penal offence under section-62 of Indian Stamp Act, 1899

इस रखीद का उपयोग केवल एक ही दस्तावेज पर मुद्रांक शुल्क का भुगतान के प्रमाण हेतु ही किया जा सकता है। पुनः प्रिन्ट कर अथवा फोटो कॉपी आदि द्वारा इसी रसीद का दूसरे दस्तावेज पर मुद्रांक शुल्क का भुगतान के प्रमाण हेतु उपयोग भारतीय मुद्रांक अधिनियम, 1899 की धारा 62 अन्तर्गत दण्डनीय अपराध है।

Model FSA - Govt/State Power Utilities(New)

£CL & North Karanpura STPP Unit 1-3 (3x660 MW)

mple.

This Agreement is made on this 23rd day of February, 2023 between Central Coalfields Limited, a company registered under the Companies Act, 1956 and having its registered office at Darbhanga House, Ranchi, 834029, Jharkhand hereinafter called the "Seller" (which expression shall unless excluded by or repugnant to the subject or context, include its legal representatives, successors and permitted assigns) of the one part,

AND

M/s NTPC Limited, a company registered under the Companies Act, 1956 and having its registered office at NTPC Bhawan, SCOPE Complex, 7, Institutional Area, Lodhi Road, New Delhi-110003, hereinafter called the "Purchaser" (which term shall unless excluded or repugnant to the subject or context include its legal representatives, successors and permitted assigns) of the other part

AND

Whereas the Purchaser or its predecessor-in-interest was issued a Letter of Assurance (LOA) dated 04.02.2023 vide Reference No. CCL/HQ/C-4/LOA(Power)/2022-23/261 against 3x660 MW plant capacity of the Purchaser's North Karanpura STPP and the Purchaser has achieved the milestones as set out in the Annexure 1 of the LOA and fulfilled other conditions as stipulated under the LOA.

OR

Whereas the Purchaser has been granted linkage of Coal by Standing Linkage Committee – Long Term (SLC- LT)

AND

Whereas the Purchaser has requested Seller for execution of FSA and supply of Coal to its North Karanpura STPP Unit 1-3 (3x660 MW) located at Tandwa Town, Distt. Chatra, 825321, Jharkhand of the Purchaser (as per details contained in Schedule-1 to this Agreement) and the Seller has agreed to make such supplies on the terms and conditions set out hereafter.

AND

Whereas the Purchaser has entered into or is yet to enter into long term Power Purchase Agreements (PPA) either directly with Distribution Companies (DISCOMs)or through Power Trading Company (ies) (PTC) who has / have signed back to back PPA(s) (long-term) with DISCOMs and have commissioned or would get commissioned.

AND

Whereas, the Purchaser has not any direct / indirect interest in any manner as associate or group company with any entity who has been allotted coal block in India for end use as stipulated in clause 3.2 with further reinforcement by Schedule-I in accordance with guidelines/policies of the Government of India relating to Letter of Assurance/ Allocation of coal on tapering basis.

Model FSA - Gavt./State Power Utilities(New)

Whereas, the Purchaser gives a self-declaration that no coal block(s) has/have been allotted for the Power Plant(s) covered under this Agreement and even if coal block(s) has/have been allotted, such coal block(s) has/have not been allotted as source(s) of coal supplies for the power plant(s) covered under this Agreement. Whereas, The Purchaser further declares that there has been no change in the ownership pattern of the Purchaser since the time of issue of Letter of Assurance (LoA) till the time of signing of this Agreement.

AND

Whereas, in a meeting held on June 20, 2013 in Kolkata pending differences between the Seller and the Purchaser were resolved and it was decided that a copy of the signed minutes of the meeting and copies of Annexure –III to V referred therein shall form a part of the FSA and shall be applicable to NTPC and JV power plants.(Ref. CIL letter no. CIL:S&M:CMO:47252(New Pol):465 dated June 29, 2013

Now, therefore, in consideration of the agreement and covenants hereafter set forth and intending to be legally enforceable, the Seller and the Purchaser (each individually a Party hereto and collectively the Parties) hereby covenant and agree as follows:

1. DEFINITIONS & RULES OF INTERPRETATION:

1.1 DEFINITIONS:

- a. "Agreement" means this Coal supply agreement including all its Schedules, Annexure and attachments and subsequent amendments as may be issued in accordance with the terms and conditions hereof and it shall supersede and exclude any previous arrangement, understanding or commitment that the Seller may have had with the Purchaser.
- "Annual Contracted Quantity" or "ACQ" shall have the meaning as ascribed to it in Clause 3.1
- c. "Applicable Laws" means all laws, brought into force and effect by the Government of India ("Gol") or the State Government including rules, regulations and notifications made thereunder, and judgments, decrees, injunctions, writs and orders of any court of record, applicable to either Seller/CIL or the Purchaser, their obligations or this Agreement from time to time.
- d. "As Delivered Price of Coal" shall have the meaning ascribed to it in Clause 8.
- e. "Base Price" shall mean, in relation to a Declared Grade [as defined at 1.1(1)] of Coal produced by Seller, the Pithead price notified from time to time by CIL or Seller; and in relation to Imported Coal, wherever applicable, shall mean its landed cost till the Delivery Point and service charges intimated by CIL or the Seller, as the case may be. In the event the Sellers supply coal from sources, notified by Seller on cost plus basis, cost plus basis prices shall be applicable

Model FSA - Govt State Power Utilities(New)

- f. "Business Day" shall mean each Monday, Tuesday, Wednesday, Thursday, Friday and Saturday that is not declared a holiday in the State of Jharkhand under the Negotiable Instruments Act, 1981.
- g. "Coal" means non-coking as well as coking coal, produced domestically and categorized into different classes, GCV bands, grades and sizes, as per the notification/order issued for such purpose by Government of India(GoI)/CIL/Seller and shall, where the context so requires, include Imported Coal. For the avoidance of any doubt, Coal shall also include the middlings arising out of washing of coking and non-coking coal.
- "Condition Precedent Period" shall have meaning ascribed to it under Clause 2.8.3.1
- i. "CIL" means Coal India Limited, the holding company of the Seller, having its registered office at Coal Bhawan, Premise No-04 MAR, Plot No-AF-III, Action Area-1A, Newtown, Rajarhat, Kolkata-700156, India, and having authorities to enter into any agreement/side agreements, supplementary to this agreement for ensuring supply of coal from import of coal or other alternative sources.
- "Coal Distribution System" of the Seller would include any distribution system in force including directions thereon from the Government issued from time to time.
- K. "Colliery Loading Point" shall mean
 - (i) Silo, or
 - (ii) Mid point for wharf wall loading at the colliery, or
 - (iii) Truck loading point, or
 - (iv) Ropeways loading point, or
 - (v) Transfer point to the customer's belt conveyor etc, as the case may be.
- "Declared Grade" means the particular grade(s) under different categories [as
 defined at 1.1(s)] of Coal mined from any seam or section of a seam in the
 Seller's collieries as declared by CIL or the Seller from which Coal is produced
 and supplied under this Agreement, as declared by CIL or the Seller.
- m. "Delivery Point" means any of the colliery sidings or Colliery Loading Points, as the case may be, in the designated Coal mine of the Seller as per Schedule I, and/ or the location(s)/ port(s) identified by the Seller at which the Seller delivers Imported Coal in accordance with the terms of this Agreement.
- n. "DISCOM" means the "Distribution Licensee" who is authorized to operate and maintain a distribution system for selling electricity to the consumers in his area of supply at tariffs regulated by the State / Central Regulatory Authority, whichever is applicable.
- "Effective Date" shall mean the date of occurrence of the last of the events specified under clause 2.8.3.2 or 2.8.3.3

Model FSA - Govt/State Power Utilities(New)

CCL & North Karanpera STPP Unit 1-3 (3x660 MW)

of

- p. "First Delivery Date" shall have the meaning ascribed to it in Clause 2.9
- q. "Equilibrated Basis" means determination/computation of various quality parameters such as but not limited to ash, volatile matter, fixed carbon, Gross Calorific Value etc. expressed at Equilibrated Moisture level determined at 60% relative humidity (RH) and 40 degree Celsius (°C).
- r. "Equilibrated Moisture" means moisture content, as determined after equilibrating at 60% relative humidity (RH) and 40 degree Celsius as per the relevant provisions (relating to determination of equilibrated moisture at 60% RH and 40 degree Celsius) of BIS 1350 of 1959 or amendment thereof.
- s. "Grade" means the grade / class in which the coking and non-coking Coal is categorised and/or to be categorised in terms and in accordance with the relevant notification issued by the Seller and/or by Govt. of India and published in the public domain and/or the Gazette of India, as applicable. The basis of grading for different categories of coal are as under:
 - i. Non Coking Coal: based on GCV bands
 - ii. Coking Coal : based on Ash percentage
 - iii. Semi Coking Coal; based on (Ash + Moisture) percentage
- "Imported Coal" shall mean non-coking as well as coking coal, sourced internationally.
- u. "Independent Engineer" shall mean a consulting engineering firm or group, acceptable to the Seller, having necessary expertise to undertake the services or activities as mentioned under Clause 2.8.2.2
- Importing Agency: It may be the holding company of the Seller i.e. CIL or any other agency(ies) appointed for supply of imported coal on behalf of the Seller.
- "IS" means the standard specifications issued by the Bureau of Indian Standards (BIS)
- x. "Kilo Calorie" shall mean the amount of heat required to raise the temperature of one kilogram (1 Kg.) of pure water at fifteen degrees Celsius (15°C), by one degree Celsius (1°C)
- y. "Level of Delivery" shall have the meaning ascribed to it in Clause 3.7.
- z. "Level of Lifting" shall have the meaning ascribed to it in Clause 3.8.
- aa. "Merry Go Round" or MGR" shall mean the Purchaser's captive rail transportation system for transportation of Coal
- bb, "Month" shall mean a calendar month.

Model FSA - Govt/State Power Utilities(New)

- cc. "Party" means either the Seller or the Purchaser, and "Parties" mean a joint reference to the Seller and the Purchaser
- dd. "Interest Rate" shall mean the repo rate of Reserve Bank of India (RBI) as applicable on the due date of payment by the Purchaser plus 3% (three).
- ee. "Performance Incentive" shall have the meaning ascribed to it in Clause 3.12.
- ff. "Pithead" shall mean any of the following as the context may admit:

In case of an underground Coalmine, Pithead shall mean the point of entry into the mine on the surface of coal mine at the ground level and would be a place or point distinct from Delivery Point

In case of an open-cast Coalmine, Pithead shall mean the exit point of Coal on surface (mouth/entry of the main access trench or an auxiliary access trench). In case of open-cast mines with more than one exit points of Coal, there will be as many 'Pitheads' and will apply respectively to the amount of Coal egressing from a particular exit point.

The distance of transportation on surface from the Pithead (mouth of the main access trench or an auxiliary access trench) to the Colliery Loading Point shall be measured along the route of Coal transportation.

- gg. "PPA" (Long Term) means the Power Purchase Agreement between the Power Generating Source and the power procurer(s), i.e. DISCOM(s) directly or through PTC(s) who has/ have signed back to back PPA(s) with DISCOMs for a period of 7 years and above. However, the same shall not be applicable for the portion which is sold under market driven price.
- hh. "Purchaser's Container" means the Railway wagons and/or trucks placed for and on behalf of the Purchaser and/or receiving hopper, bunker, transfer point owned by the Purchaser from where Coal is moved by the Purchaser directly to its Power Station by belt conveyor.
- "Quarterly Quantity" or "QQ" shall have the meaning ascribed to it in Clause 3.4.
- jj. "Seller's Financial Closure" shall mean the date on which execution of all the loan agreements, notes, indentures, security agreements, letters of credit and any other documents relating to the financing of the coal block have become effective and the Seller has immediate access to such funding with respect to development and operation of the coal block identified in Schedule I to this Agreement.
- kk. "Signature Date" shall mean the Date of signing of this Agreement by both Parties.

Model FSA - Govt/State Power Utilities(New)

- "Surface Moisture" means the moisture content present in Coal that is derived as the difference between Total Moisture and Equilibrated Moisture, and expressed in percentage terms.
- mm. "Total Moisture" means the total moisture content (including surface moisture) expressed as percentage present in Coal and determined on as delivered basis in pursuance to IS.
- nn. "Unloading Point" means the place/point at the Purchaser's Power Station end at which Coal from/through the Purchaser's Container is received/ unloaded.
- oo. "Gross Calorific Value" or "GCV" means the heat value determined in any calibrated combustion Bomb Calorimeter, in accordance with the procedure laid down in IS: 1350 (Part-II) 1970 dated April 1971 or any subsequent revision thereof and result reported on equilibrated basis at 40 Degree Celsius and 60% Relative Humidity.
- pp. "Weights and Measures Standards" mean the standards, as prescribed under the Standards of Weights and Measures Act, 1976 and amendments thereof.
- qq. "Year" means the financial year of the Seller, commencing on April 1st and ending on the following March 31st and "Quarter" means the respective threemonthly periods, namely April to June, July to September, and so on.
- rr. "Power Trading Company (PTC)": A Power Trading Company is a trading licensee under the Electricity Act 2003 and having Trading License approved by the State Electricity Regulatory Commission under Section 86(1)(b) of the Electricity Act 2003
- ss. 'Third Party': The agency appointed for collection, preparation and analysis of coal samples at loading points and relevant documentation

1.2 RULES OF INTERPRETATION:

- a) A reference to this Agreement includes all schedules and annexures to this Agreement;
- A reference to any legislation or legislative provision includes any statutory modification or re-enactment of, or legislative provision substituted for, and any subordinated legislation issued under, that legislation or legislative provision;
- e) Headings do not affect the interpretation of this Agreement;
- d) A reference to Rs., INR or Rupees is to the lawful currency of the Republic of India unless specified otherwise;

Model FSA - Govt./Stata Power Utilities(New)

- e) A reference to an agreement, deed, instrument or other document include the same as amended, novated, supplemented, varied or replaced from time to time; and
- f) The expressions "including", "includes" and "include" have the meaning as if followed by "without limitation".
- g) Words imparting the singular only also include plural and vice-versa where the context so requires;
- The expression "writing" or "written" shall include communications by facsimile and letter;
- If any definition in Clause 1.1 is a substantive provision conferring a right or imposing an obligation on any Party, effect shall be given to it as if it were a substantive provision in the body of this Agreement.

2. PERIOD OF AGREEMENT:

- 2.1 This Agreement shall come into force on the Effective Date
- 2.2 This Agreement shall, unless terminated in accordance with the terms hereof, remain in force till the end of twenty (20) years from the Effective Date or the Life of the Power plant whichever is earlier.
- 2.3 After completion of five (5) years from the First Delivery Date, either Party may, by prior written notice to the other Party for a period not less than thirty (30) days, seek a review of this Agreement.
- 2.4 Notwithstanding the provisions of Clause 2.2 above, in the event of any change in the Grade structure of Coal, such changed Grade structure shall be binding and complied with by both the Parties. The Seller shall within fifteen (15) days of introduction of such change provide a written notice to the Purchaser calling for a joint review of such provisions of this Agreement on which such change in the Grade structure has a bearing, and upon such joint review, this Agreement shall be duly amended in writing to bring it in full conformity with such change.
- 2.5 In the event, the Parties are unable to arrive at a mutually agreed position with respect to the subject matter of review in terms of Clause 2.3 within a period of three (3) months from expiry of each five (5) year term, the Parties shall refer the matter to the Govt. of India and until a decision from the Government of India is received, the Agreement shall continue to be in force. The decision of the Govt. of India on the subject matter shall be final and binding on both the Parties.
- 2.6 (i) In the event of any material change in the Coal distribution system of the Seller due to a Government directive/ notification, at any time after the execution of this Agreement, the Seller shall within seven (7) days of introduction of such change provide a written notice to the Purchaser calling for a joint review. If the Parties

Model FSA - Govt/State Power Utilities(New)

onto

are unable to arrive at a mutually agreed position with respect to the subject matter of review, within a period of thirty (30) days from the date of notice the Parties shall refer the matter to the Govt, of India for a decision.

- (ii) In terms of the Presidential Directives dated 17-7-2013 the Seller shall have the right to refer the FSA to the Ministry of Coal, Govt, of India for review of the actual supply schedule as and when FSA for 60,000 MW of plant capacity in aggregate becomes eligible for drawing coal as per FSA
- (iii) Notwithstanding the provision contained in any other clauses of this agreement, the FSA shall not be effective if the Plant is not commissioned by March, 2020.
- 2.7 On completion of twenty (20) years from the Effective Date, or earlier in case of life of the Plant is less than twenty years this Agreement shall expire unless both the Parties mutually agree in writing to extend the Agreement, on the same or such terms as may be agreed upon by the Parties.

2.8 Condition Precedent (CP)

The rights and obligations of the Parties under this Agreement are subject to the satisfaction in full of the Conditions Precedent provided under Clause 2.8.1 and Clause 2.8.2 within the Condition Precedent Period unless the same have been waived in accordance with this Agreement.

Seller's Condition Precedent:

- 2.8.1.1 In respect of supply of Imported Coal: the Seller shall have (i) acquired a definitive right under a coal import agreement with its supplier of imported coal; and (ii) made all necessary arrangements for import of Coal including the necessary shipping and port arrangements for delivery of Imported Coal in accordance with the terms of this Agreement
- 2.8.1.2 In respect of supply of domestic Coal (Applicable only for a Purchaser for whom any coal block has been identified for supply of coal): the Seller shall have (i) obtained from the lawful authority all requisite sanctions, approvals, licenses and consents including those related to land acquisition, environment and forest clearance for development and operation of the coal block identified in Schedule I to this Agreement; and (ii) achieved Seller's Financial Closure with respect to development and operation of the block identified in Schedule I to this Agreement.

2.8.2 Purchaser's Condition Precedent

2.8.2.1 The Purchaser shall have obtained from the lawful authority all necessary clearances, authorizations, approvals and permissions required for, construction, commissioning, operation and maintenance of the Plant

- 2.8.2.2 The Purchaser shall have completed the construction and the completion of such construction along with readiness of the power plant for lighting up has been certified by an Independent Engineer within the Condition Precedent Period.
- 2.8.2.3 Applicable to Purchaser who has signed FSA without entering into long-term PPA: The Purchaser shall have to furnish the long term Power Purchase Agreements (PPA) either directly with Distribution Companies (DISCOMs) or through Power Trading Company(ies) (PTC) who has / have signed back to back PPA(s) (long-term) with DISCOMs within the Condition Precedent (CP) period as per clause 2.8.3.1.

2.8.3 Satisfaction of Condition Precedent

2.8.3.1 The Conditions Precedents shall be fulfilled/ achieved within a period of twenty four (24) months from the Signature Date or such further period (upto a maximum of 180 days) as may be extended on account of Force Majeure under Clause 17 of this Agreement ("Condition Precedent Period")

The CPs set out in Clause 2.8.1 above shall be fulfilled to the satisfaction of Seller or waived by the Seller at its sole discretion in accordance with the option to be exercised by the Purchaser in the letter as per Schedule VII with regard to acceptance / surrender of supply of imported coal without affecting in any way the Seller's obligations under this agreement. Within fifteen (15) days of achieving or waiving the CPs set out in Clause 2.8.1 as the case may be, the Seller shall issue a notice of satisfaction and notify to the Purchaser in writing. The Purchaser within fifteen (15) days from receipt of such notification shall issue a letter accepting the same.

- 2.8.3.2 The CPs set out in Clause 2.8.2 above shall be fulfilled to the satisfaction of the Seller or waived jointly by both the Parties in writing, as the case may be. Within fifteen (15) days of completion of achieving the CPs set out in Clause 2.8.2 the Purchaser shall issue a written notice of satisfaction and notify to Seller. The Seller within fifteen (15) days from receipt of such notification by Purchaser shall issue a letter accepting the same.
- 2.8.3.3 Notwithstanding the provisions of clause 2.8.3.1 above, at the request of the Purchaser, CIL may at its sole discretion extend the Condition Precedent Period.
- 2.8.3.4 If within the Condition Precedent Period, the Purchaser does not fulfill the Condition Precedent set out in clause 2.8.2 due to any reasons other than Force Majeure, or the said Condition Precedents in clause 2.8.2 have not been jointly waived by the parties in writing, the Seller shall have the right to forfeit the Security Deposit amount submitted by the Purchaser without any further notice to Purchaser. In case of FSAs applicable for more than 1 unit of a power plant, Security Deposit shall be forfeited in proportion to the number of units failed to achieve condition precedent.

11 Model FSA – Govt./State Power Utilities(New)

2.9 First Delivery Date

- 2.9.1.1 Not later than 5 days from Effective Date, both parties shall determine a mutually agreeable 3 Month period within a time period of 18 month from the Effective Date for commencement of coal supplies ("Target Start Period"). In the event that the Parties are not able to agree on such 3-Month period then later of the 3 month period suggested by the either party shall be the Target Start Period. The actual date of coal delivery at the Delivery Point by the Seller within the Target Start Period shall be the First Delivery Date. In case there is no coal supply by the Seller at the Delivery Point during Target Start Period owing to reasons other than Force Majeure the last date of Target Start Period shall be deemed to be the First Delivery Date.
- 2.9.2 The Target Start Period may be extended on account of Force Majeure in accordance with Clause 17, subject to a maximum of 180 days

2.10 Build - Up Period

- 2.10.1 Build-Up Period shall be the period of 6 months commencing on the First Delivery Date. In case CIL decides at its sole discretion to import, Build-up period shall be extended for a further period of six months for commencing supply of imported coal During the Build-Up Period any compensation arising on account of short supply or short lifting, as per Clause -3.6 of this Agreement, shall not be payable by either Party. Supply of coal by Seller shall start only after the Purchaser's power plant becoming ready to start lighting up the boilers, to be confirmed by the Purchaser to the Seller in writing with documentary evidence.
- 2.10.2 The indicative Coal quantities to be supplied by the Seller and to be offtaken by the Purchaser during the Build- up Period are shown below. For avoidance of doubt, it is clarified that the quantities mentioned are indicative and the actual scheduled quantities may exceed or be lower compared to the quantities indicated below. The quantities shall however not exceed the pro-rated contracted quantities under this Agreement

Build Up Period	Indicative Tonnes)	Coal	Requirement	(in
Build-Up Period [A period of 6 /12 months from First Delivery Date as the case may be]		Not Ap	pplicable	

2.11 Security Deposit (SD)

2.11.1 On signing of this agreement the Commitment Guarantee (CG) provided by the Purchaser prior to issue of Letter of Assurance (LOA) shall stand converted into the Security Deposit amount as determined under Clause 2.11.2 Accordingly, a sum of Rs. 49,53,07,008/- (Indian Rupees Forty Nine Crore Fifty Three Lakh Seven Thousand Eight Only) is deemed to have been deposited by the Purchaser towards the Security Deposit amount stipulated in Clause 2.11.2. In the event the

12 Model FSA – Govt/State Prover Utilities(New)

Commitment Guarantee amount provided by Purchaser is more than the Security Deposit amount as determined under Clause 2.11.2, Seller shall return such balance amount within three (3) months from the date of signing of this Agreement. In an event the Security Deposit amount as determined under Clause 2.11.2 is more than the Commitment Guarantee amount, the Purchaser shall deposit such balance amount within three (3) months from the date of signing this agreement. Failure to submit the balance amount by the Purchaser within three (3) months from the date of signing of this agreement, as aforementioned, shall entitle the Seller to adjust the ACQ such that it is commensurate with the Security Deposit required to be submitted by the Purchaser under clause 2.11.2

Notes: Purchaser directly entering into this Agreement who have been granted coal linkage by Standing Linkage Committee – Long Term (SLC-LT) and have not been issued Letter of Assurance (LOA) by Seller or any Purchaser who have been issued LOA without depositing of Commitment Guarantee as stipulated under the LOA shall deposit the Security Deposit amount as determined under Clause 2.11.2 before the Signature Date. [In such case delete Clause 2.11.1

2.11.2 The Purchaser shall deposit with the Seller a sum of Rs. 49,53,07,008/- (Indian Rupees Forty Nine Crore Fifty Three Lakh Seven Thousand Eight Only) equivalent to six percent (6%) of the Base Price of such Grade of Coal, as described in Schedule-III to this Agreement, prevalent on the date of deposit multiplied by ACQ, as Security Deposit (SD), in cash / Bank Guarantee on or before the signing of this Agreement. In case of multiple Grades indicated in Schedule-III, the simple average base price of grades of coal mentioned in the Schedule-III shall be considered for the purpose of calculation of SD without any commitment whatsoever to supply such Grade of Coal. Such Security Deposit shall be non-interest bearing. Accordingly, the Purchaser has furnished Rs. 49,53,07,008/- (Indian Rupees Forty Nine Crore Fifty Three Lakh Seven Thousand Eight Only)* towards the Security Deposit amount.

[In case the SD is in the form of a bank guarantee the same shall be provided in the enclosed format ("SD Bank Guarantee") with this Agreement at Schedule-II.']

- * The CG/ACG submitted by NTPC for an amount of Rs. 81,75,48,000/- against the LOA have been converted into SD for FSA.
- 2.11.3 The SD Bank Guarantee submitted by the Purchaser, as per Clause 2.11.2 above, shall remain valid till thirty (30) days from the First Delivery Date under this Agreement. Purchaser shall extend the SD Bank Guarantee and submit such letter of extension/ extended SD Bank Guarantee to the Seller one month in advance of the expiry date thereof, failing which the Seller shall have the right to terminate this Agreement. In case of multiple units of a Power plant, thirty (30) days from FDD of the last unit.
- 2.11.4 The value of the Security Deposit shall be suitably increased / decreased to match the changes in the Base Price notified by the Seller from time to time. In the event of failure of the Purchaser to provide such increased value within thirty (30) days from the date of notification of such change in Base Price, the Seller shall have

Model FSA - Govt./State Power Utilities(New)

the right to terminate the Agreement. If additional SD due to such increase in the Base Price of Coal is submitted by way of additional bank guarantee, the period of validity of such bank guarantee shall be the same as that of the initial SD Bank Guarantee furnished in terms of Clauses 2.11.1 to 2.11.3 above. Alternatively, the amount of the initial SD Bank Guarantee may be increased by an amendment so as to cover the increased value of SD resulting from the change in the Base Price.

2.11.5 The Security Deposit shall be refundable to the Purchaser at the end of 30 days from the First Delivery Date. In case of multiple units of a Power plant, thirty (30) days from FDD of the last unit.

QUANTITY:

3.1 Annual Contracted Quantity (ACQ):

- 3.1.1 The Annual Contracted Quantity of Coal agreed to be supplied by the Seiler and undertaken to be purchased by the Purchaser, shall be 84.72 takh tonnes per Year from the Seller's mines and/ or from import, as per Schedule I. For part of Year, the ACQ shall be prorated accordingly. The ACQ shall be in the proportion of the percentage of Generation covered under long term Power Purchase Agreement(s) executed by the Purchaser with the DISCOMs either directly or through PTC(s) who has/have signed back to back long term PPA(s) with DISCOMs. Whenever, there is any change in the percentage of PPA(s), corresponding change in ACQ shall be effected through a side agreement. Such changes shall be allowed to be made only once in a year and shall be made effective only from the beginning of the next quarter. However, in no case ACQ should exceed the LOA quantity as mentioned in Schedule-I.
- 3.1.2 The Purchaser shall in advance under the Schedule I provide firm annual coal requirement for the initial years required for phasing of the Power Plant after the completion of Build-Up Period, quantities subject to maximum of Annual Contract Quantity mentioned under Clause 3.1.1. Such quantities shall be considered binding and deemed to be Annual Contract Quantities for the respective years and be used for provisions under this Agreement.
- 3.1.3 It is expressly clarified that the Annual Contracted Quantity (ACQ) shall be valid for each Power Station separately, as mentioned in Schedule I, and all the provisions of this Agreement related to ACQ shall be applicable mutatis mutandis.

3.2 End-use of Coal

The total quantity of Coal supplied pursuant to this Agreement is meant for use at the North Karaupura STPP Unit 1 to 3 (3x660 MW), Tandwa Town, Distt. Chatra, 825321, Jharkhand as listed in Schedule I. The Purchaser shall not sell/divert and/or transfer the Coal to any third party for any purpose whatsoever and the same shall be treated as material breach of Agreement, for which the Purchaser shall be fully responsible and such act shall warrant suspension of coal supplies by the Seller.

•

Model FSA - Govt./State Power Utilities(New)

CCL & North Karanpura STPP Unit 1-3 (3x660 MW)

of.

- However, interplant transfer of coal may be considered provided:
- a) Transfer of coal shall be allowed only between the power plants wholly owned by the Purchaser or its wholly owned subsidiary. No transfer of coal shall be allowed for a Joint Venture (JV) company of the Purchaser. The supply of coal, shall for all commercial purpose under the FSA remain unchanged and on account of the original Power Plant.
- b) Both the Power Plants should have executed FSA in the modified FSA Model applicable for new power plants and not having any supplies linked to coal blocks. In case of IPPs both the plants must have valid long term PPAs with DISCOMS.
- Transfer of coal will not be allowed to those plants who are allotted coal blocks under this arrangement.
- d) In case of change in the ownership and no environmental clearance of the plant this facility shall stand withdrawn, and
- e) Penalty/Incentive under this arrangement would be considered in terms of (a) above.

Note: In addition to the above conditions, the transferee plant would also require to provide an affidavit to CIL (Supplying Coal Company) affirming that the additional coal supply beyond the ACQ shall only be used for generating power for distribution under long term PPAs with DISCOMs.

3.3 Sources of Supply

- 3.3.1 The Seller shall endeavor to supply Coal from own sources as mentioned in Schedule I. In case the Seller is not in a position to supply the Scheduled Quantity (SQ) of Coal from such sources as indicated in Schedule I, the Seller shall have the option to supply the balance quantity of Coal through import which shall not, unless otherwise agreed between the parties, exceed 15% of the ACQ in the year 2012-13,13-14 and 14-15, 13% of ACQ in the year 2015-16 and 5% of the ACQ for the year 2016-17 and onwards. Seller may at its discretion, make such arrangement for supply of imported coal through CIL, and /or other enterprises. Accordingly, the Purchaser has to enter into a 'Side Agreement' with CIL and/or the Seller, as the case may be, in addition to this Agreement. The 'Side Agreement' dealing with the terms and conditions for supply of imported coal would be an integral part of this Agreement.
- 3.3.2 For supply of coal through import as stated in clause 3.3.1 above, the Purchaser shall agree to have back to back arrangements, if so required, with the Importing agency(ies) to be notified by the Seller/CIL and deposit 100% of payable amount in advance. The commercial terms and conditions for such supply shall be regulated as per the Side Agreement.
- 3.3.3 The Seller may also offer coal from loading points / coal stocks to be lifted by the Purchaser by his/ their own transport arrangement by road / road-cum-rail or any other mode up to 5 % of the ACQ. The provision shall however be applicable for

Model FSA - Govt/State,Power Utilities(New)

supplies of coal under the Agreement from collieries of three coal producing subsidiaries of CIL viz. SECL, MCL and CCL. Further the provision shall continue till such time three major railway lines in these coal companies are constructed and made operational.

3.3.4 CIL reserves the right to transfer part of the ACQ from the Seller to another coal producing company (Subsidiary of CIL) based on the proposal received from the Seller, which would be binding on the Purchaser.

3.4 Quarterly Quantity (QQ)

> The Annual Contracted Quantities, from indigenous sources, for the Year, as per Clause 3.1 shall be divided into Quarterly Quantities (QQ), expressed in tonnes, as follows:

Ist Quarter (Apr-Jun.)	25% of ACQ	_
Ilnd Quarter (Jul-Sep)	22% of ACQ	
IIIrd Quarter (Oct-Dec)	25% of ACQ	
IVth Quarter (Jan-Mar)	28% of ACQ	

- 3.5 Scheduled Quantity (SQ):
- 3.5.1 The monthly Scheduled Quantity (SQ) shall be one third (1/3%) of the QQ.
- 3.5.2 Either the Purchaser or the Seller by serving a written Notice at least thirty (30) days prior to the commencement of a month, may revise the SQ to be supplied by the Seller in that month, provided that the increase/ decrease resulting from such revision shall not be in excess of 5% of the SQ and the Purchaser shall seek any such increase in SQ for the months of July, August and September of any Year only with the prior written consent of the Seller.
- 3.5.3 Seller shall have the right to make good the short supplies in a particular month in the succeeding month(s) of the same Quarter to the extent of 5% of the SQ. Similarly, Purchaser shall have the right to make good the short lifting in a particular month in the succeeding months of the same Quarter to the extent of 5% of the SO.
- 3.5.4 Total variation in any Month pursuant to clauses 3.5.2 and 3.5.3 shall in no case exceed 10% of the SQ.
- Normally variation shall not be permitted in respect of QQ either by Purchaser or Seller pursuant to 3.5.2, 3.5.3 and 3.5.4 except with mutual consent of the Purchaser and the Seller. However, variation in QQ with corresponding variation in the SQs of the quarter concerned over and above permitted under sub clause 3.5.2, 3.5.3 and 3.5.4 can be made with mutual consent of the Purchaser & the Seller expressed in writing.
- 3.5.6 Not used

Model FSA - Govt/State Power Utilities(New) Mawaller

3.5.7 The above schedule of supply is in respect of supply of coal from indigenous sources. Supply of imported coal shall be made as per its availability, which is depending upon many uncontrollable factors and hence no restrictions shall be applicable for quarterly distribution

3.6 Compensation for short delivery/lifting

3.6.1 If for a Year, the Level of Delivery by the Seller, or the Level of Lifting by the Purchaser falls below ACQ with respect to that Year, the defaulting Party shall be liable to pay compensation to the other Party for such shortfall in Level of Delivery or Level of Lifting, as the case may be ("Failed Quantity") in terms of the following

Source	Level of Delivery / Lifting of Coal in a Year	Percentage of Penalty for the failed quanti (at the rate of weighted average of Base Prices of Grades of coal supplied)		
		2012-13,2013- 14 & 2014-15	2015-16	2016-17 onwards
Imported + Domestic Qty	Below 100% but up to 80% of ACQ	NIL	NIL	NIL
Applicabl	Below 80% but up to 75% of ACQ		20000000	0 - 1,5
e for Imported	Below 75% but up to 67% of ACQ	0 - 1.5	0 - 1.5	=
Coal Only	Below 67% but up to 65% of ACQ			-

Source	Level of Delivery / Lifting of Coal in a Year	Percentage of P (at the rate of P Prices of C	rage of Base	
		2012-13,2013- 14 & 2014-15	2015-16	2016-17 onwards
Applicabl e for Domestic	Below 75% but up to 70% of ACQ	+	24	0 - 5
	Below 70% but up to 67% of ACQ		=	5 - 10
Coal	Below 67% but up to 65% of ACQ		0-2	3-10

Model FSA - Govt/State Power Utilities(New)

Below 65% but up to 60% of ACQ	0 - 5	-2-7	10 - 20
Below 60% but up to 55% of ACQ	5 - 10	7 - 20	
Below 55% but up to 50% of ACQ	10 - 20	20 - 40	20 - 40
Below 50% of ACQ	20 - 40		

3.6.2 The penalty payable shall be computed in the same manner as done slab-wise for computation of income-tax. However, unlike income tax, the percentage of compensation shall grow on linear basis within each slab

* Note: For the phasing period the annual coal requirements shall be based on the quantities mentioned by the Purchaser for the initial years under Schedule I of this agreement

Note: The Purchaser has to give unconditional acceptance of imported coal and pricing mechanism thereof as would be decided by CIL, by signing the Schedule VII of this agreement. Unless such acceptance is accorded, the penal provision for supply below 80% and up to 65% of ACQ for the years 2012-13, 2013-14 and 2014-15 and below 80% and up to 67% of ACQ for the year 2015-16 shall not be applicable. The penal provision for supply below 75% shall be applicable from the year 2016-17 and onwards. The terms of import and the pricing mechanism shall be as per the provisions of the side agreement.

3.6.3 Agreements made earlier under the 'Coal Distribution System' as defined at clause 1.1(j) shall take precedence over the commitments made under this agreement

3.6.4 The Seller shall be entitled to modify/amend the penalty levels as specified at clause 3.6.1 pursuant to review undertaken by MOC in terms of the clause 2.6(ii)

3.7 Level of Delivery:

Level of Delivery with respect to a Year shall be calculated in the form of percentage as per the following formula:

Level of Delivery (LD) =
$$\underline{\text{(DQ+DDQ+FM+RF)} \times 100}$$

ACQ

Where:

LD = Level of Delivery of Coal by the Seller during the Year.

DQ = Delivered Quantity, namely, aggregate actual quantities of Coal delivered by the Seller during the Year

DDQ = Deemed Delivered Quantity, reckoned in the manner stated in Clause 3.11

18 Model FSA – Govt/State Power Utilities(New)

of.

FM = Proportionate quantity of Coal which could not be delivered by the Seller in a Year due to occurrence of Force Majeure event affecting the Seller and / or the Purchaser, calculated as under:

FM = ACQ x Number of days lost under applicable Force Majeure event 365

Note: For the purpose of calculation of 'Number of days lost under applicable Force Majeure event', affecting both the Parties shall be counted only once.

RF = Quantity of Coal that could not be supplied by the Seller during the Year owing to the Railways not allotting wagons or not placing wagons for loading, in spite of specific valid indent/offer submitted by the Seller to the Railways against valid program(s) submitted by the Purchaser for the purpose.

3.8 Level of Lifting:

Level of Lifting with respect to a Year shall be calculated in the form of percentage as per the following formula:

Level of Lifting (LL) =
$$(ACQ-DDQ) \times 100$$

ACQ

Where:

LL = Level of Lifting of Coal by the Purchaser during the Year.

DDQ shall have the same meaning as given in Clause 3.11.

- 3.9 For the purpose of computing DDQ and RF, the weight per rake will be as per the extant Railway rules, which shall be used for calculation of compensation from either the Purchaser or Seller.
- 3.10 (Deleted Not Used)

3.11 Deemed Delivered Quantity:

For the purpose of this Agreement, the aggregate of the following items provided under Clause 3.11.1 to 3.11.2 shall constitute the Deemed Delivered Quantity with respect to a Year.

3.11.1 For supply of Coal by rail:

- (i) The quantity of Coal not supplied by the Seller owing to omission or failure on the part of Purchaser to submit in advance the designated rail programme (s) to the Seller as per agreed time-table with respect to the Scheduled Quantity.
- (ii) The quantity of Coal not supplied by the Seller owing to cancellation, withdrawal or modification of the rail programme(s) by the Purchaser after its submission whether before or after allotment of wagon(s) by Railways.

19 Model FSA – Govt/State Power Utilities(New)

- (iii) The quantity of Coal not supplied by the Seller owing to Purchaser's failure to pay and/or submit / maintain IRLC, as applicable, in accordance with Clause 11.1.2.
- (iv) The quantity of Coal not supplied by the Seller owing to Seller exercising the right of suspension of supplies in terms of Clause 14.
- (v) The quantity of Coal offered by Seller from domestic and/or imported coal in terms of Clause 3.3.1 and 3.3.2 not accepted by the Purchaser.

3.11.2 For Supply of Coal by road/ ropeways/MGR/belt conveyor:

- (i) The quantity of Coal not supplied by the Seller owing to Purchaser's failure to pay and/or submit IRLC, as applicable, in accordance with Clause 11.1.2.
- (ii) The quantity of Coal not supplied by the Seller owing to Seller exercising the right of suspension of supplies in terms of Clause 14.
- (iii) The quantity of Coal not supplied by the Seller owing to Purchaser's failure to place the requisite number / type of transport at the Delivery Point for delivery of Coal within the validity period of the sale order/delivery order.
- (iv) The quantity of Coal offered by Seller from domestic and/or imported coal in terms of Clause 3,3.1 and 3,3.2 not accepted by the Purchaser.
- 3.11.3 Deemed Delivered Quantity in terms of Clause 3.11.1 and 3.11.2 shall be calculated on cumulated monthly basis during a Year.

3.12 Performance Incentive:

3.12.1 If the Seller delivers Coal to the Purchaser in excess of ninety (90%) of the ACQ in a particular Year, The Purchaser shall pay the Seller an incentive ("Performance Incentive") for the excess coal supplied:

Percentage of Actual deliveries	Percentage of Incentive at the rate of weighted average Base Price of grades of coal supplied			
	2012-13, 2013-14 & 2014-15	2015-16	2016-17 onwards	
Above 90% but up to 95% of ACQ	0 - 10	0 - 10	0 - 10	
Above 95% but up to 100% of ACQ	10 - 20	10 - 20	10 - 20	
Above 100% of ACQ	40 (Fixed)	40 (Fixed)	40 (Fixed)	

20

Model FSA - Govt./State Power Utilities(New)

CCL & North Karanpura STPP Unit 1-3 (3x660 MW)

of

- Actual Deliveries = Actual Quantity [in tonnes] of Coal delivered by the Seller in the relevant Year.
- 3.12.2 The incentive payable shall be calculated in the same manner as done slab-wise for computation of income-tax. However, unlike income tax, the percentage of incentive shall grow on linear basis within each slab
- 3.12.3 With respect to part of Year in which term of this Agreement begins or ends, the relevant quantities in Clause 3.12.1, shall apply pro-rata.
- 3.12.4 Deleted
- 3.12.5Supply of coal in excess of ACQ shall be with mutual consent
- 3.13 Incentive/compensation adjustment for supply below 3100 Kcal/kg
- 3.13.1 Coal supplied below 3100 Kcal/Kg (earlier below 'G' grade under UHV system) will be accounted for separately to work out the percentage contribution of below 3100Kcal/kg of the overall supply.
- 3.13.2 The quantity qualifying for incentive/compensation shall be proportionately divided into two parts in the same ratio as indicated in 3.13.1 above.
- 3.13.3 25% of the proportionate quantity worked out as supply below 3100Kcal/Kg, as at 3.13.2 above, would be considered for incentive/compensation.
- 3.13.4 The proportionate quantity worked out as supply above 3100Kcal/Kg, as at 3.13.2 and the adjusted quantity of supply below 3100Kcal/kg, as at 3.13.3 above will be added to ascertain the qualifying quantity for incentive/compensation

4. QUALITY:

- 4.1 The quality of Coal delivered / to be delivered shall conform to the specifications given in Schedule III.
- 4.2 The Seller shall make adequate arrangements to assess the quality and monitor the same to endeavour that un-graded Coal (GCV of less than 1500 Kcal/Kg for Noncoking coal) is not loaded into the Purchaser's Containers. If the Seller sends any quantity of such Coal, the Purchaser shall limit the payment of cost of Coal to Re.1/- (Rupee one only) per tonne. Royalty, cess, sales tax, etc. shall however be paid as per the Declared Grade. Railway freight shall be borne by the Purchaser.
- 4.3 The Seller shall deliver sized Coal with size conforming to specifications laid in Schedule III. The Seller shall make reasonable efforts to remove stones from Coal.

Model FSA – Govt./State Power Utilities(New)

4.4 The Seller shall use magnetic separators and metal detectors, at its Coal handling/loading system at the Delivery Point, where the same are already installed.

4.5 Declaration of Common Grade/ Re-declaration of Grade by the Seller:

- (i) The Seller shall declare one common Grade for Coal seam or seams from which Coal is being despatched through the same Delivery Point, wherever applicable.
- (ii) If the Grade analysed pursuant Clause 4.7 shows variation from the Declared Grade, consistently over a period of three (3) months, the Purchaser shall request the Seller for re-declaration of Grade, which shall be duly considered by the Seller.

4.6 Oversized Coal / stones

4.6.1 Oversized Coal:

The Purchaser shall inform the Seller all incidents of receipt/presence of oversized Coal, in terms of specifications laid down in Schedule III, in any specific consignment(s), immediately on its detection at the Delivery Point and/or Unloading Point and the Seller shall take all reasonable steps to prevent such ingress at his end.

4.6.2 Stones

The Purchaser shall inform the Seller all incidents of receipt / presence of stones in any specific consignment(s) by rail, immediately on its detection at the Delivery Point and/or Unloading Point. The Seller shall, immediately take all reasonable steps to prevent such ingress at his end. The stones segregated by the Purchaser at the Power Station end shall be assessed jointly by the representative of the Seller and the Purchaser at the Power Station end for adjustments pursuant to Clause 9.1.

4.6.3 Modalities for assessment of stones:

- a) The Purchaser shall endeavor to segregate and stack separately all oversized stones of size more than 250 mm received along with Coal from the Seller's supplies by rail/MGR at the Power Station end, during the month, at a mutually agreed place identified for the purpose within the Power Station premises, for the purpose of joint assessment pursuant to Clause 4.6.2 as per the procedure laid down in Schedule VI of this Agreement for compensation pursuant to Clause 9.1.
- b) The Seller shall depute its representative at the Power Station end between fourth (4th) day to tenth (10th) day of the following month, for joint assessment of the quantity of stones of size more than 250 mm received by rail/MGR in the preceding month and the Parties shall prepare a jointly signed statement of quantity of stones. The Purchaser shall extend full co-operation and facilitate

22

Model FSA - Govt/State Power Utilities(New)

CCL & North Karanpura STPP Unit 1-3 (3x660 MW)

of.

- deputation of such representative of the Seller failing which the Seller shall not agree to the claim raised by the Purchaser in this regard.
- In case the Seller's representative fails to be present at the Power Station end, within the period stipulated at Clause 4.6.3 (b) for the assessment of the quantity of oversized stones in compliance to 4.6.3 (a), the quantity of oversized stones assessed by the Purchaser shall be intimated to the Seller, by the fifteenth (15th) day of such following month and the same shall be taken as final and binding on the Seller for the purpose of adjustments under Clause 9.1. Thereafter, the Purchaser shall dispose off / remove such stones by the end of such month under intimation to the Seller and the Purchaser shall not be under any obligation to preserve such material beyond the day(s) stipulated herein above. However, the Purchaser shall maintain all records/ documents for example work order, running account bills, payment document etc for such disposal and present the same along with audited records for scrutiny of the Seller, if required.
- d) Quantity of stones attributable to the Seller shall be worked out by pro rata apportionment on the basis of proportionate receipt of Coal by rail/MGR from Seller out of the total Coal received by the rail/MGR at the concerned Power Station during a month. For such apportionment, the Purchaser shall provide certified monthly figures of quantity of Coal received by rail as per Coal bill at the concerned Power Station from the Seller as well as from all sources other than the Seller.
- e) Compensation for oversized stones shall be payable by the Seller to the Purchaser month-wise, Power-station wise, in terms of weighted average Base Price of the analysed Grade of indigenous Coal for the equivalent quantity of stones actually verified/ removed, as above for such coal supplied progressively in a Year by the Seller from the CIL sources to the concerned Power Station by rail/ MGR after accounting for the weight reduction towards destination end, weighment in terms of Clause 5.2 and moisture compensation in terms of Clause 9.2. However, such total quantity of oversized stones actually verified/removed shall be restricted up to a ceiling of 0.75% of the total quantity of indigenous coal supplied during the year for the purpose of compensation if supply of indigenous coal during the year has also been made from any other source(s) including captive block besides CIL sources
- 4.6.4 Without prejudice to provisions at Clause 4.6.3, if, in the Purchaser's reasonable determination, the presence of oversized Coal and/or stones is causing operating or maintenance problems at the Power Station, then, upon the request of the Purchaser, the Purchaser and the Seller shall meet and prepare a mutually acceptable plan for effectiveness of the Seller's efforts at removing oversized stones from the Coal.
- 4.7 Assessment of Quality of Coal
- 4.7.1 Sample collection:

23

Model FSA - GovL/State Rower Utilities(New)

- Samples of Coal shall be collected jointly by the Third Parties of the Seller and the Purchaser either manually or through any suitable mechanical sampling arrangement including Augur Sampling method if physically operationable, at each of the Delivery Points for determining the quality of Coal in presence of representatives of Seller and Purchaser
- For the purpose of sampling each rake (source wise, grade wise and plant wise) of Coal supplied from one Delivery Point shall be considered as a lot.
- Each day's supply from a source shall be considered as one lot for the purpose of sampling in case of Coal supplies by road, ropeways, belt and Merry-Go-Round (MGR) rail system. However, in case of Coal supplies by Railways, each rake from a source shall be considered for the purpose of sampling.
- 4.7.2 Detailed modalities for collection, handling, storage and preparation of samples by *Third Parties* shall be as per Schedule V to this Agreement.

4.7.3 Sample preparation & analysis:

(i) Total Moisture Sample for determination of Total Moisture shall be segregated from the sample collected at the Delivery Point by the Third Parties jointly, and prepared and analyzed, as per procedure given in Schedule-V.

(ii) Daily Gross Sample

- a) The Gross Sample collected as per clause 4.7.1(i) for determination of moisture, ash & GCV on equilibrated basis shall be reduced into laboratory sample on the date immediately following the date of collection. The final laboratory samples will be divided into three parts viz. Set I Set II and Set-III as follows:
 - Set 1 shall be taken by the Purchaser for analysis at their end to determine the ash, moisture and GCV.
 - Set II shall be analyzed by the Seller to determine the ash, moisture and GCV.
 - Set-III shall be kept under joint seal of the Seller, Purchaser and the Third Parties as referee sample in the joint custody at the loading end for a period of fourteen (14) days or until the analysis results of Set – I and Set-II are accepted without dispute, whichever is earlier.
- b) The sample in Set -I and Set-II shall be analysed for ash, moisture and GCV on equilibrated basis {wherever required in accordance with IS: 1350 (Part -I) – 1984 and IS: 1350 (Part -II) – 1970}.
- c) Set-I and Set-II of the laboratory sample as prepared shall be analyzed by the Third Parties of Seller and Purchaser in their respective laboratories as per relevant part of IS: 1350 (Part -I) - 1984 and IS: 1350 (Part - II) - 1970 within three-four (3-4) days from the date of preparation and distribution of laboratory sample for analysis of ash, moisture and GCV

Model FSA – Govt/State Power Utilities(New)

- d) In the event of any dispute (which shall be raised not later than forty-eight (48) hours after analysis), the referee sample as in Set- II shall be referred for analysis within seventy two (72) hours of the dispute but not later than eight (8) days of the collection of samples at any mutually agreed NABL Accredited /Government laboratory.
 - The cost incurred for the analysis of the Referee sample including cost of transportation to the Mutually Agreed Laboratory shall be borne total by the Party raising the dispute
- The procedure for storage of referee sample shall be mutually agreed upon by both the Parties.
- 4.7.4 Each sample shall be assigned with a code number and will be identified by such code only and no other particulars will be indicated or written on the tag attached with the relevant bag containing the sample.
- 4.7.5 All tools, tackles required for collection of samples, its preparation and all laboratory facilities for the purpose of analysis of samples - at the loading end be arranged by the Seller as per the provision of this Agreement.
- 4.7.6 (a)In the event of any reason whatsoever third Party sampling & analysis could not be conducted, joint sampling & analysis shall be carried out by the Seller in presence of the Purchaser at the loading end.
 - (b) In the event that no sample is collected either by the Third Parties or Seller and Purchaser jointly as mentioned at (a) above from dispatches by a rake or on any day, as the case may be, from a source for any reason, the weighted average of the most recent results available in any preceding month against respective Source and Grade shall be adopted for such dispatches for which samples were not collected.
- 4.7.7 In the event the Third Party appointed by the Purchaser fails /declines to participate in the process of sampling and analysis mentioned at clause 4.7.1(i), such failure/refusal shall not be considered as ground for disputing the result submitted by the Third party of the seller which will be binding on both the Parties.

5.0 WEIGHMENT OF COAL

5.1 For dispatch of Coal by Rail, all the wagons loaded for the Purchaser shall be weighed at the loading end at the electronic weighbridge of Seller and electronic print out of actual weight recorded shall be provided. Such weighment shall be final and binding for determination of the quantity delivered. The Purchaser shall have the right to witness the weighment of the wagons at the weighbridge, if desired. The Seller shall hand-over copies of jointly signed or in the absence of the Purchaser's representative(s), signed by the Seller, print-outs of the weighment to the Purchaser immediately after weighment of each consignment, besides a

25 Model FSA - Govt/State Power Utilities(New)

copy of such signed printouts shall also be annexed along with the bill(s) raised by the Seller

- 5.2 Only in the absence of weighment of Coal on electronic weighbridge at the loading end, the weight recorded at the Purchaser's electronic weighbridge with an electronic print-out facility at the Unloading Point, if in proper working order, shall be taken as final. In respect of unweighed consignments/ wagons at the Delivery Point on electronic weighbridge and weighed on electronic weighbridge at the Purchaser's end, the Purchaser shall submit the associated electronic printout to the Seller for such consignments/ wagons within thirty (30) days from the date of Railway Receipt, beyond which time the weight of the consignment shall be considered on Railway Receipt basis.
- 5.3 If both the weighbridges installed by the Seller as well as the Purchaser are defective,/ not available for recording weight of the consignments of Coal, weighted average quantity of Coal per wagon (to be determined separately for respective types of wagons in the circuit), as per the actual weighment over a continuous period of immediately preceding seven (7) days shall form the basis for determining the quantity of Coal from that source at that Delivery Point, till such time any one of the weighbridges is corrected and put back into operation. If the weighbridges at both the Seller's and the Purchaser's end are not available for recording weight of coal and actual weighment over a continuous period of immediately preceding seven (7) days is also not available then weight of Coal for such unweighed wagons shall be taken as per the weight indicated in the Railway Receipts (RRs).
- 5.4 The Seller and the Purchaser shall permit access to and make facilities available at its weighbridge, for representatives of either Party to witness and note the weight for the consignment. In case the representative of any Party fails to be present, at the time of such weighment, the weight recorded by the representative of the other Party in accordance with Clause 5.1 and 5.2, shall be final and binding.
- 5.5 The weighbridges both at the Seller's end and at the Purchaser's end shall be calibrated as per the Weights and Measures Standards and also whenever required. Both the Seller and the Purchaser shall have right to witness the calibration of the weighbridge at each other's end. Coal bills of consignment, which are weighed as per the provisions of clause 5.1, shall bear the rubber stamp indicating electronic printout has been enclosed. If the electronic printout with Coal bill is not received by the Purchaser despite rubber stamp, such bills shall be returned to the Seller for re-submission along with electronic printout within twenty (20) days.

5.6 Operation and Maintenance of Weighment System

The Parties shall at their respective costs,

 Operate and maintain their weighbridges in good working order and in accordance with the Weights and Measures Standards and other applicable laws

Model FSA – Govt/State Power Utilities(New)

- b) Cause the weighbridge to be inspected, tested and certified by the statutory agencies in accordance with and at the intervals required by the Weights and Measures Standards and the Parties shall, at their cost, extend / make available all requisite facilities required for the purpose of testing and/or calibrating the weighbridge.
- 5.7 For dispatch of Coal by road, the weight recorded at the electronic weighbridge of the Seller at the loading end shall be final for the purpose of billing and payment. The Purchaser shall have the right to witness the weighment at the colliery, if desired. The weighbridge shall be calibrated as per the provisions of the Standards of Weights & Measures Act 1976. The Purchaser shall have right to witness such calibration.
- 5.8 For dispatch of Coal by belt conveyor, a weightometer shall be installed at the colliery/ washery end of the Seller and weight recorded by the weightometer shall be the weight of Coal supplied. The weightometer shall be kept under joint seal and will be repaired / recalibrated in the presence of the representatives of the both the Parties, wherever necessary.
- 5.9 For dispatch of Coal by MGR system, weight recorded at the loading end through electronic weighment system shall form the basis for determining the quantities of Coal delivered.

6. METHOD OF ORDER BOOKING AND DELIVERY OF COAL:

The Purchaser shall submit monthly programme(s) mode-wise for off-take of Coal against the monthly mode-wise Coal allocation made by the Seller. Notwithstanding, Clause 6.1 and Clause 6.2 shall be applicable in case of Coal off-take by rail and road respectively.

6.1 Order Booking by Rail:

- 6.1.1 At least seven (7) working days prior to the commencement of the month concerned, the Purchaser shall submit a programme in writing to the Seller, as per the applicable Railway rules and the Seller's notified procedures. Thereafter, the Seller shall process for issuance of the consent of the programme. The sanction of the consented rail programme shall be obtained accordingly. The validity period of the monthly programme for movement by rail for seeking allotment shall be till the last day of the month concerned. The consent of the programme to be issued by the Seller shall not remain valid after the above period. Once the rake is allotted, it shall remain valid for supply as per the prevailing Railways rules.
- 6.1.2 Subject to fulfillment of payment obligations pursuant to Clause 11.1.2 by the Purchaser, the Seller shall thereupon submit specific indent/offer based on the valid rail programme(s) to the Railways as per the extant Railway rules for the allotment and placement of wagons during the concerned month in conveniently spaced intervals.

Model PSA – Govt/State-Power Utilities(New)

- 6.1.3 The wagons shall be booked on "freight to pay" or "freight pre paid" basis, as applicable based on the arrangements made by the Purchaser with Railways in this regard.
- 6.1.4 In case of formation of rakes with wagons loaded from different Delivery Points, the Seller shall make best efforts to complete documentation formalities as per Railway rules so as to enable the Purchaser to avail a trainload freight rate.
- 6.1.5 In the event rail movement is declared / considered not feasible by Railways, review will be made jointly in the matter of mode of transport

6.2 Order Booking by Road:

- 6.2.1 The Seller shall intimate the Purchaser about the monthly Coal allocation for order booking seven (7) working days prior to the commencement of the month concerned.
- 6.2.2 Based on the monthly colliery wise allocation done by the Seller in terms of Clause 6.2.1, the Purchaser shall place orders with the Seller for the Scheduled Quantity.
- 6.2.3 Subject to fulfillment of payment obligations pursuant to Clause 11.1.2 by the Purchaser, the Seller shall arrange to issue sale order(s)/delivery order(s) separately for each colliery and issue necessary loading programme / schedule from time to time. The Purchaser shall arrange to place the required number / type of trucks to lift the Coal as per such loading programme / schedule. The Seller shall ensure that the sale order / delivery order in favour of the Purchaser reaches the concerned colliery/weigh bridge within five (5) working days of the last day of the period notified by the Seller for booking orders in terms of Clause 6.2.1.
- 6.2.4 The Seller shall ensure delivery and the Purchaser shall ensure lifting of Coal against sale order / delivery order of any month within the validity period, as mentioned in the sale order.
- 6.2.5 In the event of any quantity remaining undelivered / unlifted, the Purchaser shall be entitled to receive, once the validity period of the sale order/ delivery order expires, the refund of the proportionate value of such quantity.

TRANSFER OF TITLE TO GOODS:

Once delivery of Coal have been effected at the Delivery Point by the Seller, the property / title and risk of Coal so delivered shall stand transferred to the Purchaser in terms of this Agreement. Thereafter the Seller shall in no way be responsible or liable for the security or safeguard of the Coal so transferred, Seller shall have no liability, including towards increased freight or transportation costs, as regards missing/diversion of wagons / rakes or road transport en-route, for whatever causes, by Railways, or road transporter or any other agency.

8.0 PRICE OF COAL:

28

Model FSA - Govt/State Power Utilities(New)

The "As Delivered Price of Coal" for the Coal supplies pursuant to this Agreement shall be the sum of Base Price, Other Charges and Statutory Charges, as applicable at the time of delivery of Coal.

8.1 Base Price

The Purchaser shall pay the Base Price of Coal in accordance with the provisions of this Agreement. It is expressly clarified that the Base Price in relation to the Indigenous coal and Imported coal shall be notified/declared by the Seller/ CIL, as the case may be from time to time.

8.2 Other Charges:

8.2.1 Transportation charges:

Where Coal is transported by the Seller from Pithead to the Delivery Point, the Purchaser shall pay transportation charges, as notified by CIL / Seller from time to time.

8.2.2 Sizing/Crushing charges:

Where Coal is crushed by mechanical means for limiting the top-size to 250mm, or any other lower size, the Purchaser shall pay sizing/crushing charges, as applicable and notified by CIL / Seller from time to time.

8.2.3 Rapid Loading Charges:

Where Coal is loaded through rapid loading system, the Purchaser shall pay rapid loading charges notified by CIL / Seller from time to time.

8.2.4 Any other applicable charges:

Any other applicable charges as notified by CIL/ Seller from time to time including additional charges and service charges arising out of supply of imported coal, as may be applicable. The Service Charges shall be 2% of Landed Price of Imported Coal (CIF Prices) plus applicable taxes and levies for supply of Imported Coal, till any further revision in the rate.

8.3 Statutory Charges:

The statutory charges shall comprise royalties, cesses, duties, taxes, levies etc., if any, payable under relevant statute but not included in the Base Price and/or other charges pursuant to Clause 8.2, shall be payable by the Purchaser. These levies/charges shall become effective from the date as notified by the Government/ statutory authority.

8.4 In all cases, the entire freight charges, irrespective of the mode of transportation of the Coal supplied, shall be borne by the Purchaser.

9.0 COMPENSATION:

29

Model FSA - Govt/Staje-Power Utilities(New)

CCL & North Karanpura STPP Unit 1-3 (3x660 MW)

of

9.1 Oversized Stones:

The Seller shall adjust through regular credit notes to the Purchaser amounting to hundred percent (100%) of the weighted average Base Price, as per the analysed Grade of Coal applicable for the month in which such supplies were made by the Seller and Other Charges pursuant to Clause 8.2 but excluding statutory charges pursuant to Clause 8.3, if any, and railway freight for the quantity of oversized stones received by the Purchaser along with the Coal supplies during the month as per the jointly assessed signed statement or as intimated by the Purchaser to the Seller pursuant to Clause 4.6.3(b) or 4.6.3(c) respectively.

9.2 Excess Surface Moisture

- (i) In the event that monthly weighted average Surface Moisture in Coal exceeds seven percent (7%) during the months from October to May and nine percent (9%) during the months from June to September, the Coal quantities delivered to the Purchaser during such month shall be adjusted for the resultant excess Surface Moisture, which shall be calculated in percentage by which the Surface Moisture exceeds the foregoing limits.
- (ii) The seller shall give regular credit note on account of excess Surface moisture, as per clause 9.2(i) above, calculated at the rate of Base Price of Analyzed Grade of coal and other charges, pursuant to clause 8.2 but excluding statutory charges pursuant to clause 8.3, if any, and railway freight for the quantity of excess Surface Moisture.
- (iii) Sampling/ analysis and determination of Surface Moisture for compensation shall be done as per the procedure given in Schedule V.

10. OVERLOADING AND UNDER LOADING:

- 10.1 Any penal freight for overloading charged by the Railways for any consignment shall be payable by the Purchaser. However, if overloading is detected from any particular colliery, consistently during three (3) continuous months, on due intimation from the Purchaser to this effect, the Seller undertakes to take remedial measures.
- 10.2 For Non coking coal of GCV exceeding 5800 Kcal/Kg and coking coal of Steel Grade I, Steel Grade II, Washery Grade I, Washery Grade II, Semi-coking Grade I, Semi-coking Grade II and washed Coal; any idle freight for under-loading below the stenciled carrying capacity, as shown on the wagon or carrying capacity based on the actual tare weight or permissible carrying capacity as notified by the Railways (route-wise) for any particular type of wagon from time to time, in which case the stenciled carrying capacity as shown on the wagon is more than the permissible carrying capacity,, as the case may be, shall be borne by the Seller. For all other Grades of Coal, any idle freight for under-loading below the stenciled carrying capacity, as shown on the wagon or carrying capacity based on the actual tare weight, as the case may be, plus two (2) tonnes shall be borne by the Seller. However, in the cases where permissible carrying capacity is less than

Model FSA - Govt./State Rower Utilities(New)

- the stenciled carrying capacity, as mentioned above, the idle freight shall be borne by the Seller only up to the permissible carrying capacity
- 10.3 ldle freight resulting from under loading of wagon, as per Clause 10.2, shall be adjusted in the bills. Idle freight shall be reckoned as:
- (i) For Non coking coal of GCV exceeding 5800 Kcal/Kg and coking coal of Steel Grade I, Steel Grade II, Washery Grade I, Washery Grade II, Semi-coking Grade I, Semi-coking Grade II and washed Coal, the difference between the freight charges applicable for the stenciled carrying capacity, as shown on the wagon or carrying capacity based on the actual tare weight or permissible carrying capacity as notified by the Railways (route-wise) for any particular type of wagon from time to time, in which case the stenciled carrying capacity as shown on the wagon is more than the permissible carrying capacity, as the case may be, and the freight payable as per actual recorded weight of Coal loaded in the wagon; and/or
- (iii) For all other Grades of Coal, the difference between the freight charges applicable for the stenciled carrying capacity, as shown on the wagon or carrying capacity based on the actual tare weight, as the case may be, plus two (2) tonnes less the freight payable as per actual recorded weight of Coal loaded in the wagon. However, in the cases where permissible carrying capacity is less than the stenciled carrying capacity, as mentioned above, the difference shall be reckoned between the freight applicable for permissible carrying capacity and the freight payable as per the actual recorded weight of coal loaded in the wagon

11.0MODALITIES FOR BILLING, CLAIMS & PAYMENT

11.1 Bills on Declared Grade basis

- 11.1.1 The Seller shall raise source-wise bills for the Coal supplied to the Purchaser on Declared Grade basis. The Seller shall raise such bills on rake-to-rake basis for delivery of Coal by rail and on daily basis for delivery of Coal by road and other modes of transport. Such bills shall be raised within seven (7) days of delivery.
- 11.1.2 The Purchaser shall pay in accordance with either of the following payment mechanisms -
- (a) The Purchaser shall make advance payment for a month in three (3) installments for availing Coal supplies from the Seller - first (1st) installment on the first (1st) day of the month, second (2nd) installment on the eleventh (11th) day of the month and the third (3cd) installment on the twenty first (21st) day of the month. Each of these payment installments shall cover the As Delivered Price of Coal for the Coal quantities that is one-ninth (1/9th) of the QQ concerned, as per Clause 3.4. Further, each of these installments shall take into account the weighted average of Base Prices of Grades mentioned in Schedule III based on actual supplies of immediately available previous month. However, the third (3rd) installment shall also include the adjustment amount with regard to the actual quantity of Coal delivered pursuant to Clause 5 and the quality of Coal analysed pursuant to Clause 11.2 vis-à-vis the advance payment made for the previous month. For the

Model FSA - Govt/State Power Utilities(New)

- avoidance of any doubt, such adjustment amount shall also include the quantity adjustment calculated pursuant to Clause 9.1 & 9.2.
- The Purchaser shall maintain with the Seller an Irrevocable Revolving Letter of (b) Credit (IRLC) issued by a bank acceptable to the Seller and in the format acceptable to the Seller and fully conforming to the conditions stipulated in Schedule III for an amount equivalent to As Delivered Price of Coal for the Coal quantities that is one-ninth (1/9th) of the QQ concerned, as per Clause 3.4. The As Delivered Price of Coal in this context shall take into account the highest of Base Prices of Grades mentioned in Schedule III. The IRLC shall be maintained throughout the term of this Agreement. The amount of IRLC shall be suitably changed whenever there is a change in any component of the As Delivered Price of Coal. In addition to the IRLC, the Purchaser shall pay advance amount equivalent to seven (7) days Coal value by way of Demand Draft/ Banker's cheque/ Electronic Fund Transfer (EFT),
- 11.1.3 All the payments shall be made through Demand Draft / Banker's cheque/ Electronic Fund Transfer payable at Ranchi (to be stated by the Seller). In the event of non-payment within the aforesaid stipulated period, the Purchaser shall be liable to pay interest in accordance with Clause 12.
- 11.1.4 Advance payment made by the Purchaser shall be non-interest bearing, and it shall change in accordance with change in the As Delivered Price of Coal.

11.2 Adjustment for analyzed quality/ Grade

- 11.2.1 The bills with regard to adjustment for quality, as determined under Clause 4.7, shall be supported by relevant documents in respect of the analysis carried out of the following parameters:
 - a) Total Moisture (%)
 - b) Equilibrated Moisture (%)
 - c) Ash (%)
 - GCV (Kcal/Kg) d)
 - (a) In the event for any reason whatsoever third Party sampling & analysis by the agency of Seller & purchaser could not be conducted, joint sampling & analysis shall be carried out by the Seller and the Purchaser at the loading end
 - (b)In the event no sample is collected either by the Third Parties or Seller and the Purchaser jointly as mentioned at (a) above from dispatches by a rake or on any day, as the case may be, from a source for any reason, the weighted average of the most recent results available in any preceding month against respective Source and Grade shall be adopted for such dispatches for which samples were not collected.
- 11.2.2. The Seller shall give regular credit note on account of Grade slippage to the extent of difference in the Base Price of Declared Grade and analysed Grade of Coal. In case of analysed Grade being higher than the Declared Grade, bonus bill/ claim

Model FSA - Govt/State Power Utilities(New)

CCL & North Karanpura STPP Unit 1-3 (3x660 MW)

aswallin

- shall be raised by the Seller. The credit note on Grade slippage shall be issued by the Seller within seven (7) days of acceptance of results under joint signature.
- 11.2.3 The amount arising out of final settlement of any bill pursuant to Clause 11.2.1 that is disputed by the Purchaser shall be paid for, as part of the third (3rd) installment pursuant to Clause 11.1.2(a) that is due for payment in the same month or in the immediately succeeding month to the month in which such settlement takes place.

11.3 Bills of Miscellaneous Claims:

- 11.3.1 The Seller shall, within seven (7) days of the receipt of claim pursuant to Clause 9.1 raised by the Purchaser, issue credit note, which shall be adjusted as part of the third (3rd) installment pursuant to Clause 11.1.2. (a).
- 11.3.2 The bills towards interest charges pursuant to Clause 12 shall be raised by the parties on monthly basis by the tenth (10th) day of the following month and the payment shall be made by fifteenth (15th) day of the same month.
- 11.3.3 Compensation for short supply/lifting, as calculated in accordance with Clause 3.6, shall be payable by the defaulting Party to the other Party within a period of ninety (90) days from the date of receipt of claim failing which it will attract interest in terms of Clause 12.
- 11.3.4 After expiry of the Year, the Seller shall submit an invoice to the Purchaser with respect to the Performance Incentive payable in terms of Clause 3.12.1 and the Purchaser shall pay the amount so due within thirty (30) days of the receipt of the invoice failing which it will attract interest in terms of Clause 12.

11.4 Diverted rakes/ missing wagons

In case of diversion of rakes en-route or missing wagons, bills shall be paid to the Seller by the original consignee.

11.5 Annual Reconciliation / Adjustments:

The Parties shall jointly reconcile all payments made for the monthly Coal supplies during the Year by end of April of the following Year. The Parties shall, forthwith, give credit/debit for the amount falling due, if any, as assessed during such joint reconciliation. The annual reconciliation statement shall be jointly signed by the authorised representative of the Seller and the Purchaser which shall be final and binding.

11.6 In the event of due date of any payment obligation under this Agreement falling on Sunday or a gazetted holiday or Nationwide strike affecting banking services, the next first working day shall be the effective due date for the purpose.

INTEREST ON DELAYED PAYMENT 12.0

In the event of delay in payment/adjustment of any amount payable/recoverable pursuant to the provisions of this Agreement, the Seller/the Purchaser shall be entitled to charge interest on such sum remaining outstanding for the period after

Model FSA - Govt/State Power Utilities(New)

the due date till such time the payment is made. The interest charged by the Seller/ Purchaser pursuant to this Clause shall be at the Interest Rate, as per Clause 1.1(dd).

13.0 (Deleted - Not Used)

14.0 SUSPENSION OF COAL SUPPLIES

- 14.1 In the event any payment due under this Agreement is not made by the Purchaser by the due date, the Seller shall be entitled to regulate and/or suspend further delivery of Coal till such day the payment as due along with the interest amount is received by the Seller. The quantity of Coal not delivered by the Seller pursuant to such regulation and/or suspension of delivery of Coal shall be the Regulated Quantity Not Supplied (RQNS) and Deemed Delivered Quantity (DDQ) of Coal shall accrue to the Seller for the quantity equal to RQNS.
- 14.2 In the event the Seller suspends the Coal supplies pursuant to Clause 14.1, during such period that the Coal supplies remain suspended, while the Seller shall be relieved of his obligations under this Agreement, the obligations of the Purchaser under this Agreement shall be deemed to remain in full force.
- 14.3 The Seller shall resume the Coal supplies within three (3) days of payment of the outstanding amount together with interest.
- 14.4 Not used

15.0 SETTLEMENT OF DISPUTES:

- 15.1 All differences or disputes between the Parties shall be settled/ resolved amicably. If amicable settlement is not possible, then the unresolved disputes or differences shall be settled through the process below.
- 15.2 "In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract (s) between Central Public Sector Enterprises (CPSEs) / Port Trusts inter se and also between CPSEs and Government Departments / Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), shall be taken up by either party for its resolution through AMRCD as mentioned in DPE OM No. 05/0003/2019-FTS-10937 dated 14.12.2022".

16. TERMINATION OF CONTRACT/AGREEMENT:

- 16.1 This Agreement may be terminated in the following events and in the manner specified hereunder:
- 16.1.1 In the event that either Party is rendered wholly or partially unable to perform its obligations under this Agreement ("Affected Party") because of a Force Majeure Act, as described in Clause 17 below, and such inability to perform lasts for not less than a total of nine (9) months in continuous form or of twelve (12) months in

Model FSA - Govt./State Power Utilities(New)

discontinuous form in a period of two (2) Years, and in the considered assessment of the other Party ("Non-Affected Party") there is no reasonable likelihood of the Force Majeure Act coming to an end in the near future, such Party shall have the right to terminate this Agreement, by giving at least ninety (90) days prior written notice to the Affected Party of the intention to so terminate this Agreement. In such event, the termination shall take effect on expiry of the notice period or ninety (90) days whichever is later, and the Parties shall be absolved of all rights/obligations under this Agreement, save those that had already accrued as on the effective date of termination.

16.1.2 In the event that the Purchaser is prevented /disabled under law from using Coal, for reasons beyond their control, owing to changes in applicable environmental and/or statutory norms, howsoever brought into force; the Purchaser shall have the right to terminate this Agreement, subject to a prior written notice to the Seller of thirty (30) days.

16.1.3 Not used.

- 16.1.4 In the event that the Level of Delivery (LD) falls below thirty percent (30%) or the Level of Lifting (LL) falls below thirty percent (30%), the Purchaser or the Seller as the case may be, shall have the right to terminate this Agreement, within sixty (60) days of the end of the relevant Year after providing the other Party with prior written notice of thirty (30) days.
- 16.1.5 In the event that either Party suffers insolvency, appointment of liquidator (provisional or final), appointment of receiver of any of material assets, levy of any order of attachment of the material assets, or any order or injunction restraining the Party from dealing with or disposing of its assets and such order having been passed is not vacated within sixty (60) days, the other Party shall be entitled to terminate this Agreement

16.1.6 Not Used

16.1.7 In the event that any Party commits a material breach of term or condition of this Agreement ("Defaulting Party") not otherwise specified under this clause 16.1, the other Party ("Non-Defaulting Party"), shall have the right to terminate this Agreement after providing the Defaulting Party thirty (30) days prior notice and the material breach has not been cured or rectified to the satisfaction of the Non-Defaulting Party within the said period of thirty (30) days.

16.2 Accrued rights to survive termination

Termination of this Agreement shall be without prejudice to the accrued rights and obligations of either Party as at immediately prior to the termination.

17. FORCE MAJEURE:

17.1 "Force Majeure Act" means any act, circumstance or event or a combination of acts, circumstances and events which wholly or partially prevents or delays the performance of obligations arising under this Agreement by any Party ("Affected

Model FSA - Govt/State Power Utilities(New)

Sawallin

Party³⁷) and if such act, circumstance or event is not reasonably within the control of and not caused by the fault or negligence of the affected Party, and provided that such act, circumstance or event is in one or more of the following categories:

- a) Flood, inundation of mine, drought, lightening, cyclone, storm, earthquake adverse geo-mining conditions, eruption of gases, subsidence and such natural occurrences.
- Explosion, Mine fire and other fire, contamination of atmosphere by radio active or hazardous substances.
- c) Civil disturbance such as riot, terrorism etc.
- d) Industry wise /nation-wide strikes.
- e) Any law, ordinance or order of the Central or State Government, or any direction of a statutory regulatory authority that restricts performance of the obligations hereunder;
- f) Epidemic;
- g) The enactment, promulgation, amendment, suspension or repeal of any Applicable Laws after the date hereof;
- h) Any delay or direction or order on the part of the Government of India or relevant State Government or denial or refusal to grant or renew, or any revocation, or modification of any required permit or mining lease or governmental approvals including those related to land acquisition or environment/ forest clearance provided that such delay, modification, denial, refusal or revocation was not due to a cause attributable to the Affected Party;
- Global shortage of Imported Coal or delays caused by supplier or no response to enquiries for supply of coal or logistics constraints in transportation of Imported Coal;
- (j) Any law and order problems affecting coal production and transportation of coal.
- k) Failure of supply of Power from Power Supplier(s)
- The events under Force Majeure for supply of coal through import shall be in accordance with the provisions under the side agreement for supply of imported coal as per clause 3.3.1 and 3.3.2.

17.2 Burden of Proof:

In the event the Parties are unable to agree in good faith that a Force Majeure Act has occurred; the Parties shall resolve the dispute in accordance with the provisions of this Agreement. The burden of proof as to whether a Force Majeure

6

Model FSA - Govt/State Power Utilities(New)

CCL & North Karanpura STPP Unit 1-3 (3x660 MW)

of.

Act has occurred shall be upon the Party claiming the occurrence or existence of such Force Majeure Act.

17.3 Effect of Force Majeure:

If either Party is rendered wholly or partially unable to perform its obligations under this Agreement because of a Force Majeure Act, that Party shall be excused from whatever performance is affected by the Force Majeure Act to the extent so affected, provided that:

- a) Within five (5) Business Days after the occurrence of the inability to perform due to a Force Majeure Act, the Affected Party provides a written notice to the other Party of the particulars of the occurrence, including an estimation of its expected duration and probable impact on the performance of its obligations hereunder, and continues to furnish periodic reports with respect thereto, every seven (7) days, during the period of Force Majeure,
- The Affected Party shall use all reasonable efforts to continue to perform its obligations hereunder and to correct or cure as soon as possible the Force Majeure Act,
- c) The suspension of performance shall be of no greater scope and duration no longer than is reasonably necessitated by the Force Majeure Act.
- d) The Affected Party shall provide the other Party with prompt notice of the cessation of the Force Majeure Act giving rise to the excuse from performance and shall thereupon resume normal performance of obligations under this Agreement with utmost promptitude,
- c) The non-performance of any obligation of either Party that was required to be performed prior to the occurrence of a Force Majeure Act shall not be excused as a result of such subsequent Force Majeure Act,
- f) The occurrence of a Force Majeure Act shall not relieve either Party from its obligations to make any payment hereunder for performance rendered prior to the occurrence of Force Majeure Act or for partial performance hereunder during period of subsistence of Force Majeure Act; and
- g) The Force Majeure Act shall not relieve either Party from its obligation to comply with Applicable Laws. The Affected Party shall exercise all reasonable efforts to mitigate or limit damages to the other Party.

18 SCHEDULES / ANNEXURES:

The Schedules detailed below shall form part of this Agreement.

Schedule - I - Annual Contracted Quantity (ACQ)

Schedule - II - Bank Guarantee Format for the Security Deposit Submission

57
Model FSA – Govt/State Power Utilities(New)

CCL & North Karanpura STPP Unit 1-3 (3x660 MW)

Aswally

Schedule - III - Quality of Coal Schedule - IV - IRLC stipulations

Schedule- V - Detailed modalities for Third Party sampling

Schedule - VI - Procedure for segregation and separate stacking of stones of +250 mm size at the Power Station and its joint assessment by the Purchaser and the Seller Schedule-VII - Option letter for acceptance / surrender of coal supplies to be made through import of coal

19.0 MISCELLANEOUS:

19.1 Notice: Any notice to be given under this Agreement shall be in writing and shall be deemed to have been duly and properly served upon the Parties hereto if delivered against acknowledgement or by registered mail with acknowledgement due, addressed to the signatories or the authorised representatives of the signatories nominated in accordance with the provisions of this Agreement at the following addresses:

1) Seller's address

2) Purchaser's address

Name: Ajit Singh, GM (M&S)

Name: Ashim Kumar Goswami, RED (ER-II)

Address: Central Coalfields Limited, Address: NKSTPP, Tandwa Town, Darbhanga House, Ranchi -834001

Distt. Chatra, 825321, Jharkhand

Telephone: 0651-2360369 email: gmsnm.ccl@coalindia.in

Telephone: 06546-270007 email: reder2@ntpc.co.in

- 19.2 Amendment: This Agreement cannot be amended or modified except by prior written agreement between the Parties.
- 19.3 Severability and Renegotiation: In the event any part or provision of this Agreement becomes, for any reason, unenforceable or is declared invalid by a competent court of law or tribunal, the rest of this Agreement shall remain in full force and effect as if the unenforceable or invalid portions had not been part of this Agreement, and in such eventuality the Parties agree to negotiate with a view to amend or modify this Agreement for achieving the original intent of the Parties.
- 19.4 Governing Law: This Agreement, and the rights and obligations hereunder shall be interpreted, construed and governed by the laws of India. The courts of Ranchi, Jharkhand shall have exclusive jurisdiction in all matters under this Agreement.
- 19.5 Entirety: This Agreement together with any documents referred to in it, supersedes any and all oral and written agreements, drafts, undertakings, representations, warranties and understandings heretofore made relating to the subject matter hereof and constitutes the entire Agreement and understanding of the Parties relating to the subject matter hereof. It is expressly agreed that this Agreement shall supersede all previous discussions and meetings held and correspondence exchanged between the Seller & the Purchaser in respect of this Agreement and any decisions arrived at therein in the past and before coming into force of this Agreement shall have no relevance with reference to this Agreement and no reference of such discussions or meetings or past correspondence shall be

Model FSA - Govt/State Power Utilities(New)

- entertained either by the Seller or the Purchaser for interpreting this Agreement or its implementation.
- 19.6 Counterpart: This Agreement may be executed in any number of counterparts and each counterpart shall have the same force and effect as the original instrument.
- 19.7 In the event there is any change in constitution of the Purchaser company due to amalgamation, merger, de-merger, takeover, court order or change in ownership/shareholding pattern, the Purchaser shall inform the Seller of the same within 30 days of the said change taking effect and thereafter, a fresh Coal Supply Agreement shall be entered into between the Seller and the resultant company as Purchaser after the Seller is satisfied that all the terms and conditions mentioned in the Office Memorandum of the Ministry of Coal, Government of India dated 7th April, 2015 have been satisfied in full by the resultant company.
- 19.8 Assignment: Except as provided in Clause 19.7 above, the Purchaser shall not, without the express prior written consent of the Seller, assign to any third party this Agreement or any part thereof, or any right, benefit, obligation or interest therein or there under
- 19.9 Limitation of Liability: The Parties agree that except as otherwise expressly agreed in this Agreement, neither Party shall have any right or entitlement to any consequential losses, costs or damages, loss of profit or market, as a result of a breach by the other Party of this Agreement

20.0 IMPLEMENTATION OF THE AGREEMENT

- 20.1 The respective Head of the Power Station or his nominated representative shall be authorised to act for and on behalf of the Purchaser.
- 20.2 GM (M&S) or any representative duly authorized by the Seller shall act for and on behalf of the Seller.
- 20.3 Any other nomination of authorised representative shall be informed in writing, by the Seller and the Purchaser, as the case be, within one month of signing of this Agreement or by giving 30 (thirty) days' notice.

It shall be the responsibility of the Parties to ensure that any change in the address for service or in the particulars of the designated representative is notified to the other Party and all other concerned, before effecting a change and in any case within two (2) Business Days of such change.

21.0 SAVINGS

Notwithstanding anything contained herein, this FSA shall not be applicable to purchaser(s) having/seeking tapering linkage(s) and/or Purchaser(s) having PPA(s) of whatever duration permitting sale/supply of electricity at non-regulated rate or market driven price.

19

Model FSA - Govt./State Power Utilities(New)

ofhe

[Note: For consumers of Western Coalfields Limited (WCL), relevant amendments to Clauses3.7, 3.11.1 and 6.1 would need to be made to bring into effect the different practices followed by WCL with respect to these clauses].

Signed in presence of the witness /witnesses under mentioned on 23rd day of February, 2023.

For Central Co	alfields Limited	M/s NTPC L	imited
Signature:	1/23/2/23	Signature:	Jawanen-
Name:	Ajit Singh	Name:	Ashim Kumar His Warru
Designation:	GM(M&S)	Designation:	Right south form (1978-II)
Address:	CCL, Darbhanga House Ranchi-834029	Address:	3 Find or his Record Control (ER-H BENELIS A FIND NATIONAL Limited Bhubaneswar, 751012
Telephone:	0651-2360369	Mobile:	9416212442
E-mail	gmsnm.ccl@coalindia.	E-maîl:	reder2@ntpc.co.in
1. Witness:		1. Witness:	
Signature:	Not sers	Signature:	Rushingh
Name:	Nishant Kr. Virmani	Name:	Ajay Kumar Shukla
Designation:	Manager (M&S)	Designation:	GM (O&M)
Address:	CCL, Darbhanga House Ranchi-834029	Address	NKSTPP, Tandwa, Chatra, 825321, Jharkhand
2. Witness:		2. Witness:	
Signature:	- Using!	Signature:	، سا اس
Name:	Abhisek Kumar Singh	Name:	Anil Kumar
Designation:	Dy. Manager (F/M&S)	Designation:	DGM (CCFM)
Address:	CCL, Darbhanga House Ranchi-834029	Address	EOC, Sec-24A, Noida, 201301, UP

Schedule-I

Annual Contracted Quantity (Refer Clause 3.1)

Annual Contracted Quantity

SAP Contract No.	Name & location of the Power Plant owned by Purchaser	Unit wise Installed Capacity of the Power Station (in MW)	Balance life** of plant/unit in Years (w.e.f. COD)	Name of Rake Fit Station	Original LOA Quantit y (Lakh Tonnes	Annual Contracted Quantity (Lakh Tonnes)	Mode of Transport	Source Coal field of the Seller*
72	North Karanpura STPP Unit 1-3 (3x660 MW), Tandwa Town, Distt. Chatra, 825321, Jharkhand	Unit# 1 to 3 (3x660 MW)	25 yrs. from the date of COD	NA	84.72	84,72	Rail/ Road/ Captive	All operative mines of CCL

- * Details of Imported Coal shall be furnished by the Seller to the Purchaser from time to time as and when such Coal is offered.
- ** Balance life of the Plant/Unit shall be as determined by appropriate authority forgot. of India / as declared by way of "Self-declaration" by the authorized signatory of the Purchaser as per prescribed format of CIL.
- # Buyer to provide annual coal requirements for the initial years also
- **LOA Quantity means the quantity mentioned in the Letter of Assurance (LOA) Issued by the Seller to the Purchaser.

Model FSA - Govt/State Power Utilities(New)

	GUARANTEE FORMAT ECURITY DEPOSIT
100/2004	Clause 2.11)
12	50/- Non judicial Stamp Paper
Date	Issue:
	ve Date ¹ :
Expi	Date:
Valu	of B.G:
1.	[The Chairman – cum- Managing Director, Coal India Limited, 10, Nctaji Subhash Road, Kolkata – 700 001]
2.	[The Chairman-cum-Managing Director, (name and address of the subsidiary Company)]
3.	
001/ Reginence of the second control of the	ideration of Coal India Limited of 10, Netaji Subhash Road, Kolkata – 700 (name of the subsidiary Company) having its red Office at (regd. address of sidiary Company) and Sales Office at (address of the sales of the subsidiary Company) (hereinafter referred to as 'Seller', which
expre its k	ion shall unless excluded by or repugnant to the subject or context, included representatives, successors and permitted assigns) having agreed to Coal/Imported Coal to (Name of the Company)
	ship firm/ Proprietor) having its registered office at (address of the Company/ Partnership firm/
exclu succe requi	tor) (hereinafter referred to as the 'Purchaser', which term shall unless d or repugnant to the subject or context include its legal representatives, ors and permitted assigns in case of Company) and, the Purchaser being it to furnish the Security Deposit as per the terms of the Fuel Supply sent (FSA)
We,	(Name and address of the Bank), having its Head
conte	fter called the Guarantor, which expression shall, unless repugnant to the or meaning thereof, include its successors, administrators, executors and
essi8	do hereby irrevocably and unconditionally guarantee and undertake to

¹The Bank Guarantee Effective Date for Security Deposit corresponds to the Signature Date of this agreement 42

Model FSA - Govt/State Power Utilities(New)

Rupees) at any time upto ² subject to the following terms and
conditions:- subject to the following terms and
The Guarantor shall pay to the Seller on demand and without any demur, reservation, contest, recourse or protest and/ or without any reference to the Purchaser. As to whether the occasion or ground has arisen for such demand, the decision of the Seller shall be final.
The Seller shall have the fullest liberty without reference to the Guarantor and without affecting this guarantee to postpone at any time or from time to time the exercise of all or any of its powers and rights under arrangement made with the Purchaser, and the Guarantor shall not be released from this guarantee by any arrangement between the Seller and the Purchaser or any alteration thereof made with or without the consent of the Guarantor or by exercise or non-exercise by the Seller of all or any of its powers and rights against the Purchaser, or any other
forbearance, act of omission on the part of the Seller or indulgence granted by or on behalf of the Seller to the Purchaser, which under the law relating to surety ship would but for this provision have the effect of releasing the Bank as Guarantor from their obligations under this guarantee.
The guarantee herein contained shall not be determined or affected by the winding up or insolvency of the Purchaser, but shall in all respects and for all purpose be binding and operative until all monies due to the Seller in respect of all liability or liabilities of the Purchaser are fully paid.
It is also agreed that Seller will be entitled at its option to enforce this guarantee against the Guarantor as principal debtor in the instance notwithstanding any other security or guarantee that the Seller may have in relation to the Purchaser's liability.
The Guarantee will remain valid for a period of sixty-four (64) months from the date hereof and to such further period, as may be required and agreed by the Parties and agreed by the Guarantor before the expiry of the aforesaid validity.
The Guarantee shall cover all claims or demand of Seller to the extent of the amount guaranteed.
Notwithstanding anything contained, the liability of the Guarantor under this Agreement is restricted to Rs. /- (Indian Rupees), and the same shall be kept operative and valid by
the Purchaser upto and including the day of (date that is sixty-four (64) months from the issue of the Bank Guarantee) and to such further period, as may be required and agreed by the Parties and agreed by the Guarantor before the expiry of the aforesaid validity.

Mawall

Model FSA - Govt/State Power Utilities(New)

CCL & North Karanpura STPP Unit 1-3 (3x660 MW)

of.

²The Bank Guarantee should be valid till 30 days after the First Delivery Date

9) Ui	aless a demand or claim under this guarantee is received by the Guarantor in
Se	iting within the period mentioned in clause 5 and 7 hereof, all rights of the ller shall be forfeited and the Guarantor shall be relived or discharged from all bilities.
	e guarantee is operative at our (name and address of branch) Branch, (Place).

44
Model FSA – Govt/State Power Utilities(New)

Schedule-III

Quality of Coal (Refer Clause 4.1)

S.No.	Name & Location of the Power Plant owned by the Purchaser	Top-size of Coal (mm)	Kcal/Kg Corresponding GCV of coal	Grades of Coal in terms of GCV
1	North Karanpura STPP Unit 1-3 (3x660 MW), Tandwa Town, Distt. Chatra, 825321, Jharkhand	(-) 100 mm	G9 to G13	G9 to G13

^{*} Details of Imported Coal shall be furnished by the Seller to the Purchaser from time to time as and when such Coal is offered.

IRLC Stipulations (Refer Clause 11.1.2(b))

In the event the Purchaser opts to submit IRLC, as per the payment provisions laid down in Clause 11.1.2 (b), the IRLC shall conform to the following conditions:

- The underlying amount of IRLC shall be equivalent to As Delivered Price of Coal
 for the Coal quantities that is one-ninth (1/9th) of the QQ concerned, as per Clause
 3.4. Further, the As Delivered Price of Coal in this context shall take into account
 the highest of the Base Prices of the Grades mentioned in Schedule III.
- The underlying amount of IRLC shall be suitably changed whenever there is a change in any component of the As Delivered Price of Coal.
- The term of the IRLC shall be for a minimum period of one year, and the same shall be renewed one month prior to its expiry so as to remain valid throughout the term of the Agreement.
- 100% payment shall be released in favour of the Seller against the bills/ invoices duly signed and submitted by the Seller.
- IRLC shall be automatic without any reinstatement clause; accordingly the amount of each drawl shall be automatically reinstated.
- 6. IRLC shall be issued by a bank acceptable to the Seller
- All IRLC charges including those related to opening, establishment, negotiation, re-instatement, amendment or any other incidental charges shall be borne by the Purchaser
- All documents drawn under this IRLC shall be in English language only.
- All amounts under this IRLC shall be payable at [_______ to be mentioned by the Seller].
- There shall be no restriction for the number of drawls in a month.

tate Power Utilities(New)

Detailed modalities for Third Party sampling

- 1.0 Modalities for collection, handling, storage and preparation of third party samples:
- 1.1 General
- Sample shall be collected source wise, grade wise and Power station wise.
- b) Samples shall be collected, packed and transported in such a manner so as to make these tamper proof to the satisfaction of Seller and Purchaser for which detailed procedure may be worked out at sampling sites jointly by representatives /Third parties of Seller and, Purchaser
- c) Name the colliery / siding / Power Station, date of collection and other identification details (eg. Rake no. in case of rail supply) shall be maintained in a register and a proper code number shall be assigned for each sample for identification and reconciliation of results.
- d) Laboratory samples prepared shall be in the size of 12.5mm for Total Moisture and for ash, moisture and GCV analysis 212 micron IS Seive. Precaution shall be taken so that before analysis, in test laboratory, further sieving or pulverizing is not required.
- Proper analysis records shall be maintained at the laboratories where the samples are analysed,
- f) Samples collected at the loading end shall be analysed as per BIS Standards (IS: 1350 Part I – 1984) for determination of ash and moisture content and as per (IS: 1350Part-II-1970) for
- g) Monthly statements containing the details of each and every analysis result finalized during a month based on Third party/ referee analysis, as the case may be, shall be prepared indicating inter-alia the quantity of Coal covered by the respective analysis results. The respective analysis results shall be applied to the corresponding quality of Coal for billing/ commercial purpose. Copy of the monthly statement / report shall be submitted to the GM (QC)/Director In charge of the Seller by the Third Party
- h) The final pulverized sample shall be divided into three equal parts, Set-I, Set-II, Set-III. Set-I shall be taken by the Purchaser for analysis at their end and the Set-III of the sample shall be taken by the Seller for analysis at the loading end and the Set-III (Referee Sample) to be retained by the third parties jointly in double sealed condition duly signed by the representative of Seller, Purchaser and the Third Parties and kept in safe custody at the loading end by the Third Parties.

47

Model FSA - Govt/State Power Utilities(New)

A.

- Sample drawn at loading ends shall be analyzed by the Third Party of Seller and Purchaser in laboratories of their respective end
- The samples shall be identified at the time of analysis in the laboratories by the code number already assigned as per clause 1.1(c).

1.2 COLLECTION OF SAMPLES FROM WAGONS:

- a) In case of dispatch by Rail each rake (source wise, grade wise and Power Station wise) of Coal supplied from one Delivery Point shall be considered as a Lot for the purpose of sampling.
- b) In case of Coal dispatches through MGR the sample collected from each rake (source wise, grade wise and Power Station wise) loaded from the respective Delivery Point during the day shall be pooled together and shall be considered as a lot for the purpose of sampling.
- e) Each rake shall be divided into sub-lots in a manner that the quantity of Coal/number of wagons in such sub-lots is more or less equal. The number of sublots shall be determined as under:

No. of wagons in the rake	Number of sub lots
Up to 30 wagons	4
>30 wagons up to 50 wagons	5
>50 wagons and above	6

- d) From each of the sub lots one wagon each shall be selected as per random table in IS: 436 (Part I/Section I) 1964 or its latest version for collection of increments.
- e) In each wagon selected for sampling, the sample will be drawn from the spot in a manner so that if in one wagon the sample is collected at one end, in the next wagon the spot will be in the middle of the wagon and in the third wagon at the other end and this sampling procedure will be repeated for subsequent wagons.
- f) Before collecting the samples, the spot will be leveled and at least 25 cm of Coal surface shall be removed/scrapped from the top and the place will be leveled for an area of 50 cm by 50 cm.
- g) About 50 kg of sample shall be collected from each selected wagon in the rake of a source by drawing 10 increments of approx. 5 kg each with the help of shovel/scoop.
- Any stone/shale of size more than that indicated in Schedule-II shall be removed/discarded, however all stones/ shale of size in terms of Schedule II shall form part of the sample collected.
- Source wise, grade wise and Power Station wise Samples collected from all the selected wagons in a rake shall be mixed (grade wise/source wise/Power Station wise) separately to form Gross Sample accordingly.

Model FSA – Govt/State Power Utilities(New)

CCL & North Karanpura STPP Unit 1-3 (3x660 MW)

Aprivarium a

- j) Item (d) to (g) above shall be applicable for Coal supplied in box wagons as well as BOBR wagons where there is no live overhead traction line.
- k) In case of having live overhead traction line, the parties shall ensure that the power supply in the over head traction is switched off to facilitate collection of joint samples from BOX / BOBR wagons pursuant to points (d) to (g) above.

1.3 COLLECTION OF SAMPLES OF COAL DESPATCHES BY ROAD

- Sample shall be collected colliery wise / grade wise on daily basis during a day i.e. 6.00 Hr to18.00 Hr
- b) The first truck for Third party sampling on a day shall be selected randomly from the first eight trucks placed for loading by the Purchaser. Every eighth (8th) truck there after shall be subjected to the Third Party Sampling.
- c) The spot at the top of the truck will be leveled and at least 25 cm of Coal surface shall be removed/scrapped from the top and the place will be leveled for an area of 50 cm by 50 cm for collection of sample.
- d) About 30 kg of sample shall be collected from each truck by drawing 6 increments of approx. 5 kg each with the help of shovel/scoop.
- All the samples collected from every eighth truck shall be mixed together grade wise to form a Gross Sample.
- f) Any stone/shale of size more than that indicated in Schedule-II shall be removed/discarded, however all stone / shale of size as mentioned in Schedule II shall form the part of the sample collected.

1.4 COLLECTION OF SAMPLES FROM CONVEYOR BELT/ROPEWAYS/ PIPELINE

- a) In case of supply by conveyer belt sample shall be collected in increments of full cross section and thickness of the stream in one operation in a regular interval of time as mutually decided by both Seller and Purchaser and lot shall consist of samples so collected during a day i.e. 0.00 Hr to 0.00 Hr. of the following day.
- b) Before collecting the increments, the speed of the conveyer and quantum of material passing a certain point in a given time shall be ascertained so that an appropriate spacing of time between increments may be arranged over the whole of the lot.
- c) If it is practicable to stop the belt periodically, increment may be collected from the whole cross section of the stream by sweeping the whole of the Coal lying between the sides of a suitable frame placed across the belt. The frame should be inserted in the Coal until it is in contact with the belt across its full width.
- d) Minimum 150 kgs of samples to be collected for daily Gross Sample.

of

1.5 COLLECTION OF SAMPLES FROM STOCKPILE

 For the purpose of sampling, the quantity of Coal in the stock pile shall be divided into a suitable manner of sub-lots as specified in the following table:

Weight of the lot (MT)	No. of Sub-lots
Up to 500	2
501 to 1000	3
1001 to 2000	4
2001 to 3000	5
Over 3000	6

- b) The surface of each sub-lot shall be leveled and one point for approximately every 250 MT of material in the sub-lots shall be chosen at random for taking gross sample as per the following procedure:
 - In case height of the stock pile is not more than 1.5 metre, the material shall be collected at every selected point by taking the whole section of Coal from top to bottom over the area of a circle of 30 cm diameter.
 - In case the height of the stock pile is more than 1.5 metre, the sample shall be collected at every selected point by taking the material over an area of a circle of 30 cm diameter and up to a depth of 1.5 metre.

1.6 PREPARATION OF COLLECTED SAMPLES:

- 1.6.1 The Gross Sample collected at the loading end jointly by the representative/ Third parties of the Seller and the Purchaser will be divided into two portions. One portion (one fourth of the Gross Sample) called Part-1 will be used for analysis of Total Moisture and the other portion (three fourth of the Gross Sample) called Part-2 for determination of ash, moisture and GCV on Equilibrated basis.
- 1.6.2 The Part-2 Sample shall be jointly reduced into laboratory sample on the date immediately following the date of collection. The final laboratory samples will be divided into three parts viz. Set – I, Set – II and Set-III
 - Set I shall be used for analysis of ash, moisture and GCV at Purchaser's end as per BIS standard (IS 1350 Part 1-1984 and IS 1350 Part-II-1970 as applicable
 - Set II shall be used for analysis of ash, moisture and GCV at Seller's end as per BIS standards IS 1350 Part 1-1984 and IS 1350 Part-II-1970 as applicable
 - Set III shall be kept under joint seal of the Seller, Purchaser and the Third Party
 as referee sample in the safe custody of Third Parties at the loading end for a
 period of fourteen days or until the analysis results are accepted without dispute,
 whichever is earlier. The referee sample i.e. Set-III shall be destroyed after
 fourteen (14) days from the date of analysis of Set-II if no complaint is received.
 - a) The Gross Samples for each Delivery Point shall be separately crushed to (-) 5 cm by mechanical means, mixed thoroughly, coned and quartered.
 - b) Two opposite quarters shall be retained and the rest rejected.

Model FSA – Govt./State Power Utilities(New)

- c) The retained material shall be further mixed, halved and one half retained.
- d) Material so obtained shall be crushed to 12.5 mm by a Jaw Crusher and then to 3.3 mm by a palmac type of reduction mill/ or jaw crusher.
- e) The crushed material shall be reduced either by coning and quartering or by ruffling to 2 kgs.
- f) The sample so reduced shall be finally ground to pass through 212 micron IS sieve using a Raymond mini mill.
- g) From the final sample passing through 212 micron IS sieve, 1.5 Kg shall be taken, which shall constitute the laboratory sample.
- h) Such laboratory sample shall be divided into three equal i.e. Set-I, Set-II and Set-III as mentioned at 1.1(h). The sample shall be kept in glass or polythene container.
- All tools and tackles, plastic bags, sealing compound and other items required for collection, preparation, storage and analysis of the sample shall be arranged by the Seller.

2.0 PREPARATION OF TOTAL MOISTURE SAMPLE AND DETERMINATION OF TOTAL MOISTURE:

- a) Part I Sample shall be analyzed by the Third Parties for determination of Total Moisture as per IS: 1350(Part –I) - 1984.
- b) For rail supplies, rake wise Surface Moisture shall be determined. For supplies by modes other than rail, Surface Moisture shall be determined by the Third Parties on daily basis.
- c) The samples shall be divided into three parts and shall be sealed in three previously weighed air tight plastic containers duly labeled and coded as Set-ITM Set-IITM and Set-IIITM (the weight shall include any sealing material to be used also) immediately. Weight of each part of such sample shall be minimum 5 kg. The third set Set-IIITM of Coal samples shall be set aside as referee sample. All the containers shall be sealed at the time of sample collection in such a manner that there is no loss of moisture. All the containers, after the collection of the sample and sealing, shall be individually weighed. All the weights, before and after the collection of samples shall be recorded by the Third parties.
- d) An empty tray measuring 1000 cm² (1 ft x 1 ft-approx) shall be weighed. The sample for analysis shall be spread in this tray. The weight of Coal of the tray shall be recorded.
- e) This tray containing the sample shall be kept under joint lock in a room/laboratory furnished with either sealing fans or with exhaust fan for drying the sample for 24

5.1 Model FSA – Govt./State Power Utilities(New)

- hours. If the sample is not reasonably dry the period of drying may be extended to further periods of 24 hours, till the sample is dry.
- f) The tray shall be weighed again and weight noted. Again the sample shall be kept for drying for about 2 hours and again weighed and this process shall be repeated till constant weight is achieved. This would normally take 2-4 hours. The final weight shall be taken and loss in weight that is W1 in the 1st stage of air drying shall be recorded.
- g) This sample shall now be crushed to -12.5 mm size in a crusher. Coning and quartering shall be done to reduce the sample quantity to 5 kg.
- h) This sample of -12.5 mm of approximately 5 kg shall be weighed and kept in an oven at ambient temperature of 38°C for about 2 hours. Again weight shall be taken and the process of heating cooling and weighing shall be continued till constant weight is reached.
- The loss in weight shall be recorded as W2 that is the loss of weight after 2nd stage drying.
- j) This sample of approximately 5 kg after the 2nd stage of drying shall be crushed to -3.35 mm size and the same shall be reduced to half Kg. by quartering and coning.
- k) Out of the half kg of sample 10 gms of Coal sample shall be taken in a weighed glass dish and kept in the drying oven at 108 +/- 2°C for about 90 minutes.
- The dish shall be cooled and weighed. Heating, cooling and weighing shall continue till constant weight is reached.
- m) The loss of weight shall be recorded as W3 that is the weight loss in 3rd stage drying.
- Based on the above procedure, the Total Moisture shall be computed by the Third Party.
- All tools and tackles, plastic bags, sealing compounds and other items required for collection, preparation, storage and analysis of the sample shall be arranged by the Seller.

52

Model FSA - Govt/State Power Utilities(New)

Procedure for segregation and separate stacking of stones of +250 mm size at the Power Station and its joint assessment by the Purchaser and the Seller

- The stones segregated from Coal supplies received from Seller during a month at the power plant end shall be collected and stacked separately by Purchaser at a suitable location identified mutually by the Purchaser and Seller.
- Such materials will be stacked in a manner that the same can be measured properly for volume.
- (a) Such material collected and stacked during a month shall be loaded into trucks and weighed at nearest weighbridge to determine weight of such material received during the month.
 - (b) In the event entire stock of such material cannot be weighed as per 3 (a) of the schedule, at least 5 trucks of such material loaded from the heap on random basis shall be weighed at the nearest weighbridge to determine the volumetric conversion ratio of such material, i.e. weight per unit of volume. The same conversion ratio will be applied for determining total weight of the heap of such material. The heap containing the entire stock in such cases shall be measured for volume prior to loading in the trucks and the same recorded jointly.
- 4) Two trucks of such material weighed as above will be randomly selected and unloaded at an identified place near the heap and material of +250 mm size will be manually segregated. After such segregation, the same will be weighed at the nearest weighbridge to establish the percentage of material +250mm size in the sample. This percentage will be applied to the total weight of heap determined as per 3(b) to find the weight of material +250 mm size in the heap.
- After determination of weight pursuant to Clause 3 of this Schedule, the stones shall be disposed off by the Purchaser at a suitable place.
- All infra-structural arrangements including for tools, tackles, equipments, trucks and manpower shall be arranged and provided by Purchaser at their own cost.
- The Purchaser shall provide access to the Seller for examination of all documents / records pertaining to the above claim, if the Seller so desires.

53

Model FSA - Govt/State Power Utilities(New)

CCL & Nogh Karaspura STPP Unit 1-3 (3x660 MW)

SCHEDULE-VII

Option letter for confirming acceptance /surrender of coal supply to be made through import in terms of clause 2.8.3.1 of the Modified Model FSA applicable for New SEB/State GenCo Power Utilities.

То	
M/s	
****************	*******
Dear Sir,	

Sub: Acceptance / Surrender of Coal through import.

This has reference to the Letter of Assurance issued to you vide letter No.......
for supply of Coal subject to fulfillment of the conditions as stipulated in the said letter.

Clause 3.3 of the FSA provides that the Seller shall have the option to supply the balance quantity of coal through import not exceeding, unless otherwise agreed between the parties, 15% of the ACQ in the year 2012-13, 13-14 and 14-15, 13% of ACQ in the year 2015-16 and 5% of the ACQ for the year 2016-17 and onwards after meeting the quantity available from domestic production.

The percentage of imported coal proposed to be supplied in a year to meet the minimum contractual obligation shall be determined and declared by the Seller on year to year basis.

Accordingly, the imported coal likely to be supplied during...... (year) is% of the ACO.

In order to enable the Seller to make firm arrangement for sourcing coal through import, the Purchaser is required to opt for either of the following two options,

Option-A: Confirmation for acceptance of coal through import:

- The Purchaser agrees unconditionally to accept supply of coal through import at a price, specification and source as may be decided and offered by the Seller/CIL from time to time.
- ii) The Purchaser would indicate acceptance for either the full quantity or a part of the offered quantity to be supplied through import to be expressed in terms of percentage of ACQ. In case of Purchaser giving consent for supply a part of the offered quantity, the part quantity not accepted shall be considered as Deemed Delivered quantity as per clause 3.11.1(v) and 3.11.2(iv).
- The Build-up-Period as per clause 2.10 of the FSA which is at present for a period of six months from the Effective Date shall stand extended for a further period of six months for supply through import to enable the Seller arranging the same after obtaining firm commitment from the Purchaser.

Model FSA - Govt/State Power Utilities(New)

CCL & North Karanpura STPP Unit 1-3 (3x660 MW)

of

iv) The Purchaser giving this option shall have to enter into a Side Agreement separately for covering the commercial terms and payment modalities for the supply through import. The Side Agreement shall form an integral part of this Agreement and legally enforceable.

Option-B: Confirmation for Surrender of coal through import

 The Purchaser unconditionally surrenders the component of ACQ offered by the Seller through import.

 The Quantity of imported coal surrendered by the Purchaser shall stand as Deemed Delivered Quantity as per clause 3.11.1(v) and 3.11.2(iv).

ii) The penal provision for supply below 80% and up to 65% of ACQ for the years 2012-13, 2013-14 and 2014-15 and below 80% and up to 67% of ACQ for the year 2015-16 shall not be applicable. The penal provision for supply below 75% shall be applicable from the year 2016-17 and onwards.

The Purchaser may request for a change of the option exercised by him earlier, but such request has to be made by him at least three months in advance.

Either of the above two options is required to be exercised before or at the time of signing of the FSA by endorsing the format appended below.

You are therefore requested to confirm acceptance of either of the above options by endorsing the copy of the letter in the following manner.

Yours faithfully (CGM/GM-Sales)

We, herby confirm that we have read and understood the above including the terms of FSA dated......and accordingly exercise our unconditional acceptance for the Option A/B (strike out whichever is not acceptable) and request you to take necessary further action.

(In case of exercising option A)

The supply intended to be taken in terms of the percentage of ACQ through import:

Signature Name of the Authorised Signatory (Purchaser) SEAL

Date:

Model FSA - Govt./State Power Utilities(New)

Mawallin

CCL & North Karanpura STPP Unit 1-3 (3x660 MW)

Modifications in the FSA Models (Since Dec' 2012)

S. No	Ref; CIL Board	Modification Regarding	Letter No.	Date of communication
1	292 (12/12/12)	Compute Degree Madelities for		28/12/2012
2		- Corrigendum regarding , Modalities for Assessment of Stone CILS&M:NewPol(47) 8		31/12/2012
3	296 (25/03/13)	Minor Modifications in FSA provisions	CIL:CMO:S&M:NewPol(47 252):266	02/04/2013
4	Regarding requirement of Long		CIL:CMO:S&M:NewPol(47 252):384	27/05/2013
5	298 (27/05/13)	Regarding interplant transfer of Coal	CIL:CMO:S&M:NewPol(47 252):445	19/06/2013
6	299 (28/06/13)	Regarding Incentive/ CIL:CMO:S&M:NewPol(4' Compensation for Supply of coal 252):465		29/06/2013
7	300 (03/08/13)	O Pagesting Providential Direction CIL:CMO:S&M:NewPol(47		08/08/2013
8	300 (03/08/13)	Third Party Sampling and Analysis provisions	Uploaded in the Website	
9	322 (13/11/15)	Enabling name change of the company due to amalgamation, takeover, change in ownership/shareholding pattern	CIL/S&M/New Po.(47252)/105	11.02.2016
10	332 (13/09/16)	Interplant transfer of coal beyond ceiling of ACQ	CIL/S&M/New Po.(47252)/1117	5.10.2016
11	-	Pricing of Raw coal having GCV from 1500Kcal/Kg to 2200 Kcal/Kg	CIL/M&S/417	02.09.2022
12	-	Introduction of a new commercial dispute resolution mechanism (AMRCD)	CIL/CMO/FSA modification/65	06.02.2023

DISCLAIMER: The model FSA of November 2012 has been updated incorporating subsequent modifications undertaken/communicated vide above communication, after approval of the competent authority. Although utmost care has been taken to ensure that all modifications are properly incorporated but minor discrepancies due to any clerical errors or other-wise may not be ruled out, in such events the provision of the circulation of the above communication will prevail.

todal ESA - Gov

Model FSA - Govt/State Power Utilities(New)

CGL & North Karanpura STPP Unit 1-3 (3x660 MW)



Government of Jharkhand

Receipt of Online Payment of Stamp Duty

NON JUDICIAL

Receipt Number: 764486647de70d66b414

Receipt Date: 21-Feb-2023 04:38:02 pm

Receipt Amount: 100/-

Amount In Words: One Hundred Rupees Only

Document Type: Agreement or Memorandum of an

Agreement

District Name : Ranchi

Stamp Duty Paid By: NTPC LTD

Purpose of stamp duty paid : AGREEMENT

First Party Name: NTPC LTD

Second Party Name : CCL RANCHI

GRN Number: 2315890560

-: This stamp paper can be verified in the jharnibandhan site through receipt number :-

SIDE AGREEMENT b/w CCL & NTPC



This Receipt is to be used as proof of payment of stamp duty only for one document. The use of the same receipt as proof of payment of stamp duty in another document through reprint, photo copy or other means is penal offence under section-62 of Indian Stamp Act, 1899

इस रसीद का उपयोग केवल एक ही दस्तावेज पर मुद्रांक शुल्क का भुगतान के प्रमाण हेतु ही किया जा सकता है। पुन: प्रिन्ट कर अथवा फोटो कॉपी आदि द्वारा इसी रसीद का दुसरे दस्तावेज पर मुद्रांक शुल्क का भुगतान के प्रमाण हेतु उपयोग भारतीय मुद्रांक अधिनियम, 1899 की धारा 62 अन्तर्गत दण्डनीय अपराध है।

dowarum

ogh.

THIS SIDE AGREEMENT executed on this 23rd day of February'2023 between M/s Central Coalfields Limited, a Subsidiary of Coal India Limited and a Company incorporated under the Companies Act, 1956 and having its registered office at Darbhanga House, Ranchi 834001 Jharkhand, (hereinafter referred to as 'SELLER' which expression unless excluded by or repugnant to the context shall mean and include its successors, assigns) of the ONE PART.

AND

M/s NTPC Limited, a company registered under the Companies Act, 1956 and having its registered office at NTPC Bhawan, SCOPE Complex, 7, Institutional Area, Lodhi Road, New Delhi-110003, hereinafter called the "Purchaser" (which term shall unless excluded or repugnant to the subject or context include its legal representatives, successors and permitted assigns) of the other part

AND

Whereas the Purchaser or its predecessor-in-interest was issued a Letter of Assurance (LOA) dated 04.02.2023 from CCL vide reference no. CCL/HQ/C-4/LOA(Power)/2022-23/261 against 3x660 MW plant capacity of the Purchaser's North Karanpura STPP Unit 1 to 3 (3x660) located at Tandwa Town, Distt. Chatra, 825321, Jharkhand and the Purchaser has achieved the milestones as set out in the Annexure 1 of the LOA and fulfilled other conditions as stipulated under the LOA.

AND

WHEREAS the PURCHASER has entered into the FUEL SUPPLY AGREEMENT (in short FSA) vide dated 23.02.2023 in the existing FSA Format.

AND

WHEREAS the SELLER requires this SIDE AGREEMENT as per terms and conditions under relevant clauses of the SHAKTI Policy of Ministry of Coal, vide no. 23011/15/2016-CPD/CLD dated 22nd May 2017 for the existing Letter of Assurance Holder and CIL Letter no. CIL:M&S:Power:358 dated 21st September 2017.

AND

WHEREAS the SHAKTI Policy of Ministry of Coal, vide no.23011/15/2016-CPD/CLD dated 22nd May 2017 and CIL Letter no. CIL; M&S: Power: 358 dated 21st September 2017 shall be the part and parcel of this SIDE AGREEMENT.

AND

WHEREAS the PURCHASER has agreed to sign the Fuel Supply Agreement (FSA) with the following terms and conditions:

 Condition Precedents for supply of imported coal shall not be applicable and Schedule VII of the FSA dated 23.02.2023 shall not be required to be executed.

Jawanni.

sph.

- The Minimum Level of Delivery / Lifting Commitment shall be 75% of the ACQ from Domestic Coal, failing which compensation shall be paid as per the terms and conditions of the FSA dated 23.02.2023 by the defaulting party.
- The provisions of Third Party Sampling of coal shall be as per the existing modalities through signing of Tripartite Agreement with the designated / notified Agency.
- As and when the existing FSA Format will be revised or modified for the applicable category of Power Plants, the FSA dated 23.02.2023 shall accordingly be modified/ revised.
- As long as the existing FSA Format is not revised this SIDE AGREEMENT shall remain as an integral part of the FSA dated 23.02.2023.
- That disputes if any; arising out of this SIDE AGREEMENT shall be subject to the exclusive jurisdiction of the competent Court in Ranchi, Jharkhand only to the exclusion of all other concurrent courts.

IN WITNESS WHEREOF the SELLER and PURCHASER herein have set their hands and seal on the date, month and the year above first written.

For Central C	Coalfields Limited	M/s NTPC L	td,
Signature:	Pris/2/23.	Signature:	ASHIM KUMAR GOSWAMI
Name:	Ajit Singh	Name:	Ashind and and Primar (19711-11)
Designation:	HOD (M&S)	Designation:	R Regional Executive Director (ER-I
Address:	CCL, Darbhanga House Ranchi-834029	Address:	3 rd & 4 rd Floor, OLIC Building, N-17/2, Bhubaneswar, 751012
Telephone:	0651-2360369	Mob:	9416212442
Fax:	0651-2360369	Fax:	reder2@ntpc.co.in
email	gmsnm.ccl@coalindia.in	email:	Ashim Kumar Goswami
1. Witness:		1. Witness:	
Signature:	No serves	Signature:	Phillip.
Name:	Nishant Kr. Virmani	Name:	Ajay Kumar Shukla
Designation:	Manager (M&S)	Designation:	GM (O&M)
Address:	CCL, Darbhanga House Ranchi-834029	Address	NKSTPP, Tandwa, Chatra, 825321, Jharkhand
2. Witness:		2. Witness:	
Signature:	Visings	Signature:	and them
Name:	Abhisek Kumar Singh	Name:	Anil Kumar
Designation:	Dy. Manager (F/M&S)	Designation:	DGM (CCFM)
Address:	CCL, Darbhanga House Ranchi-834029	Address	EOC, Sec-24A, Noida, 201301, UP



RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Custon	mer	North Karang At: Tandwa Dist- Chatra Jharkhand- 8		r Thermal Power P	roject	
[b]	Sampling Environmental Cond	Temp. (°C)	32	Humidity (%)	59		
[c]	1974 - Andrew Company		Monitoring of Ambient Noise Level (Day Time) within plant premise North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 01.10.22				
9	Whether any specific Method o been suggested by the party	f Test has	No				
	Sampling Location	Unit			of Noise Level Day Time)		
1.Nea	1.Near Time Office dB(A)		65.1				
2.Nea	2.Near Switch Yard dB(A)		41.3				
3.Near DM Plant dB(A)		62.8					

N.B.:

The Ambient Air Quality Standards in respect of Noise as per Noise Pollution (Regulation and Control) Rules 2000 for Industrial area is 75.0 dB(A), for Commercial area is 65.0 dB(A), for Residential area is 55.0 dB(A) & for Silence Zone is 50.0 dB(A) in daytime i.e. 6.00 am to 9.0 p.m. As per Rule 7(1&2) the authority shall take action against violator if the noise level exceed the ambient noise standards by 10 dB(A) or more against any area/zone.



Digitally signed by SHIBESHW SHIBESHWAR PRASAD AR PRASAD Date: 2022.11.11

> Verified by: Technical Manager

Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2022.11.11 12:01:58 +05'30"

Authorized Signatory Quality Manager

- END OF TEST REPORT This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C. Aastha, Road No. 5A. Patliputra Colony, Patna - 800 013 (Bihar) Contact us:

Mob.: +918676886249 : +919431047908 sthpatna l'il y ahoo co in : info il shivatest com

Website www.shrvatest.com.; www.shrvatesthouse.com





SHIVA TEST HOUSE



(Serving since 1988)

RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

a) Name and address of the Customer		North Karanp At: Tandwa Dist- Chatra Jharkhand- 8		r Thermal Power P	тојест	
n.i	Sampling Environmental Condition	n	Temp. (°C)	29	Humidity (%)	68
[b] [c]	Details of Sample	Monitoring of Ambient Noise Level (Day Time) within plant premises North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 19.10.22			
la)	Whether any specific Method of To been suggested by the party	est has	No			
F.O.	Sampling Location	Unit		TWA	of Noise Level (Day Time)	
1.	Near at the top of Time Office (Main Plant)	dB(A)			55.7	
N.B.:	The Ambient Air Quality Standar 2000 for Industrial area is 75. & for Silence Zone is 50.0 dB(A) in against violator if the noise level es	U ab(A), for C	onninercial area	Ac nor Ri	de 7(182) the authority	shall take action

Digitally signed by SHIBESHW SHIBESHWAR PRASAD AR PRASAD Date: 2022.11.17

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2022.11.17 16:18:32 +05'30"

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Road No. 5A, Patliputra Colony, Patria - 800 013 (Bihar)

stheatnal 'ay aboo co in : info a shovatest com Nich: +918676886240 | +919431047908 Email:

Website: www.shrvatest.com; www.shrvatestbease.com





SHIVA TEST HOUSE



(Serving since 1988)

RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Custon	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			roject	
[b]	Sampling Environmental Cond	ition	Temp. (°C)	29	Humidity (%)	68
[c]	Details of Sample	Monitoring of Am North Karanpura	bient Noise i Super Thern	Level (Day Time) within p nal Power Project, Chair	olant premises of a	
[d]	Monitored by SHIVA TEST HOUSE on 20.10.22		SHIVA TEST HOUSE on 20.10.22			
[0]	Whether any specific Method o been suggested by the party	f Test has	No			
	Sampling Location	Unit		TWA	of Noise Level (Day Time)	
1.	Near Tejasvi Building	dB(A)			56.4	
2.	Near Switch Yard	dB(A)			54.3	
3. Near DM Plant dB(A)				58.1		
N.B.:	The Ambient Air Quality Stan 2000 for Industrial area is & for Silence Zone is 50.0 dB(A against violator if the noise leve	75.0 dB(A), for	Commercial area 6.00 am to 9.0 p.m	is 65.0 dB(. As per Ru	A), for Residential are le 7(1&2) the authority	shall take action

SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2022,11,17

> Verified by: Technical Manager

Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2022.11.17 16:18:32 +05'30"

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount. Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C. Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

Mob +918676886249 +919431047908

sthpatnal avahoo co in , info a shivatest com

Website: www.shivatest.com: www.shivatesthouse.com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Custome	er	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			roject
[b]	Sampling Environmental Condit	ion	Temp. (°C)	29	Humidity (%)	68
[c]	Details of Sample	Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by	SHIVA TEST HOUSE on 27.10.22				
[e]	Whether any specific Method of been suggested by the party	Test has	No		•	
	Sampling Location	Unit	TWA of Noise Level (Day Time)			
1.	Near Time Office	dB(A)	61.2			
2.	Near Switch Yard	dB(A)	55.6			
3.	Near DM Plant	dB(A)			58.7	
N.B.:	The Ambient Air Quality Stands 2000 for Industrial area is 7 & for Silence Zone is 50.0 dB(A) against violator if the noise level	Commercial area i 6.00 am to 9.0 p.m	is 65.0 dB(/ . As per Rui	A), for Residential are le 7(1&2) the authority:	a is 55.0 dB(A) shall take action	

Digitally signed by SHIBESHWAR PRASAD SHIBESHW AR PRASAD Date: 2022,11,16

> Verified by : Technical Manager

Shreyasee Digitally signed by Shreyasee Prasad Prasad

Date: 2022.11.16 13:50:02 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C. Aastha, Road No. 5A, Patliputra Colony, Patria - 800 013 (Bihar)

Mob: +918676886249: +919431047908

sthpatnal ir vaboo co in infoir shivatest com

Website: www.shivatest.com; www.shivatesthesse.com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Re	f. No. STH/TR/22-23/3523 Dt	: 16.11.2022	Your Work Order N			31.07.2022
[a] Name and address of the Customer			North Karanp At: Tandwa Dist- Chatra Jharkhand- 8		r Thermal Power P	roject
[b]	Sampling Environmental Cond	Temp. (°C)	29	Humidity (%)	68	
[c]	Details of Sample	Monitoring of Am North Karanpura	bient Noise I Super Thern	evel (Day Time) within al Power Project, Chatt	plans premises q a	
ध्य	Monitored by	SHIVA TEST HOUSE on 28.10.22				
[e]	Whether any specific Method of been suggested by the party	Whether any specific Method of Test has been suggested by the party				
	Sampling Location			11.7.7.5.5.5	of Noise Level Day Time)	
- 1	. Near Time Office	dB(A)			62.7	
2	. Near Switch Yard			47.3		
Near DM Plant dB(A)					59.4	

N.B.

The Ambient Air Quality Standards in respect of Noise as per Noise Pollution (Regulation and Control) Rules 2000 for Industrial area is 75.0 dB(A), for Commercial area is 65.0 dB(A), for Residential area is 55.0 dB(A) & for Silence Zone is 50.0 dB(A) in daytime i.e. 6.00 am to 9.0 p.m. As per Rule 7(1&2) the authority shall take action against violator if the noise level exceed the ambient noise standards by 10 dB(A) or more against any area/zone.



SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2022,11.16

> Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2022.11.16 13:55:18 +05'30" Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C. Aastha, Road No. 5A. Patliputra Colony, Patna - 800 013 (Bihar)

Mob : +913676886249 : +919431047908

athpatra l'avahoo co in info a shivatest com

Website: www.shrvatest.com; www.shrvatesthouse.com





SHIVA TEST HOUSE



(Serving since 1988)

RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Custon	ame and address of the Customer			r Thermal Power P	roject	
[b]	Sampling Environmental Cond	ition	Temp. (°C)	29	Humidity (%)	68	
[c] Details of Sample			Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST H	OUSE on 0	1,11.22		
[e]	Whether any specific Method o been suggested by the party	f Test has	No				
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Time Office	dB(A)			62.5		
2.	Near Switch Yard	dB(A)	54.6				
Near DM Plant dB(A)				59.8			
N.B.:	The Ambient Air Quality Stan 2000 for Industrial area is & for Silence Zone is 50.0 dB(A	dards in respec 75.0 dB(A), for) in daytime i.e.	Commercial area 6.00 am to 9.0 p.m	is 65.0 dB(n. As per Ru	A), for Residential are	a is 55.0 dB(/ shall take actio	

against violator if the noise level exceed the ambient noise standards by 10 dB(A) or more against any area/zone.

SHIBESHW AR PRASAD Date: 2022.11.16

Digitally signed by SHIBESHWAR PRASAD

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2022.11.16 15:22:39 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Austha, Road No. 5A, Patliputra Colony, Patra - 800 013 (Bihar) Mob. +918676886249 ; +919431047908

sthpatna l'a yahoo co.in : info@shivatest.com

Website : www.shivatest.com : www.shivatesthouse.com



- END OF TEST REPORT -





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a] Name and address of the Customer			At: Tandwa Dist- Chatra		r Thermal Power F	Project
[b]	Sampling Environmental Cond	lition	Jharkhand- 825 321			
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premis North Karanpura Super Thermal Power Project, Chatra			
[d]	Monitored by	SHIVA TEST HOUSE on 02.11.22				
[e]	Whether any specific Method of been suggested by the party	f Test has	No			
	Sampling Location	Unit			of Noise Level Day Time)	
1.	Near Township Area	dB(A)	61.4			
2.	Near Plant Gate	dB(A)	59.7			
Near Office Building dB(A)			58.4			

N.B.:

The Ambient Air Quality Standards in respect of Noise as per Noise Pollution (Regulation and Control) Rules 2000 for Industrial area is 75.0 dB(A), for Commercial area is 65.0 dB(A), for Residential area is 55.0 dB(A) & for Silence Zone is 50.0 dB(A) in daytime i.e. 6.00 am to 9.0 p.m. As per Rule 7(1&2) the authority shall take action against violator if the noise level exceed the ambient noise standards by 10 dB(A) or more against any area/zone.



SHIBESHW AR PRASAD Date: 2022.11.16

Digitally signed by SHIBESHWAR PRASAD

Verified by: Technical Manager

Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2022.11.16 15:27:18 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above. Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Austhu, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

Mob.: +918676886249; +919431047908 schpatnal @yaboo.co.in : info@shivatest.com

Website: www.shrvatest.com; www.shrvatesthouse.com





SHIVA TEST HOUSE



(Serving since 1988)

RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Custo	mer	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b]	Sampling Environmental Cond	dition	Temp. (°C)	26	Humidity (%)	67
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant pren North Karanpura Super Thermal Power Project, Chatra			
[d]	Monitored by		SHIVA TEST HOUSE on 08.11.22			
	Whether any specific Method of been suggested by the party	f Test has	No		- "	
	Sampling Location Unit				of Noise Level Day Time)	
1.	Near Township Area	dB(A)	60.8			
2.	Near Plant Gate			60.1		
3.	Near Office Building			59.8		

The Ambient Air Quality Standards in respect of Noise as per Noise Pollution (Regulation and Control) Rules 2000 for Industrial area is 75.0 dB(A), for Commercial area is 65.0 dB(A), for Residential area is 55.0 dB(A) & for Silence Zone is 50.0 dB(A) in daytime i.e. 6.00 am to 9.0 p.m. As per Rule 7(1&2) the authority N.B.: shall take action against violator if the noise level exceed the ambient noise standards by 10 dB(A) or more against any area/zone.



Digitally signed by SHIBESHW SHIBESHWAR PRASAD AR PRASAD Date: 2022,12.07

Verified by: Technical Manager

Shreyasee Digitally signed by Shreyasee Prasad Prasad

Date: 2022.12.07 15:37:25 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C, Aastha, Read No. 5A, Parliputra Colony, Patna - 800 013 (Bihar)

Mob.: +918676886249 ; +919431047908 sthpatna l (a) ahoo co in - info/a shivatest com

- END OF TEST REPORT --

Website: www.shivatest.com | www.shivatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ret	. No. STH/TR/22-23/3831 Dt:		North Karann	ura Supe	r Thermal Power P	roject	
[a] Name and address of the Customer			At: Tandwa Dist- Chatra Jharkhand- 8			10.2A-0	
	Camalina Environmental Condition	Temp. (°C)	29	Humidity (%)	66		
[b] [c]			Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 09.11.22				
•	Whether any specific Method of Test has		Whether any specific Method of Test has been suggested by the party				
	Sampling Location	Unit			of Noise Level (Day Time)		
1.	Near Plant Gate	dB(A)			58.1		
	Near Office Building	dB(A)			53.8		
-		dB(A)	56.2			. 0	
N.B.:	The Ambient Air Quality Stan Rules 2000 for Industrial a	rea is rout	שניים ואון	n 4- 0/	nm Ae ner Rule 7/1	&2) the authority	



Digitally signed by SHIBESHWAR PRASAD SHIBESHW AR PRASAD Date: 2022.12.07

Verified by: Technical Manager

Shreyasee Digitally signed by Shreyasee Prasad Prasad

Date: 2022.12.07 15:44:23 +05'30' Authorized Signatory Quality Manager

END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount. 2

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

122-C, Aastha, Road No. 5A, Patliputra Colony, Patria - 800 013 (Bihar) Contact us :

Mob.: +918676886249 : +919431047908

Website: www.shrvatest.com: www.shrvatesthwore.com

sthpatnal a valoo co.m : info a shivatest com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Customer		our Work Order No. 4000285067-037-1019 Dt : 31.07.2022 North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
rL1	Sampling Environmental Condition	on	Temp. (°C)	26	Humidity (%)	62	
[b] [c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 15.11.22				
	Whether any specific Method of Test has been suggested by the party		No				
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Plant Gate	dB(A)	62.0				
	Near Office Building	dB(A)	53.6				
	Near Township Area	dB(A)	61.3				
N.B.:	The Ambient Air Quality Stand Rules 2000 for Industrial ar 55.0 dB(A) & for Silence Zone is shall take action against violator is any area/zone.	ea 15 /5.00	JB(A), for Commo	O am to 0 f	n m As ner Rule 7/1	&2) the authority	



SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2022 12:07

Verified by: Technical Manager



e Prasad

Digitally signed by Shreyase Shreyasee Prasad Date: 2022.12.07 15:51:18 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C. Aastha, Road No. SA, Patliputra Colony, Patria - 800 013 (Bibar)

athpatra l'avaboo co in info a shivatest com Non +918676886249 +919431047908 Emuit

Website: www.shrvatest.com; www.shrvatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Re	f. No. STH/TR/22-23/3908 Dt:	06.12.2022	Your Work Order	No. 400020	35067-037-1019 Dt:	broject	
[a]	Name and address of the Custom	Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321		
ns1	Sampling Environmental Condit	tion	Temp. (°C)	26	Humidity (%)	68	
[b] [c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 16.11.22				
4	Whether any specific Method of Test has been suggested by the party		No		See As States are		
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1	Near Township Area	dB(A)	61.2				
2		dB(A)	58.6				
3	Near Office Building	dB(A)			59.1		
N.B.:	The Ambient Air Quality Standards in respect of Noise as per Noise Pollution (Regulation and Control Rules 2000 for Industrial area is 75.0 dB(A), for Commercial area is 65.0 dB(A), for Residential area is 75.0 dB(A), in destine i.e. 6.00 am to 9.0 p.m. As per Rule 7(1&2) the authorit						



SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2022.12.07

Verified by Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2022.12.07 15:53:48 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Pathpurra Colony, Paina - 800 013 (Bihar)

schpatnal are aboo so in a info a ship atest com Mob.: +918676886249 ; +919431047908

Website: nww.shivatest.com; www.shivatesthouse.com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MoEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	[a] Name and address of the Customer		At: Tandwa Dist- Chatra				
[b]	Sampling Environmental Condition	Temp. (°C)	25	Humidity (%)	70		
[c]	Details of Sample	Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra					
[d]	Monitored by	SHIVA TEST HOUSE on 26.11.22					
•	Whether any specific Method of T been suggested by the party	No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Plant Gate	dB(A)	64.1				
2.	Near Office Building	dB(A)	54.0				
3.	Near Township Area	dB(A)	60.5				
N.B.:	The Ambient Air Quality Stand Rules 2000 for Industrial are 55.0 dB(A) & for Silence Zone is shall take action against violator if any area/zone.	a is 75.0 d 50.0 dB(A)	B(A), for Commerci in daytime i.e. 6.00	ial area is am to 9.0	65.0 dB(A), for Resi p.m. As per Rule 7(18	dential area is 2) the authority	



SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2022.12.07

Verified by: Technical Manager



Prasad

Shreyasee Digitally signed by Shreyasee Prasad Date: 2022.12.07 16:01:00 +05'30'

> Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount. Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C. Aastha, Road No. 5A, Patliputra Colony, Patria - 800 013 (Bihari

Mob: +918676886249 , +919431047908 sthpatnal a vahoo co in . info a shivatest com

Website: www.shivatest.com: www.shivatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1985, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref.	No. STH/TR/22-23/4303(B) Dt	06.12.2022	Your Work Orde	er No. 40002	85067-037-1019	Dt: 31.07.2022	
[a]	Name and address of the Custom	ier	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Sampling Environmental Condit	tion	Temp. (°C)	26	Humidity (%)	63	
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 27.11.22				
9	Whether any specific Method of been suggested by the party	No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Township Area	dB(A)	63.8				
2.	Near Plant Gate	dB(A)	55.1				
3.	Near Office Building	dB(A)	59.7				
N.B.:		irea is 75.0 d is 50.0 dB(A)	IB(A), for Comment in daytime i.e. 6.00	cial area is 0 am to 9.0	65.0 dB(A), for I p.m. As per Rule	Residential area 7(1&2) the authori	



any area/zone.

Digitally signed by SHIBESHW SHIBESHWAR PRASAD AR PRASAD Date: 2022.12.07

Verified by : Technical Manager

Prasad

Shreyasee Digitally signed by Shreyasee Prasad Date: 2022.12.07 16:05:34 +05'30' Authorized Signatory

Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount. 3 Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C. Aastha, Road No. 5A. Patliputra Colony, Patna - 800 013 (Bihar)

Mob : +918676886249 : +919431047908 sthpanna l'al vahoo co in : info a shivatest com

Website: www.shrvatest.com: www.shrvatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref	No. STH/TR/22-23/5157 Dt: 03	3.01.2023	Your Work Order	No. 40002	85067-037-1019	Dt : 31.07.2022	
[a]	[a] Name and address of the Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
73.7	Sampling Environmental Condition	ion	Temp. (°C)	18	Humidity (%)	72	
[b] [c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST	HOUSE on	30.12.22		
Ų	Whether any specific Method of Test has been suggested by the party		No				
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	10 10 10 10 10 10 10 10 10 10 10 10 10 1	dB(A)	63.9				
2.		dB(A)			64.7		
3.	Near Office Building	dB(A)			63.1		
N.B.:	The Ambient Air Quality Star Rules 2000 for Industrial a	area is 75.00	OD(A), IUI CUIIII	: 00 am to 6	On m As per Rule	7(1&2) the authority	

NTPC Luneed, North Kerzerpure #25521

any area/zone

SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date 2023 01 03

Verified by : Technical Manager



Shreyasee Digitally signed by Shreyasee Prasad Prasad

Date: 2023.01.03 17:02:31 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar) Contact us:

sthpatnal @vahoo.co.in; info@shivatest.com Mob.: +918676886249; +919431047908 Email:

Website: www.shivatest.com; www.shivatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Custome	r	North Karanpura Super Thermal Power Pr At: Tandwa Dist- Chatra Jharkhand- 825 321			r Project	
[b]	Sampling Environmental Condition	on	Temp. (°C) 18 Humidity (%) 73			73	
[c] Details of Sample			Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by	SHIVA TEST HOUSE on 29.12.22					
٤	Whether any specific Method of T been suggested by the party	No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Plant Gate	dB(A)	63.8				
2.	Near Office Building	dB(A)	60.7				
3.	Near Township Area	62.4					
N.B.:	Rules 2000 for Industrial are	a is 75.0 d 50.0 dB(A)	B(A), for Comme in daytime i.e. 6.	ercial area 00 am to 9.	se Pollution (Regulati is 65.0 dB(A), for R 0 p.m. As per Rule 7 standards by 10 dB(Residential area i (1&2) the authorit	

mittal legith harring

any area/zone.

SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2023.01.03

Verified by: Technical Manager Shreyasee Digitally signed by Shreyasee Prasad Prasad

Date: 2023.01.03 16:59:38 +05'30"

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patria - 800 013 (Bihar)

Mob.: +918676886249; +919431647908 sthpatna l@vahoo.co.in : info@shivatest.com

Website: www.shiratest.com; www.shiratesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ker	f. No. STH/TR/22-23/4858 Dt: 31	1.12.2022	North Karanpura Super Thermal Power Project				
[a]	Name and address of the Custome	At: Tandwa Dist- Chatra Jharkhand- 825 321					
71.1	Sampling Environmental Condition	on	Temp. (°C)	24	Humidity (%)	72	
[b] [c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST	HOUSE on	21, 12.22		
•	Whether any specific Method of Test has been suggested by the party		No				
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1	. Near Township Area	dB(A)			64.1		
2.		dB(A)	65.3				
3	Near Office Building	dB(A)	62.8				
N.B.:	The Ambient Air Quality Stan Rules 2000 for Industrial ai	irea is rout	ODIA, IOI COMM	c oo em to f	non As ner Rule	7(1&2) the authori	

NTPC Lineary, November 52

any area/zone.

SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2023.01.03

Verified by: Technical Manager Shreyasee Digitally signed by Shreyasee Prasad Prasad

Date: 2023.01.03 16:23:12 +05'30"

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory. 122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

-- END OF TEST REPORT --

Mob.: +918676886249 ; +919431047908

sthpatna l@yahoo.co.in : info@shivatest.com Email:

Website www.shivatest.com; www.shivatesthouse.com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Custome	er .	At: Tandwa Dist- Chatr	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Sampling Environmental Conditi	on	Temp. (°C)	24	Humidity (%)	71		
[c]	Details of Sample	Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project.Chatra						
[d]	Monitored by		SHIVA TEST HOUSE on 20.12.22					
e	Whether any specific Method of a been suggested by the party	No						
	Sampling Location	Unit	TWA of Noise Level (Day Time)					
1.	Near Plant Gate	dB(A)			64.2			
2.	Near Office Building	dB(A)			61.6			
3.	Near Township Area	dB(A)	64.1					
2. 3. N.B.;	Near Township Area The Ambient Air Quality Standard Rules 2000 for Industrial air	dB(A) dards in respress is 75.0 d	IB(A), for Comm in daytime i.e. 6	ercial area 00 am to 9	64.1 se Pollution (Regulati is 65.0 dB(A), for F .0 p.m. As per Rule 7	Residential (1&2) the		



any area/zone.

SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2023.01.03

Verified by : Technical Manager

Shreyasee Prasad

Present Owne: 2023-01-03 16-20-17 +81*18*

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patra - 800 013 (Bihar)

sthpatnal @yahoo.co.in : info@shivatest.com Mob.: +918676886249; +919431047908 Email:

Website: www.shivatest.com., www.shivatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref.	No. STH/TR/22-23/4655 Dt: 3	30.12.2022	Your Work Ord	er No. 4000	285067-037-1019	Dt: 31.07.2022		
[a]	Name and address of the Custome	H.	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b]	Sampling Environmental Condition	on	Temp. (°C)	24	Humidity (%)	72		
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra					
[d]	Monitored by		SHIVA TEST	SHIVA TEST HOUSE on 15.12.22				
Ų	Whether any specific Method of Test has been suggested by the party		No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)					
1.	Near Township Area	dB(A)	62.9					
2.	Near Plant Gate	dB(A)			63.5			
3.	Near Office Building	dB(A)	61.7					
N.B.:	The Ambient Air Quality Stand Rules 2000 for Industrial an 55.0 dB(A) & for Silence Zone is shall take action against violator i any area/zone.	dB(A), for Comm in davtime i.e. 6	ercial area .00 am to 9	is 65.0 dB(A), for t .0 p.m. As per Rule i	Residential area i 7(1&2) the authorit			



SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2023.01.03

Verified by: Technical Manager e Prasad

Digitally signed by Shreyase Shreyasee Prasad Date: 2023.01.03 15:18:50 +05'30'

> Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount. 2.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

sthostnal @vahoo.co.in: info@shivatest.com Mob.: +918676886249; +919431047908 Email:

Website: www.shivatest.com; www.shivatesthouse.com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Custome	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b]	Sampling Environmental Conditi	ion	Temp. (°C)	24	Humidity (%)	73	
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 14.12.22				
_	Whether any specific Method of " been suggested by the party	No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Plant Gate	dB(A)	67.2				
2.	Near Office Building	dB(A)	60.1				
3.	Near Township Area	62.3					
N.B.:	The Ambient Air Quality Stan Rules 2000 for Industrial ar	rea is 75.0 d s 50.0 dB(A)	fB(A), for Comm in daytime i.e. 6	ercial area .00 am to 9.	is 65.0 dB(A), for F 0 p.m. As per Rule 7	Residential area (1&2) the author	



Digitally signed by SHIBESHWAR PRASAD SHIBESHW AR PRASAD Date: 2023.01.03

any area/zone

Verified by : Technical Manager

Prasad

Shreyasee Digitally signed by Shreyasee Prasad Date: 2023.01.03 15:16:09 +05'30" Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

3. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Austha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

sthpetnal @yahoo.co.in : info@shivatest.com Mob.: +918676886249; +919431047908

Website: www.shivatest.com; www.shivatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Custon	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Sampling Environmental Condi	tion -	Temp. (°C)	26	Humidity (%)	71
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra			
[d]	Monitored by		SHIVA TEST HOUSE on 10.12.22			
ų.	Whether any specific Method of Test has been suggested by the party		No			
	Sampling Location	Unit	TWA of Noise Level (Day Time)			
1.	Near Township Area	dB(A)	64.8			
2.	Near Plant Gate	dB(A)	56.9			
3.	Near Office Building	dB(A)	60.2			
N.B.:	The Ambient Air Quality Sta Rules 2000 for Industrial is 55.0 dB(A) & for Silence Zone	IB(A), for Comment in daytime i.e. 6.00	cial area is 0 am to 9.0	: 65.0 dB(A), for Res	sidential area &2) the author	

shall take action against violator if the noise level exceed the ambient noise standards by 10 dB(A) or more against

20 27 S. Couple 8.5324 NIPC LINE LUD NAMEDON 925321

any area/zone.

Digitally signed by SHIBESHW SHIBESHWAR PRASAD AR PRASAD Date: 2022.12.27

Verified by : Technical Manager

Digitally signed by Shreyasee Prasad Shreyasee Prasad Date: 2022.12.27 11:48:09 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

Mob.: +918676886249 ; +919431047908 stheatnal@vahoo.co.in:info@shivatest.com

Website: www.shivatest.com; www.shivatesthouse.com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

R	tef. No. STH/TR/22-23/4493 Dt : 21	1.12.2022	Your Work Order			h : 31.07.2022		
[a]	Name and address of the Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b]	Sampling Environmental Condition	Temp. (°C)	26	Humidity (%)	67			
[c]	17 SOURCE BOOK HE SAN TO HARD		Monitoring of North Karanpu	Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 09.12.22					
4	Whether any specific Method of Test has been suggested by the party		No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)					
1.	Near Plant Gate	dB(A)	65.1					
2.	Near Office Building	dB(A)	57.0					
3.	Near Township Area	dB(A)	61.3					
N.B.:	The Ambient Air Quality Stand Rules 2000 for Industrial are	98 IS 75.00	in daytime is f	On am to S	0 n m As per Rule	7(1&2) the authority		

10th Frank, 16 - 77-3 175321 NTPC United have being being

any area/zone.

SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2022.12.27

Verified by: Technical Manager Shreyasee Digitally signed by Shreyasee Presad Prasad

Date: 2022.12.27 11:45:28 +05'30"

Authorized Signatory Quality Manager

END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patria - 800 013 (Bihar)

atheutnal @vahoo.co.in : info@shivatest.com Mob.: +918676886249; +919431047908

Website: www.shrvatest.com; www.shrvatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

(a)	[a] Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Sampling Environmental Condition	on	Temp. (°C)	15	Humidity (%)	75		
[c]	504 (200 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra					
[d]	Monitored by	SHIVA TEST HOUSE on 05.01.23						
· ·	Whether any specific Method of ' been suggested by the party	No						
	Sampling Location	Unit	TWA of Noise Level (Day Time)					
1.	Near Plant Gate	dB(A)	64.1					
Near Office Building dB(A)			62.3					
Near Township Area dB(A)		63.5						
N.B.:		rea is 75.0 d s 50.0 dB(A)	IB(A), for Commi in daytime i.e. 6.	ercial area 00 am to 9.	is 65.0 dB(A), for R 0 p.m. As per Rule 7	tesidential area i (1&2) the authorit		





SHIBESHW AR PRASAD Date: 2023.01.13

any area/zone.

Digitally signed by SHIBESHWAR PRASAD

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.01.13 13:38:21 +05'30' Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

Mob.: +918676886249; +919431047908

Website: www.shivatest.com: www.shivatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref	No. STH/TR/22-23/5280 Dt: 13	.01.2023 Y	our Work Order N			Dt: 31.07.2022	
[a]			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
rs.	Sampling Environmental Condit	ion	Temp. (°C)	18	Humidity (%)	72	
[b] [c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by	SHIVA TEST HOUSE on 06.01.23					
سا	Whether any specific Method of been suggested by the party	No					
	Sampling Location Unit			TW	/A of Noise Level (Day Time)	100	
1.	Near Township Area	dB(A)	64.2				
2.	CONTRACTOR STATE	dB(A)	61.0				
3 Near Office Building dB(A)		63.4					
N.B.:	The Ambient Air Quality Star Rules 2000 for Industrial	in de time in 6	no am to 9	0 n m As per Rule	7(1&2) the authority		





- END OF TEST REPORT -

SHIBESHW AR PRASAD Date: 2023.01.13

Digitally signed by SHIBESHWAR PRASAD

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.01.13 13:43:40 +05'30" Authorized Signatory

Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C. Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar) sthpatna | @yahoo co.in : info@shivatest.com Mob.: +918676886249; +919431047908 Email:

Website: www.shivatest.com | www.shivatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref.	No. STH/TR/22-23/5400 Dt : 2	21.01.2023			85067-037-1019	Dt: 31.07.2022	
[a] Name and address of the Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b]	Sampling Environmental Condition	on	Temp. (°C)	14	Humidity (%)	75	
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by	SHIVA TEST HOUSE on 11.01.23					
ت	Whether any specific Method of I been suggested by the party	No					
Sampling Location Unit		TWA of Noise Level (Day Time)					
1.	Near Plant Gate	dB(A)	63.8				
	Near Office Building	dB(A)	61.6				
Near Township Area dB(A)		63.2					
N.B.;	The Ambient Air Quality Stan Rules 2000 for Industrial as	rea is 75.0	in doutime in 6	On am to 9	0 n m. As per Rule	7(1&2) the authority	





SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2023.01.21

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.01.21 17:12:56 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

stheutnal @vahoo.co.in : info@shivatest.com Mob.: +918676886249 ; +919431047908

Website: www.shivatest.com; www.shivatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5440 Dt : 21.01.2023 Y			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[ь]	Sampling Environmental Condit	Temp. (°C)	17	Humidity (%)	73			
[c]	501 GU SHING COMMENTARY		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra					
[d]	Monitored by	SHIVA TEST HOUSE on 13.01.23						
Į,	Whether any specific Method of been suggested by the party	No						
	Sampling Location Unit			TWA of Noise Level (Day Time)				
1.	Near Plant Gate	dB(A)	63.5					
Near Office Building dB(A)			62.5					
Near Township Area dB(A)			63.0					
N.B.:	The Ambient Air Quality Stan Rules 2000 for Industrial at 55.0 dB(A) & for Silence Zone is shall take action against violator	rea is 75.0 d s 50.0 dB(A)	IB(A), for Comm in daytime i.e. 6	ercial area 00 am to 9	is 65.0 dB(A), for F 0.0 p.m. As per Rule 7	Residential area i (1&2) the authorit		





SHIBESHW AR PRASAD Date: 2023.01.21

any area/zone

Digitally signed by SHIBESHWAR PRASAD

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.01.21 17:14:57 +05'30" Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount. Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Page I of I

Contact us :

122-C, Aastha, Road No. 5A, Patliputra Colony, Patra - 800 013 (Bihar)

Mob.: +918676886249; +919431047908 sthpatna l@vahoo co.in : info@shivatest.com Email:

Website: www.shivatest.com: www.shivatesthouse.com





SHIVA TEST HOUSE



(Serving since 1988)

RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Sampling Environmental Condition	Temp. (°C)	19	Humidity (%)	71			
[c]			Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra					
[d]	Monitored by	SHIVA TEST HOUSE on 25.01.23						
-	Whether any specific Method of To been suggested by the party	No						
	Sampling Location	TWA of Noise Level (Day Time)						
1.	Near Plant Gate	dB(A)	65.2					
2.	Near Office Building	dB(A)	63.5					
Near Township Area dB(A)		64.1						
N.B.:	The Ambient Air Quality Stand Rules 2000 for Industrial are 55.0 dB(A) & for Silence Zone is shall take action against violator if any area/zone.	a is 75.0 d 50.0 dB(A)	B(A), for Comme in daytime i.e. 6.	ercial area 00 am to 9.	is 65.0 dB(A), for R 0 p.m. As per Rule 7	Residential area is (1&2) the authority		





SHIBESHW Digitally signed by SHIBESHWAR PRASAD Date: 2023.02.02 15:06:34 +05'30'

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.02.02 15:17:19 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.
 Test Report endorsed only the tests and not the product certificate.

4. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bibar)

Mob.: +918676886249; +919431047908 Email: sthpatnal@yahoo.co.in: info@shivatest.com

Website: www.shivatest.com; www.shivatesthouse.com



SHIVA TEST HOUSE



(Serving since 1988)

RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

	lo. STH/TR/22-23/5894 Dt:	02.02.2023	Your Work Order No. 4000285067-037-1019 Dt : 31.07.2022				
[a] Name and address of the Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b]	Sampling Environmental Condition		Temp. (°C)	19	Humidity (%)	70	
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 27.01.23				
ū	Whether any specific Method of been suggested by the party	No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Township Area	dB(A)	65.0				
2.	Near Plant Gate dB(A)		63.0				
Near Office Building dB(A)		64.5					
N.B.:	The Ambient Air Quality Sta Rules 2000 for Industrial 55.0 dB(A) & for Silence Zone shall take action against violate	area is 75.0 d is 50.0 dB(A) i	B(A), for Comme n daytime i.e. 6.0	ercial area 00 am to 9.	e Pollution (Regulation is 65.0 dB(A), for Ri 0 p.m. As per Rule 70	esidential area is (1&2) the authority	



any area/zone.



shall take action against violator if the noise level exceed the ambient noise standards by 10 dB(A) or more against

Digitally signed by SHIBESHW SHIBESHWAR PRASAD AR PRASAD Date: 2023.02.02

Verified by: Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.02.02 15:20:50 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar) Mob.: +918676886249 ; +919431047908

Email: sthpatnal @vahoo.co.in: info@shivatest.com

Website: www.shivatest.com; www.shivatesthouse.com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref	No. STH/TR/22-23/5932 Dt: Name and address of the Custon	Your Work Order No. 4000285067-037-1019 Dt: 31.07.2022 North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[6]	Sampling Environmental Condi	Temp. (°C)	19	Humidity (%)	71		
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chaira				
[d]	Monitored by	SHIVA TEST HOUSE on 30.01.23					
[e]	Whether any specific Method of Test has been suggested by the party		No				
+	Sampling Location	TWA of Noise Level (Day Time)					
1.	Near Plant Gate	dB(A)	64.9				
2.	. Near Office Building dB(A)		63.8				
3.	3. Near Township Area dB(A)		64.5				
N.B.:	The Ambient Air Quality Sta Rules 2000 for Industrial 55.0 dB(A) & for Silence Zone	area is 75.0 d is 50.0 dB(A)	fB(A), for Commi in daytime i.e. 6.	ercial area 00 am to 9	ise Pollution (Regulat is 65.0 dB(A), for I .0 p.m. As per Rule is a standards by 10 dB	Residential area 7(1&2) the authori	

shall take action against violator if the noise level exceed the ambient noise standards by 10 dB(A) or more against



SHIBESHW

any area/zone.

Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2023.02.04

Verified by: Technical Manager



- END OF TEST REPORT -

Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.02.04 13:49:29 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

Mob.: +918676886249; +919431047908 Email:

Website: www.shrvatest.com; www.shrvatesthouse.com

sthpatna l @vahoo co.in : info@shivatest.com



RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/5937 Dt:	04.02.2023	Your Work Orde	r No. 40002	285067-037-1019	Dt: 31.07.2022	
[a]	Name and address of the Custo	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b]	Sampling Environmental Condition		Temp. (°C)	19	Humidity (%)	70	
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by	SHIVA TEST HOUSE on 31.01.23					
[e]	Whether any specific Method of Test has been suggested by the party		No				
	Sampling Location	Unit		TV	VA of Noise Level (Day Time)		
1.	Near Township Area	dB(A)	64.8				
2.	Near Plant Gate	dB(A)	63.2				
3.							
N.B.:	Rules 2000 for Industrial	area is 75.0 (espect of Noise as per Noise Pollution (Regulation and Control of dB(A), for Commercial area is 65.0 dB(A), for Residential area of in daytime i.e. 6.00 am to 9.0 p.m. As per Rule 7(1&2) the authority level exceed the ambient noise standards by 10 dB(A) or more agains				



any area/zone

SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2023.02.04

Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.02.04 13:53:14 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. SA, Patliputra Colony, Patna - 800 013 (Bihar)

Fmail:

Mob.: +918676886249; +919431047908

sthpetna | @vahoo.co.in : info@shivatest.com

Website: www.shivatest.com; www.shivatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	o. STH/TR/22-23/6567 Dt : 2	7.02.2023	Your Work Order No	400028506	7-037-1019	Dt: 31.07.2022	
[a]	Name and address of the Custo	mer	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Sampling Environmental Cond	fition	Temp. (°C)	24	Humidity (%)	66	
[c]	Details of Sample	Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra					
[d]	Monitored by	SHIVA TEST HOUSE on 22.02.23					
Y	Whether any specific Method of been suggested by the party	No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Township Area	dB(A)	66.0				
2.	Near Plant Gate	dB(A)			65.4		
3.	Near Office Building	dB(A)	64.3				
N.B.:	The Ambient Air Quality Sta Rules 2000 for Industrial 55.0 dB(A) & for Silence Zone shall take action against violate any area/zone.	area is 75.0 d is 50.0 dB(A)	IB(A), for Commerci in daytime i.e. 6.00	ial area is am to 9.0 p	65.0 dB(A), for Res o.m. As per Rule 7(18	idential area is \$2) the authority	



Digitally signed by SHIBESHW SHBESHWAR PRASAD AR PRASAD Date: 2023.03.03

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.03.03 18:29:02 +05'30' Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount. Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory,

Contact us:

Mob.: +918676886249 ; +919431047908

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

Website: www.shivatest.com; www.shivatesthouse.com

sthpatra I @vahoo.co in ; info@shivatest.com

Page 1 of 1





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MoEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Custom	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b]	Sampling Environmental Condition	Temp. (°C)	24	Humidity (%)	65		
[c]	Details of Sample	Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra					
[d]	Monitored by		SHIVA TEST HOUSE on 20.02.23				
٠	Whether any specific Method of been suggested by the party	No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Plant Gate	dB(A)			66.1		
2.	Near Office Building	dB(A)	65.2				
3.	Near Township Area	dB(A)	64.8				
N.B.:	The Ambient Air Quality Stan Rules 2000 for Industrial ar 55.0 dB(A) & for Silence Zone is shall take action against violator is any area/zone.	ea is 75.0 d 50.0 dB(A) i	B(A), for Commerci n daytime i.e. 6.00	ial area is am to 9.0 n	65.0 dB(A), for Resid	dential area is	



any area/zone.



SHIBESHW Digitally signed by SHIBESHWAR PRASAD Date: 2023.03.03
18:15:15 +05'30'

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.03.03 18:26:33 +05'30' Authorized Signatory

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Road No. 5A, Patliputra Colony, Patra - 800 013 (Bihar)

- END OF TEST REPORT -

Mob.: +918676886249; +919431047908 Ema

Email: sthpatnal@yahoo.co.in: info@shivatest.com

Website: www.shivatest.com; www.shivatesthouse.com

Page 1 of 1







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. N	lo. STH/TR/22-23/6411 Dt:	23.02.2023	Your Work Order No.	40002850	067-037-1019	Dt: 31.07.2022	
[a]	Name and address of the Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Sampling Environmental Cond	Sampling Environmental Condition		24	Humidity (%)	66	
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 15.02.23				
•	Whether any specific Method o been suggested by the party	No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Township Area	dB(A)	65.2				
2.	Near Plant Gate	dB(A)	65.0				
3.	Near Office Building	dB(A)	64.8				
N.B.:	The Ambient Air Quality Sta Rules 2000 for Industrial 55.0 dB(A) & for Silence Zone shall take action against violato any area/zone.	B(A), for Commercia in davtime i.e. 6.00 a	larea is m to 9.0 o	Pollution (Regulation 65.0 dB(A), for Res	sidential area is		





SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2023.02.23

Verified by : Technical Manager Prasad

Shreyasee Digitally signed by Shreyasee Prasad Date: 2023.02.23 16:48:19 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount. Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Page 1 of 1

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

Mob.: +918676886249 ; +919431047968 Email:

Website: www.shivatest.com: www.shivatesthouse.com

sthpatna l@vahoo.co in : info@shivatest.com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	STH/TR/22-23/6384 Dt: 23	.02.2023	Your Work Order No			: 31.07.2022	
[a]	Name and address of the Customer		North Karanpura Super Thermal At: Tandwa Dist- Chatra Jharkhand- 825 321			roject	
[b]	Sampling Environmental Condition	Temp. (°C)	22	Humidity (%)	68		
[c]			Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
(d)	Monitored by		SHIVA TEST HOUSE on 14.02.23				
9	Whether any specific Method of Test has been suggested by the party		No				
1	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1. 1	Near Plant Gate	dB(A)			65.1		
	Near Office Building	dB(A)	64.7				
31.53	Near Township Area	dB(A)	64.2				
N.B.:	The Ambient Air Quality Stand Rules 2000 for Industrial and 55.0 dB(A) & for Silence Zone is shall take action against violator in	ea is 75.0 c	is douting Le 6.0	Oam to 90	n m. As per Rule 7(1)	&2) the authority	

any area/zone.



SHIBESHW Digitally signed by SHIBESHWAR PRASAD Digitally signed by AR PRASAD Date: 2023.02.23

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.02.23 16:45:46 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount. 2

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

sthpatnal @vahoo.co in info@shivatest.com Mob : +918676886249 : +919431047908

Website | www.shivatest.com; www.shivatesthouse.com



Page 1 of 1





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	Name and address of the Custo	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b]	Sampling Environmental Cond	lition	Temp. (°C)	23	Humidity (%)	68	
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 11.02.23				
6	Whether any specific Method of Test has been suggested by the party		No				
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Township Area	dB(A)	64.7				
2.	Near Plant Gate	dB(A)	64.2				
3.	Near Office Building	Office Building dB(A)		62.8			
N.B.:	55.0 dB(A) & for Silence Zone	area is 75.0 d e is 50.0 dB(A)	IR(A) for Commerci	area is am to 9.0	p.m. As per Rule 7	(1&2) the authorit	



any area/zone.



shall take action against violator if the noise level exceed the ambient noise standards by 10 dB(A) or more against

Digitally signed by SHIBESHW SHIBESHWAR PRASAD AR PRASAD Date: 2023.02.23

Verified by: Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023,02.23 16:00:40 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above. Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partialty or full for legal/court purpose without written permission of the Laboratory.

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar) Contact us:

sthpatna l @vahoo.co in : info@shivatest.com Mob.: +918676886249; +919431047908

Website: www.shivatest.com; www.shivatesthouse.com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Custome	.02.2023 er	North Karanp At: Tandwa Dist- Chatra Jharkhand- 8	ura Super	Thermal Power P	Dt : 31.07.2022 roject	
[b]	Sampling Environmental Conditi	Temp. (°C)	23	Humidity (%)	66		
[c]	SOLO SOLO SOLO SOLO SOLO SOLO SOLO SOLO		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 09.02.23				
-	Whether any specific Method of T been suggested by the party	No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Plant Gate	dB(A)	64.8				
2.	Near Office Building	dB(A)	64.1				
3.	Near Township Area	dB(A)	63.5				
	Near Township Area The Ambient Air Quality Standard Rules 2000 for Industrial are	dB(A) dards in response is 75.0 d	iB(A), for Commerc in daytime i.e. 6.00	cial area is am to 9.0 j	63.5 Pollution (Regulation 65.0 dB(A), for Response 7(18)	12) I	



any area/zone.



SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2023.02.23

Verified by : Technical Manager Shreyasee Shreyasee Prasad

Digitally signed by Date: 2023.02.23

Prasad

15:58:18 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

Mob.: +918676886249; +919431047908 sthpatnal @vahoo.co.in : info@shivatest.com

Website: www.shivatest.com; www.shivatesthouse.com



Page 1 of 1





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT.
OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	o. STH/TR/22-23/5961 Dt: 10	0.02.2023	Your Work Order N		7 (107) FACE (77) PARENCAS	Dt: 31.07.2022	
[a]	Name and address of the Custor	mer	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Sampling Environmental Cond	ition	Temp. (°C)	22	Humidity (%)	68	
[c]	Details of Sample	The state of the s	Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST H	SHIVA TEST HOUSE on 02.02.23			
e	Whether any specific Method o been suggested by the party	No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Township Area	dB(A)	65.3				
2.	Near Plant Gate	dB(A)	64.3				
3.	Near Office Building	dB(A)	63.6				
N.B.:	The Ambient Air Quality Sta Rules 2000 for Industrial 55.0 dB(A) & for Silence Zone shall take action against violato	area is 75.0 d is 50.0 dB(A)	dB(A), for Commer in daytime i.e. 6.0	orcial area 00 am to 9	is 65.0 dB(A), for R 0.0 p.m. As per Rule 7	Residential area 7(1&2) the authori	

Charles Sanjoy Kumar संग्रिक के नार Sanjoy Kumar उप के नार जिल्ला (के पूर्व जी) Po. Go and Marsager (EMG) Core of thick, त्रव के स्थापन हाउंद्रा साम्द्र (balld, llock Kasagan 81532)

any area/zone.

SHIBESHW Digitally signed by SHIBESHWAR PRASAD Date: 2023.02.10 15:48:49 +05:30

Verified by : Technical Manager Patrus mooris

- END OF TEST REPORT -

Shreyasee Prasad Digitally signed by Shreyasee Prasad Date: 2023.02.10 16:29:15 +05'30'

Authorized Signatory Quality Manager

. This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

Mob.: +918576886249 ; +919431047908 Email : sthpatnal@vahoo.co.in : info@shivatest.com

Website: www.shivatest.com; www.shivatesthouse.com

Page 1 of 1

, age , sy .





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	o. STH/TR/22-23/5949 Dt: 10.0	2.2023	Your Work Order	No. 400028	5067-037-1019	Dt: 31.07.2022	
[a]	Name and address of the Custome	r	At: Tandwa Dist- Chatr	North Karanpura Super Thermal Powe At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b]	Sampling Environmental Condition	on	Temp. (°C)	22	Humidity (%)	67	
[c]	Details of Sample	Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra					
[d]	Monitored by	SHIVA TEST HOUSE on 01.02.23					
٥	Whether any specific Method of T been suggested by the party	No					
e	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Plant Gate	dB(A)	65.6				
2.	Near Office Building	dB(A)	64.8				
3.	Near Township Area	dB(A)	63.8				
N.B.:	The Ambient Air Quality Stand Rules 2000 for Industrial are 55.0 dB(A) & for Silence Zone is shall take action against violator it any area/zone.	ea is 75.0 d 50.0 dB(A)	iB(A), for Comme in daytime i.e. 6.	ercial area 00 am to 9	is 65.0 dB(A), for R .0 p.m. As per Rule 7	Residential area is (1&2) the authority	



Digitally signed by SHIBESHW SHIBESHWAR PRASAD AR PRASAD Date: 2023.02.10

Verified by: Technical Manager



Shreyasee Digitally signed by Shreyasee Prasad Prasad

Date: 2023.02.10 16:26:41 +05'30'

Authorized Signatory Quality Manager

-- END OF TEST REPORT --

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Putna - 800 013 (Bihar)

Mob.: +918676886249; +919431047908 Email:

sthpatna | @yahoo.co.in : info@shivatest.com

Website: www.shivatest.com; www.shivatesthouse.com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a]	Name and address of the Custome	r	North Karanpura Super Thermal Power Pro At: Tandwa Dist- Chatra Jharkhand- 825 321			Project	
[b]	Sampling Environmental Condition	Temp. (°C)	25	Humidity (%)	54		
[c] Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra					
[d]	I] Monitored by		SHIVA TEST HOUSE on 02.03.23				
[e]	Whether any specific Method of 7 been suggested by the party	No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Plant Gate	dB(A)			66.5		
2.	Near Office Building	dB(A)	65.6				
3.	Near Township Area	dB(A)	63.5				
The Ambient Air Quality Standards in resp. Rules 2000 for Industrial area is 75.0 d N.B.: 55.0 dB(A) & for Silence Zone is 50.0 dB(A) is shall take action against violator if the noise lev			IB(A), for Commerci in daytime i.e. 6.00	am to 9.0	65.0 dB(A), for Re. o.m. As per Rule 7(1	sidential area in (&2) the authorit	

General Manager (EMG) नाने विक्रिक्त, मार्च करणानून- 825.321 HIPC LINES, North Narradura 6:5321

any area/zone.



Digitally signed by SHIBESHW SHIBESHWAR PRASAD AR PRASAD Date: 2023.03.21

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shrepover Clare 2023.05.21 (6:09:52 +65'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT -This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

Mob: +918676886249; +919431047908 Email: sthpatna i @vahoo.co.in info@shivatest.com

Website: www.shivatest.com; www.shivatesthouse.com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/6981 Dt: 21.	03.2023 You	ır Work Order No. 40		The state of the s	
[a]	Name and address of the Custon	ier	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b]	Sampling Environmental Condi	tion -	Temp. (°C)	26	Humidity (%)	52
[c]	Details of Sample	Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 03.03.23			
[e]	Whether any specific Method of been suggested by the party	No				
1	Sampling Location	Unit	TWA of Noise Level (Day Time)			
1.	Near Township Area	dB(A)			65.9	
2.	Near Plant Gate	dB(A)	65.4			
3.	Near Office Building	dB(A)			64.3	
N.B.:	The Ambient Air Quality Sta Rules 2000 for Industrial 55.0 dB(A) & for Silence Zone shall take action against violato	erea is 75.0 c	fB(A), for Commerci in davtime i.e. 6.00	al area is am to 9.0	p.m. As per Rule 7(18	(2) the authority

any area/zone.



Digitally signed by SHIBESHW SHIBESHWAR PRASAD AR PRASAD Date: 2023.03.21

> Verified by : Technical Manager

Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.03.21 16:11:48 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

sthpatnal@vshoo.co.in : info@shivatest.com Mob.: +918676886249 ; +919431047908 Email

Website: www.shivatest.com: www.shivatesthouse.com





RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/6981 Dt: 21	.03.2023 You	ır Work Order No. 40		The second secon	
[a]	Name and address of the Custor	mer	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b]	Sampling Environmental Cond	ition -	Temp. (°C)	26	Humidity (%)	52
[c]	Details of Sample	Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 03.03.23			
[e]	Whether any specific Method o been suggested by the party	No				
	Sampling Location	Unit	TWA of Noise Level (Day Time)			
1.	Near Township Area	dB(A)			65.9	
2.	Near Plant Gate	dB(A)	65.4			
3.	Near Office Building	dB(A)			64.3	
N.B.:	The Ambient Air Quality Sta Rules 2000 for Industrial 55.0 dB(A) & for Silence Zone shall take action against violate	area is 75.0 c	fB(A), for Commerci in davtime i.e. 6.00	area is am to 9.0	p.m. As per Rule 7(18	(2) the authority



SHIBESHW AR PRASAD Date: 2023.03.21

any area/zone.

Digitally signed by SHIBESHWAR PRASAD

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.03.21 16:11:48 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patligutra Colony, Patria - 800 013 (Bihar)

sthpatnal@vshoo.co.in : info@shivatest.com Mob.: +918676836249 ; +919431047908 Email

Website: www.shivatest.com: www.shivatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	o. STH/TR/22-23/7111 Dt : 21.0	03.2023	Your Work Order N			Dt: 31.07.2022	
[a]	Name and address of the Custome	r	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Sampling Environmental Conditi	Temp. (°C)	28	Humidity (%)	52		
[c]	Details of Sample	Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra					
[d]	Monitored by		SHIVA TEST HOUSE on 06.03.23				
[e]	Whether any specific Method of T been suggested by the party	No					
	Sampling Location	Unit	TWA of Noise Level (Day Time)				
1.	Near Plant Gate	dB(A)	66.5				
2.	Near Office Building	dB(A)	65.6				
3.	Near Township Area	dB(A)	63.5				
N.B.:	The Ambient Air Quality Stand Rules 2000 for Industrial ar 55.0 dB(A) & for Silence Zone is shall take action against violator	ea is 75.0 c s 50.0 dB(A)	fB(A), for Commer in daytime i.e. 6.0	cial area is 0 am to 9.0 j	p.m. As per Rule 7(1)	&2) the authority	



SHIBESHW AR PRASAD Date: 2023.03.21

any area/zone.

Digitally signed by SHIBESHWAR PRASAD

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.03.21 16:24:08 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount. Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patria - 800 fil3 (Bihar)

Mob.: +918676886249 ; +919431047908 sthpatnal @vahoo.co.in : info@shivatest.com Email:

Website: www.shivatest.com; www.shivatesthouse.com







RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	STH/TR/22-23/7118 Dt :	Your Work Order N	lo. 400028	5067-037-1019	Dt: 31.07.2022		
[a]			North Karanpu At: Tandwa Dist- Chatra Jharkhand- 82		Thermal Power I	Project	
[b]	Sampling Environmental Cond	ition	Temp. (°C)	26	Humidity (%)	52	
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 07.03.23				
[e]	Whether any specific Method of Test has been suggested by the party		No			120	
	Sampling Location	Unit		12.356.50	of Noise Level Day Time)		
1.	Near Township Area	dB(A)			65.5		
2.	Near Plant Gate	dB(A)	65.2				
3.	Near Office Building	dB(A)	64.7				
N.B.:	The Ambient Air Quality Sta Rules 2000 for Industrial 55.0 dB(A) & for Silence Zone shall take action against violate any area/zone.	area is 75.0 o is 50.0 dB(A)	fB(A), for Commercii in daytime i.e. 6.00	al area is am to 9.0 p	65.0 dB(A), for Res o.m. As per Rule 7(1	sidential area is &2) the authority	



SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2023.03.21

Verified by : Technical Manager Shreyasee Prasad Date: 2023.03.21

Digitally signed by 16:26:39 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

sthpatnal @vahoo.co.in : info@shivatest.com Mob.: +918676886249 ; +919431047908

Website: www.shivatest.com; www.shivatesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	STH/TR/22-23/7371 Dt: 27.	03.2023	Your Work Order No		The Control of the Co	Dt: 31.07.2022	
(a)	Name and address of the Customer		North Karanp At: Tandwa Dist- Chatra Jharkhand- 8		Thermal Power	Project	
[b]	Sampling Environmental Condition	tion	Temp. (°C)	26	Humidity (%)	58	
[c]			Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 17.03.23				
[e]	Whether any specific Method of Test has been suggested by the party		No				
	Sampling Location Unit		TWA of Noise Level (Day Time)				
1. 1	Near Plant Gate	dB(A)	67.1				
2. 1	Near Office Building	dB(A)	66.2				
3. 1	Near Township Area	dB(A)			64.1		
N.B.:	The Ambient Air Quality State Rules 2000 for Industrial a 55.0 dB(A) & for Silence Zone shall take action against violator	erea is 75.0 d is 50.0 dB(A)	IB(A), for Comment in daytime i.e. 6.0	cial area is 0 am to 9.0	p.m. As per Rule 7	(1&2) the authority	

any area/zone.



SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD 12:54:50 +05:30

> Verified by : Technical Manager

Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.03.27 13:32:21 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount,

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

sthpatna l @vahoo.co.in : info@shivatest.com Mob: +918676886249; +919431047908 Email:

Website: www.shivatest.com; www.shivatesthouse.com



Page 1 of 1





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/7400 Dt: :	Your Work Order	No. 4000285	5067-037-1019 D	ot: 31.07.2022		
[a]	Name and address of the Customer		North Karanp At: Tandwa Dist- Chatra Jharkhand- 8		Thermal Power P	Project	
[b]	Sampling Environmental Cond	ition	Temp. (°C)	26	Humidity (%)	52	
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 18.03.23				
[e]	Whether any specific Method of Test has been suggested by the party		No				
	Sampling Location	Unit		W. W. S.	of Noise Level Day Time)		
1.	Near Township Area	dB(A)			67.0		
2.	Near Plant Gate	dB(A)			66.2		
3.	Near Office Building	dB(A)			65.3		
N.B.:	The Ambient Air Quality Standards in respect of Noise as per Noise Pollution (Regulation and Control.) Rules 2000 for Industrial area is 75.0 dB(A), for Commercial area is 65.0 dB(A), for Residential area is 55.0 dB(A) & for Silence Zone is 50.0 dB(A) in daytime i.e. 6.00 am to 9.0 p.m. As per Rule 7(1&2) the authority shall take action against violator if the noise level exceed the ambient noise standards by 10 dB(A) or more against any area/zone.						





SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2023.03.27

Verified by: Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.03.27 13:36:23 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)

Mob +918676886249 ; +919431047908

sthpatna l@vahoo.co.in : info@shivatest.com

Website ! www.shivatest.com ; www.shivatesthouse.com





(Serving since 1988)

TC-10582

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/7538 D	28.03.2023	Your Work Order No			Dt: 31.07.2022	
[a]	Name and address of the Customer		North Karanp At: Tandwa Dist- Chatra Jharkhand-		Thermal Power	Project	
[b]	Sampling Environmental Condition		Temp. (⁰ C)	28	Humidity (%)	52	
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises of North Karanpura Super Thermal Power Project, Chatra				
[d]	Monitored by		SHIVA TEST HOUSE on 22.03.23				
[e]	Whether any specific Method of Test has been suggested by the party		No				
	Sampling Location	Unit			of Noise Level Day Time)		
1. N	Near Plant Gate	dB(A)			66.5		
2. 1	Near Office Building	dB(A)			66.3		
3. 5	Surrounding villages	dB(A)			65.7		

N.B.:

Digitally signed by SHIBESHW SHIBESHWAR PRASAD AR PRASAD Date: 2023.03.28

> Verified by : Technical Manager



- END OF TEST REPORT -

for Industrial area is 75.0 dB(A), for Commercial area is 65.0 dB(A), for Residential area is 55.0 dB(A) & for Silence Zone is 50.0 dB(A) in daytime i.e. 6.00 am to 9.0 p.m. As per Rule 7(1&2) the authority shall take action

against violator if the noise level exceed the ambient noise standards by 10 dB(A) or more against any area/zone.

Prasad

Shreyasee Digitally signed by Shreyasee Prasad Date: 2023.03.28 13:53:46 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar) Contact us:

Mob.: +918676886249 ; +919431047908 sthpatra l'ayahoo co in : info@shivatest.com Email:

Website: www.shivatest.com; www.shivatesthouse.com

Page 1 of 1





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/7587 Dt: 2	28.03.2023	Your Work Order No	4000285	067-037-1019	Dt: 31.07.2022
	Name and address of the Customer		North Karanpu At: Tandwa Dist- Chatra Jharkhand- 82		Thermal Power	Project
[b]	Sampling Environmental Cond	lition	Temp. (°C)	29	Humidity (%)	51
[c]	Details of Sample		Monitoring of Ambient Noise Level (Day Time) within plant premises North Karanpura Super Thermal Power Project, Chatra			
[d]	Monitored by		SHIVA TEST HOUSE on 23.03.23			
[e]	Whether any specific Method of Test has been suggested by the party		No			
		Unit			o f Noise Level Day Time)	
1.	Service Building	dB(A)			67.1	
2.	CHP	dB(A)			66.8	
3.	Township Area	dB(A)			60.6	

N.B.:

The Ambient Air Quality Standards in respect of Noise as per Noise Pollution (Regulation and Control) Rules 2000 area is 75.0 dB(A), for Commercial area is 65.0 dB(A), for Residential area is 55.0 dB(A) & for for Industrial Silence Zone is 50.0 dB(A) in daytime i.e., 6.00 am to 9.0 p.m. As per Rule 7(1&2) the authority shall take action against violator if the noise level exceed the ambient noise standards by 10 dB(A) or more against any area/zone.





SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2023.03.28

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.03.28 13:57:16 +05'30" Authorized Signatory Quality Manager

Page 1 of 1

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputra Colony, Putna - 800 013 (Bihar)

Website: www.shivatest.com; www.shivatesthouse.com

sthpatna l @yahoo.co in : info@shivatest.com

Mob: +918676886249 : +919431047908





TEST HO



(Serving since 1988)

BY MOEFICE, GOVT, OF INDIA; UNDER ENVIRON GOVT, OF BRUR AND BRIAR STATE POLLUTION CONTROL BOA

<u>TEST REPORT</u>

Ref. No. STH/TR/22-23/2939 De	13.10.2022 Your Wo	ork Order No.: 40002880	47-037-1019 Dr. 31.67-2022
Carrier Grantin Co			Super Thermal Power
splitter in the state of the st		Project	n si sa militar iliku gagaran 🚽
(a) Name and address of the Cust	tomer	At. Tandwa	
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	process (1990)	Dist- Chatra	
P <u>ate</u> , inhan .		Jharkhand- 825	321
[b] Details of Sample::			onitoring (As per NAAQS):::::
[c] Sample Collected by		SHIVA TEST HOU	
[d] Sampling Location :			e top of Tejasavi Bullding (Township) ::
fe Method of Sampling	<u> </u>	TS 11255 (Part-1,2,3 &	
[f] Sampling Environmental Con	dition		32 Humidity (%) 66
[g] No. & Type of Container		One poly Jar	
. Till the control of the	d-11	RDS-1, FPM-1	: ::::::::::::::::::::::::::::::::::::
[i] Sample Quantity	# 1 · · ·	30 ml x 6 for each (N	O ₂ , SO ₂ , NH ₂) Late and L
[j] Simple Code		A-2939	
[k] Sample Condition on Receipt		Fil for Analysis	e e e e e e e e e e e e e e e e e e e
[1] Items required to be tested	di dan ₁₉₈₆ ya Mi	As per contract	
[m] 📅 Whether any specific Method	of Test has	No :	a varia — a Marta I
been suggested by the party	arak mining di kac		
[n] Date of receiving the sample		- 02.10.22	Televicia de la composição
[o] : Analysis Start Date / Analysis	s Completion Date	02:10:22/.04.10.22	
	Limit as per	Melhod of	Sampling Station / Result
Parameters Ur	NAAQS 2009	Test	Near at the top of Tejasavi
	··	1634	Building (Township)
1. Particulate Matter (PM ₁₀) µg /	m ³	IS 5182 (Part-23)	
2. Particulate Matter	m³ 60	CPC8	romalicado se massacio.
(\run25)		(GMAAP Vol. I)	32.1
3. Sulphur Dioxide as SO ₂ µg /	m³ 80	IS 5182 (Part-2)	13.4
4. Nitrogen Dioxide as NO ₂ µg /		1S 5182 (Part-6)	31.8
	m ³ : 1	IS 5182 (Part-22)	0.28
	m³ 400	IS 5182 (Part-5)	4.0 ³⁶⁴
7. Ozone (Os) x un / un /		IS 5182 (Part-9)	16.8 141114
20.36			



Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shieyasaa Prasad Date: 2022.11.11 11:59:28 +05:30

Authorized Signatory Quality Manager

Test Report endorsed only the tests and not the product conficulty

Test Report can not be reproduced partially or full for legal court purpose without written per

122-C. Assilini, Road No. SA. Parlipinira Galony, Potes - 809 013 (Bjhar)

sthuamati@vahoo.on.in : Infe@theys



A TEST HOUS

(Serving since 1988)

ENTAL LABORATORY BY MICEFCC, GOVT, OF INDIA, UNIDER ENVIRONMENT (PROTECTION) ACT 1986; DEPT OF INDUSTRY, PORESTS & ENVIRONMENT, GOVE OF SHAR AND SHAR STATE POLLUTION CONTROL BOARD

<u>Test report</u>

[a] Name and address of the Customer	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra
[a] Name and address of the Customer	At Tandwa
[a] Name and address of the Customer	
- I	Dist- Chatra
i	11 to 11 to 04 04 04 04 11
Dia Provide of County in the	Jharkhand- 825 321
[b] Details of Sample	Ambient Air Quality Monitoring (As per NAAQS)
[c] Sample Collected by: [d] Sampling Location	SHIVA TEST HOUSE on 01.10.22
[d] Sampling Location [e] Method of Sampling	Collected from New at the top of Tejasari Building (Township) IS 11255 (Part-1,2,3 & 7)
[f] Sampling Environmental Condition	Temp. (%) 32 Humidity (%) 66
[g] No. & Type of Container	One poly Jar
[b]: Instrument ID	RDS-1, FPM-1
[i] Sample Quantity	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)
[j] Sample Code	A-2939:
[k] Sample Condition on Receipt	Fit for Analysis
[f] Items required to be tested	As per contract
[m] Whether any specific Method of Test has	
been suggested by the party	
[n] Date of receiving the sample	02.10.22
[o] Analysis Start Date / Analysis Completion Date	02:10:22/04:10:22
Limit as per	Method of Sampling Station / Result
Parameters Unit NAAQS 2009	Test Near at the top of Tejasavi
1. Carbon Monoxide (CO) mg / m³ 4	IS 5182 (Part-10) 0.341
2. Benzene (C _s H _s) µg / m ² . 5	/IS 5182 (Part-1:1) < 5.0
3. Benzo(a) Pyrene ng /m² 1	(1)S 5182 (Pert-12) (1) (1) (1)
4. Arsehic (As) ng / m ³ 6	AAS Method 1.85
5. Nickel as Ni	AAS Method :: : 4.26 ···
6. Mercury (Hg / m³ Not Specified	US EPA <0.001



Digitally signed by SHIBESHW SHIBESHWAR PRASAD AR PRASAD (1944) 2022,11,11

Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by: Shreyasee Prasad Date: 2022.11.11 11:59:42 +05:30 authorized Signatory Quality Manager

- This report applies only to cample tested as above.

 Total Liabity of our Laboratory is limited to invoced amount.
- Test Report andorsed only the lests and not the product certificate.

 Test Report can not be reproduced periody or full for legal/court purpose without written permission of the Laboratory

172-C 'Aastka, Rood No. SA, Padipuire Colony, Page - 200 (1)3 (Bilger)

Meb. +912676236249 :+919431047908

satesama i @yateno co un « indo





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA; LINDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAR AND SMAR STATE POLLUTION CONTROL BOARD

TEST REPORT

<u> </u>	·:	·			
Ref. No. STH/TR/22-23/3517.	Ð(: 16.11,202	2. Your W	ork Order No. 4	000285067-037-1019	Dt: 31:07.2022
[] ::-: ::-: ::-: ::-: ::-: ::-: ::-:			North Kars	inpura Super Them	nal Power
hat many Miller are .	. "		Project		
[a] : Name and address of the	Customer :		At: Tandw	a	10.00
The party with the second to t			Dist- Chat	randa da baran	
in'i in ana ana			:: Jharkhane	d- 825 321	
[b] Details of Sample	.a.	7 1111 1.	Ambient Air (Quality Monitoring (As per	MAAQS) (Services)
[c] Sample Collected by		: 1'	SHIVA TEST	FHOUSE on 27.10.22	1.3.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1
[d] Sampling Location			Collected from	Near at the top of Telasart i	building (Township)
::[e]: Method of Sampling	· · · · · · · · · · · · · · · · · · ·		: ∫\$,}1255,(Par	t-1,2,3 &:7)	.x:/::
[f] Sampling Environments	l Condition		Temp. (°C)	29 Humidit	y (%) 68
[g] No. & Type of Contains	aring on the first		One poly Ja	Enganta (Maskara)	
[h] Instrument ID	:	. ;	::: RDS-1, FPM	<u>-1 ''' '</u>	· .
[i] Sample Quantity	Ver	yers (* * * * * * * * * * * * * * * * * * *	30 ml x 6 for	each (NO _{2,} SO _{2,} NH ₃)	100 COS 00 (No.
[i] Sample Code			A-3517		
[II] Items required to be test	ed		As per contr	act : ::	
[m] Whether any specific M		<u>ė</u>	17:1 14:17	''. i _. '	144,144
been suggested by the p			No ::	maan ii maa maa saa	
[n] Date of receiving the sa		:. ''	28.10.22	.::	
[o] Analysis Start Date / Ar		on Date	28.10.227.30	2.10.22	-00800048
1.1			W. A	. Sampling S	tation / Result .
Parameters	1 HP 1 - 1 - 1	nit as per	Method o		top of Tejasavi
		AQS 2009	T o st		(Towaship)
1 Particulate Matter (PM+o)	μg/m³	100	IS 5182 (Par		8.4
2. Particulate Matter	L6: 3	A	CPCB	". (Cr	
(PM _{2.5})	μg/m³	60 ∵	(GMAAP Vo	ain i	6.3
3. Sulphur Dioxide as SQ ₂	μg/m³	66	IS 5182 (Pa		2.4
4. Nitrogen Dioxide as NO ₂		80	IS 5182 (Pa		2.2
5 Lead (Pb)	μg/m³	1	IS 5182 (Par		714
6. Ammonia at NH ₃	μg/m³	400	1S 5182 (Pa		(Atomic or youngs)
7. Ozone (Q) 3 3	<u>μg /</u> m³	180	IS 6182 (Pa		8.2
+				/· · · · · · · · · · · · · · · · · · ·	



Verified by : Technical Manager



Shreyasee Prasad Digitally signed by Shreyisee Prasad Digital 2022 FT.16 13:49:30 +05:30

Authorized Signatory
Quality Manager

: - END OF TEST, REPO

- 1... This report applies only to sample lested as above
- Total Liability of our Laboratory is trailed to arrocked amount: Test Repair endorsed only the tasks and not the product certificate.
- Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

Contact us :

::/

122-G: Aasthg. Road No. SA. Parlieura Colony, Panna - 800 013 (Bilhac)

Mobil #918676886249 (+919431047908)

Email: sthoutne ligeration co.in /info@shivatest.com

Website www.shiwaasi.com wood shiwaesthouse com





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MAEPCC, GOVT, OF NEWA, UNDER ENVIRONMENT (PROTECTION) ACT 1866, EXPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BINAR AND BALAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/3517(A) Dt: 16	.11.2022 Year V	Vork Order No. 49002	285067-037-1019 Dt : 31.07.202
. : :		·:	North Karanpur	ra Super Thermal Power
	·. · · · · ·	.: :. ::	Project:	1.
[a] :: Name and address of the	: Customer		At: Tandwa	n na a sa
			Dist- Chatra	
<u>taataan</u> salah t	1.11 ".		Jharkhand- 82	5 3 2 1
[b] Details of Sample		- · ': : : : : : : : : : : : : : : : : :	Ambiem Air Qualit	ly Monitoring (As per NAAQS)
[c] Sample Collected by			SHIVA TEST HOU	SE:on: 27, 10, 22
[d] Sampling Location		:	Collected from Near a	t the top of Tejasavi Building (Township
[e] Method of Sampling	: •		IS 11255 (Part-1,2,3	
[f] Sampling Environments	l Condition	÷ .	Terrip (°C).	29 :: Humidity (%) : : . 6
[g] No. & Type of Contains			Onë poly Jar····	· · · · · · · · · · · · · · · · · · ·
[h]: Instrument ID	· · · · · · ·		RDS-1, FPM-1	
[i] Sample Quamity	:			h (NO ₂ , SO ₂ , NH ₃)
[j] Sample Code			A-3517	i. "i. "
[k] Sample Condition on Re	eceint:	:	Fit for Analysis	:
[I] Items required to be test		·	As per contract	· · · · · · · · · · · · · · · · · ·
[m] Whether any specific M		et has	· · · · · · · · · · · · · · · · · · ·	
been suggested by the p			n Nó " ar	
[n] Date of receiving the sa		: ::	28.10.22	3
[0] Analysis Start Date / An		pletion Date	28,10.22730.10.2	,
[o] Junique Bart Barty, E.	I.		*******	Sampling Station / Result
Parameters	Unit	Limit as per	∷ Method of ∷ –	Near at the top of Tejasavi
1 ardinajaja		NAAQS 2009	Test	Building (Township)
Carbon Monoxide (CO)	mg/m³	1. 11. 34 :	1S 5182 (Part-10)	0.568
2. Benzene (C _s H _e)	μg/m³	5 .	18 5162 (Part-11)	< 5.0
3. Benzo(a) Pyrene	ng / m ³	: 1	IS 5182 (Part-12)	< 1.0
4. Arsanic (As)	ng/m³	6	AAS.Method	0.21
5. Nickel as Ni		20	AAS Method	4.92,
7 	ring / m³	20	' 	
5. Mercury (Hg).	µg/m³	Not Specified	US EPA ::	<0.601



SHIRESHWAR PRASAD AR PRASAD 134451 +0530

> Verified by : Technical Manager



Shreyasee Prasad

Date 2022.11.16 13:49:45 +05'30'. Authorized Signatory Quality Manager

This report applies only to sample rested as above.

Total Liability of our Laboratory is limited to involved amount.

Test Report endorsed only the tests sind not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C. Astatha, Road No. SA. Padipoeti Colony, Patra - 800 013 (Batan)

Mob: +918676886249 . +919431047908

<u> அலை இண்டைகள்</u> , info@shipetest.so

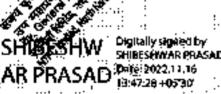






RECOGNISED AS ENVIRONMENTAL LABORATORY BY MGEFOC, GOVE OF INDIA, UNDER ENVIRON IENT (PROTECTION) ACT 1986, DEPTT OF INDUSTRY, FORESTS & ENVIRONMENT, GOYT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

11.111.111.11	:::: r.'	4::-			
Ref. No. STH/TR/22-23/3	522 Dt. 16.	11,2022 Your W			
F (1777) (1777)	. ::::::	함 ::	North Karanpu	ra Super Theri	nal:Power
i (1. ji dana ing mga atau da	4.194.11	THE 1-11 (T. 1)	Project	20 pt - 1575	***** #***"
[a] Name and address of	of the Custome	Г : ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	At: Tandwa		
	·	:::' '}	Dist- Chatra		
[b] Details of Sample:	<u> </u>	* :	Jharkhand- 82		Mrs Vinerum
[b] Details of Sample [c] Sample Collected b			Amilient Air Quality SHIVA TEST HO		
[d]: Sampling Location	y · · ·	·	Callected from New a		
[e] Method of Sampling	a - :: ·	·	:13 1,1255 (Pan-1,2,3		COHNEL (10-10-10)
[f] Sampling Environm		w ::::::	Temp: (AC)	29 Humidit	v (%) 1 58
[g]: No. & Type of Con		:	:.:One poly Jar ·· :.		
[h] Instrument ID		···	RDS-1, FPM-1		1 %
[i] Sample Quantity	4 44 1 11 11	···· (30 mt x.6 for each	(NOs. SOs. NHs)	to time
[i] Sample Code	· · ·;	11 . 11	A-3522	**************************************	111 14
[k] Sample Condition of	n Receipt		Fit for Analysis	1.11	:: · % · · · · · · · · · · · · · · · · ·
[1] Items required to be		.li in in in i	As per contract		
[m] Whether any specifi			A 1-1	, 1100 g J	. %(4)
: been suggested by t		<u> :::::::: </u>	No	g: ' '	20 15:
[n] Date of receiving th		<u> </u>	29.10.22	:: ::::::	M. W
[o] Analysis Start Date	# Analysis Cor	npletion Date	29,10,227,31,10.		//(:
	`] '::'	Limit as per	Method of		ation / Result
Parameters	Unit	NAAQS 2009	Test		pp of Tejasavi
in a linear la	1 1 11 11				(Township)
1. Particulate Matter (PM)	n) μg/m³	100	IS 5182 (Part-23)	; <u>, , , , , , , , , , , , , , , , , , ,</u>	9.9
2. Particulate Matter	μg/m³	60	CPCB	B	6.80
(PM _{2.5})		1	(GMAAP Vol. I)	1	7,7%
3. Suiphur Dioxide as SC		80	IS 5182 (Part-2)		3.1
4. Nitrogen Dioxide as No		80	IS 5182 (Part-6)		<u>1.1 (3.4)</u>
5. Lead (Pb)	μg f m³	. 1	1S 5182 (Part-22)		18
. La libraració de MH.		···400;;;;;;	(S 5182 (Part-5)	Mr. 1252	L3
e. Ammonia as NH, 7. Ozone (Os)	μg/m³ μg/m³	180	IS 5182 (Part-9)	<u> </u>	8.3



Venfied by : Technical Manager,



...Shreyasee Prasad

Spreyasee Presed Date: 2022.11.1613:54:39 Quality Manager

¥);

This report applies only to sample leafed as above. Total Elability of our Laboratory is implied to invoced Test Report endorsed only the leafe and not the product civili

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laborator

192-C: Wastha, Road No. SA. Phthlpiura Colony, Pausa - 300 013 (Bibar)

M66.: +918676886249 : 4919491047908**

ு Smail ் ு sthipstria (இ<u>y എന്ന co in</u> <u>, ஹிலிக்ந் y ம</u>

terres (denotes) com : www.shivatesbouse.com



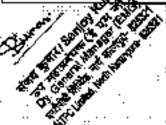


(Serving since 1988)

RECOGINSED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTE OF MOUSTRY, FORESTS & ENVIRONMENT, GOVE OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

1 11	<u>'.</u> :		. :	:::	<u>:</u>	:		
Ref. No. STH/TR/22-23/85220	(A) Dt: /6	(11:2022 Your V	Vork Order No. 4000	285067-03	7-1019. Dt	: 31:07	.2022	
	• :. : •		North Karanpa Project	ıra Supe	Thermal [Power	. : :	
[a] Name and address of the	e Oistomer		At: Tandwa		:			
			Dist- Chatra		::			
<u> </u>		:	Jharkhand- 8	25 32 1	11 11			
[b] Details of Sample :::	· .:		Ainhient Air Qua	<u> </u>	ring (As per .	NAA(OS)	· ·	
[c] Sample Collected by			SHIVA TEST H			·	`:.:`	
[d] Sampling Lecation		:	Collected from Near			ng (Town	afrijo)	
[6] Method of Sampling		'	IS.11255 (Pert-1,2,			•		
[f] Sampling Environments		· :.·.	Temp. (°C)	29	: Humidity (%) ···:	68	
[g]: No. & Type of Contains	€r.		: One poly Jar:	:. ' ' ''' ''	· ···: .		••	
[h] Instrument LD		-::	RDS-1, FPM-1					
[i] Sample Quantity	:	30'ml x 6 for each (NO ₂ , SO ₂ , NH ₃) [9 19						
[j] Sample Code ::::	`	Á-3622 :: ::::::::::::::::::::::::::::::::						
-{k} Sample Condition on R		:	Fil for Analysis					
(I) Items required to be test	ted · · · ·	::	No					
[m] Whether any specific M	lethod of Te	st has						
been suggested by the p		:: ·'::: · · · · · · · · · · · · · · · ·						
[n] Date of receiving the sa			29.10.22					
[o] Analysis Start Date / Ar	ialysis Com	pletion Date	29:10.227/31.10	2.22	:::		::::	
	,	Limit as per	: Method of :		oling Station			
Parameters	Unit · "	NAAQS 2009	Test		at the top of		vi 🗼	
: <u></u>				: Bu	ilding (Tow	nship)	•••	
Carbon Monoxide (CO)	mg/m³	4	IS 5162 (Part-10)	<u> </u>	0.682	:	: <u>.</u>	
2. Benzene (C ₈ H ₆)::	μg /:m³	: 6 :	: IS 5162 (Part-11)		< 5.0			
3. Benzo(a) Pyrene	ng/m³	1	IS 5182 (Pert-12)		< 1.0 :			
4. Arsenic (As)	ng/m³	ii.:1::. 6 ::	AAS Method		. 0.28	<u> </u>	• •	
5. Nickel as Ni	∷ng / m³	.20	AAS Method	<u> </u>	5.68	· · :: .:	÷:	
6. Mercury (Hg)	µg / m³	Not Specified	US EPA (Method IO-6)	::	≪0.001:	:.	·.	



SHIBESHW SHEESHWAR PRASMO AR PRASAD PROC 2022 17, 10 12-17-13 + 05-30

Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyssee Prasad Danie: 2022,11.16
13:54:59 405:30;
Anthorized Signatory Quality Manager

END OF TEST REPORT-

This report applies only to sample tested as above.

Total Liebility of our Laboratory is impact to imprice amount.

Test Report andorsed only the tests and not the product cartificate.

4. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

Constact us :

:::::::::::

122-C; Aasaha, Road No. SA, Philiphers Colony, Pane - 100 013 (Billion)

Nob., +918076886249 : +919431047934 Email: - athorite

· Emnil : - sthoutes l'@raten.co in ; into@stintatest.com-

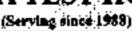
::

Website . mywishiwaez kom , www.shiwaesthoose.com

1000 Professor

Page (ef)







RECOGNISED AS ENVIRONMENTAL LABORATORY BY MICEFCC, GOVT, OF INDIA, UNDER ENVIRON ENT (PROTECTION) ACT 1986, DEPTE ENT, GOVT, OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD OF HIGHSTRY, FORESTS & ENVIRON

TEST REPORT

Ref. No. STH/TR/22-23/2940 Dt: 13.10.2022	Your Work Order No. 4000285067-037-1019 Dt : 31.07.2022
AND LEADING SEPTEMBER	North Karanpura Super Thermal Fower
[a] Name and address of the Customer	Project At: Tandwa
	Dist- Chatra Uharkhand- 825 321
[b] Details of Sample	Ambient Air. Quality Monitoring (4s per NAAQS)
	SHIVA TEST HOUSE on 01.10.22
[d] Sampling Location	Collected from Near at the top of Time Office (Main Plant)
[e] Method of Sampling	IS 11255 (Part-1,2,3-& 7)
	Temp. (*C) 31::: Humidity (%) :: 62:::
[g] No. & Type of Container	One poly Jar
[h] Instrument ID	RDS-2, FPM-2
[i] Sample Quantity	30 ml x 6 for each (NO2; SO2; NH1)
[i] Sample Code	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
[k] Sample Condition on Receipt	
[1] Items required to be tested	Fit for Analysis
[m] Whether any specific Method of Test has been suggested by the party	No.
[in] Date of receiving the sample	1 102 10.22
[o] Analysis Start Date / Analysis Completion I	
Parameters Unit Land NAAQ	as per Method of Sampling Station / Result S 2009 Test Near at the top of Time Office (Main Plant)
1. Particulate Matter (PM ₁₀) µg / m ³ 10	09: IS 5182 (Part-23) 70.1
2 Particulate Matter	CPCB 38.3 (GMAAP Vol. I)
3. Sulphur Dioxide as SO₂ ∷ μg / m³ : 8. 8	80 IS 5182.(Part-2) ##1.54 15.4 17.54.66
	i0 . IS-5182 (Part-6) 32.3.
	1 IS 5182 (Part-22) 0,107
6. Ammonia as NH ₃ µg / m ³ 4	
7. Ozone (© ₃)	

Digitally signed by SHIBESHWAR PRASAD AR PRASAD 0408: 2022.11.11

Verified by : Technical Manager



::: Shreyase Prasad

Authorized Signatory Quality Manager

85 P.A.

- Total Lisberty of our Laboratory is writted to invoiced amount.
- Ted Report endorsed only the tests and not the product cartificate.
 - Test Report can not be seproduced partially or full for legal/count purpose without written permission of the

122-41; Agostra, Rond No. 5A. Padipurta Colony, Paris — 800,013 (Birde)

Mub., +918676886249 ; +919431047908

Websire www.shuvideicovinj www.shivatetihouteicom

Page Lof h



TEST HOUSE

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORPOC, GOVT. OF INDIA, UNDEA ENVIRONMENT (PROTECTION) ACT 1986, DEPT OF UNDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

Ref. No. STH/TR/22-23/2940	(A) Dt : 13	.10.2022 Your V				2022	
:	. :: ::		North Karamp	นาล Super Then	nal,Power		
			Project			· .	
(a) Name and address of the	he Customer	. :::'':	At::Tandwa				
· · · · · ·			Dist- Chatra		. :	::	
<u></u>	:		Jharkhand8		٠.		
[b] Details of Sample		<u> </u>		ility Monitoring (As		·	
[c] : Sample Collected by. :	". :·	: : ':-	SHIVA:TEST H	IOUSE on 01.10.2	22 ::	<i>:</i> ::	
[d] Sampling Location	<u>'</u>	. :	Collected from New	rat the sop of Time Off	ice (Main Plant	<u> </u>	
[e] Method of Sampling			: : : I\$.1.1255.(Part-1,2	(3 & 7)	.::': <u>.</u>		
 Sampling Environment 		· .:	Temp. (°C)	31 : Hum	idRy (%) 👵	62	
[g] No. & Type of Contain	ver · · · ·		One poly Jar			• • •	
[h] Instrument ID			RD\$-2, FPM-2				
il Sample Quantity	:	:	30 ml x 6 for ea	ich (NO _{z.} SO _{z.} Ni	l ₃) ::::-	÷	
[j] :: Sample Code ::::::		F	A-2940:		· iii	::::	
[k] Sample Condition on R	Ceccipt	: :	Fit for Analysis		:		
[1] Items required to be ter	sted · · · ·		As.per contract	} · ·			
[m] Whether any specific N	Method of Te	st has:	No				
been suggested by the	párty 🖖 🖖 🦠		. 140		:·. ·	٠	
[n] Date of receiving the s	ample		02.10.22	•			
[o] 😬 Analysis Start Date / A	nalysis Com	pletion Date	02:10:22 / 04:10	22 :- :- : .	::::	<i>:</i> .	
			Milani in an	Sampling St	ation / Resu	f t	
Parametera	Unit	Limit as per	Method of	· Near at the to			
· · · · · · · · · · · · · · · · · · ·		NAAQ\$ 2009	Test :	. (Mair	Plent)		
i. Carbon Monoxide (CO) :	mg/m³	· • •4:	IS 5182 (Part-10)		273		
2. Benzene (C ₆ H ₆)	μg / m ⁸ ·	. 2	IS 5182 (Part-14)		5.0		
3. Benzo(a) Pyrene	ng/m³	1	(S 5182 (Part-12)		1.0		
4. Arsenic (As)	. ng/m³	::::: ::6 :	AAS Method		07	:	
5. Nickel as Ni	ng/m³	20	AAS Method		20		
6. Mercury (Hg)	μg/m³	Not Specified	US EPA (Method IO-5)		001		
			311 1				



AR PRASAD: 11:55:16+05'30'

Digitally signed by SHIBESHWAR PRASAD Date: 2022.11,11

Verified by : Technical Manager



Shreyasee Prasad

Shreyasee Prasati Date: 2022.11.11 12:00:29 405'30 Authorized Signatory Quality Manager

This report applies only to sample lealed as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for legal court purpose without written permission of the Laboratory.

122-9. Ansilia, Road No. 5A, Paulipetts Colore, Pann - 400 015 (Bake)

Mab. #918676886249 +919451047908

Whether Method to im . in Marthinglesi onen





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT, OF INDIA, UNDER ENVIRON OF INDUSTRY, FORESTS & ENVIRONMENT, COVY. OF BRIAN AND BOYAR STATE POLLUTION CONTROL BOARD

********	1 131	Part.	4 (11.85-64)		**************************************	27,12121,301,321,3	400000000000000000000000000000000000000
Ref. No.: ST	H/TR/22-23/3458	Dt : 16.1.	1.2022 You	r Work	Order No. 400	0285087-037-1019	Dt: 31-07.2022
:'·:: ^{:-}	1,011		3 4		North Karan	pura Super Them	nal Power
	: "· · · · ·		· · · · · · · · · · · · · · · · · · ·		Project		· · · · · · · · · · · · · · · · · · ·
[a] Nam	é and address of the	ie Customer			At, Tandwa		
	arabbar:		·	: : ::.	Dist- Chatra		and the
i · ''	yeard (C)	(30,000)		(::- <u>}</u> :::	Jharkhand-		400
	ils of Semple 💢		<u> ::::::::::::::::::::::::::::::::::::</u>	Щ		dity Monitoring (As per	MAAQS)
	ple Collected by	<u>.</u>	A 4,750 bil			OUSE on 19.10:22	
	pling Location		<u>: :</u>			ar at the top of Time Off	leg (Mille Plant)
	rod of Sampling		<u>'</u>		TS 11255 (Pari-1		
	pling Environment				Temp. (°C)	29 Humidit	y (%) 6,8 :
	& Type of Contain	kêr : :	<u> </u>	<u> </u>	One poly Jar.	<u> </u>	<u>. : : : : : : : : : : : : : : : : : : :</u>
	ument ID	<u>, 500,660 (</u>	<u>i</u>		RDS-2, FPM-2		
	ple Quantity	<u>::: </u>	<u> </u>			ch (NO ₂ , SO ₂ , NH ₃)	1, 20,00
	ple Code 1992.	<u></u>	<u>, :::: 11 ;:: : : : : : : : : : : : : : :</u>		A-3458		mana 150 m
iki Sam	ple Condition on R	leceipt	:	1 1	Fit for Analysis		March 3
	s required to be to		·		As per contract	···· · · · · · · · · · · · · · · · · ·	····
	ther any specific k		st has		No	1,14,21,14,2	
	suggested by the		· · · · · · · ·	····			.,
	of receiving the si			···: * · ·	22 10 22	<u> </u>	··· <u>·</u>
[o] Ana	ysis Start Date / A	atalysis Com	pletion Date	+	22.10.22./.24.1		<u> </u>
W 1 W 2		1	Limit as pe	r:	Method of		tation / Result
Par	ameters	Unit	NAAQS 200		Test	7 7 5	p of Time Office
- 504-644-6-4	A 14-4 (D43 :3:		10,774,94461				n Plant)
	e Matter (PM to)	jug/m³	100	. 	S 5152 (Part-2	3) : : : : : : : : : : : 7	2.0
2: Particula	e Marer	μα ž ma	60		CPCB	erite eri	8.3
(PM _{2.5})	Dispide on CO	7 7 6 6 7 7	· / / / / /		(GMAAP Vol. I		yarang /
	Dioxide as SO:		80::	_	IS 5182 (Pert-2		4.4 , 50
	Dioxide as NO ₂		80		(S 6182 (Part-6		44.9 (a.7/10/Lat
5. Lead (Pt		μ g 7 m ³	<u> </u>		S 5182 (Part-2		.143.
 Ammonia Ozone (0 		μ g / m³ μ g / m³	180		<u> S.5162 (Part-6</u> S.5162 (Part-6		4.6



Verified by : Technical Manager



Authorized Signatory, Quality Manager

Toral Liability of our Laboratory is limited to invoiced amount: Tool Report endorsed only the tests and not the product conflicate

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laborator

122-C, Assitto, Road No. SA. Pallipolits Colomy, Patria = 200 013 (Risko)

Mab. #912676826349 : +410451047002

् sthottets। विभागिका का interfeshionest com

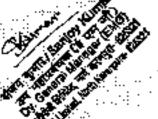


TEST HOUSE

(Serving since 1988)

LABORATORY BY MOEFCC, GOVT. OF HIDIA, UNDER ENVIRONMENT PROTECT DIT, GOVT, OF BHAR AND BINAR STATE POLLUTION CONTROL BOARD

			******	*******	
Ref. No. STH/TR/2	2-23/3458(A) Di : //	6. <i>11:2022</i> "Your			
				ura Super Therm	ad Power
			Project	An Atlanta	
[a] Name and ac	idress of the Customer	and Wind	At: Tandwa		
	• • • • • • • • • • • • • • • • • • • •		Dist-Chatra	Market Milit	::.::i
100 100		<u> </u>	Jharkhand- 8		11.13.
[b] Details of Sa		10. 10. 10. 10. 10. 10. 10. 10. 10. 10.		dity Morittoring (As I	per NAAQSI
· —————	ected by	 		OUSE on 19,10.22	
[d] Sampling Lo				a us the top of Time Office	& (Statu Lietu)
[e] Method of S			3S 11255 (Part-1,3		number of pa
	wironmental Condition	32	Temp. (°C)		aty (%) 68
	of Container	<u>: .: .: .: .::::</u>	One poly Jar:		. 11
	.,.,	::	RDS-2, FPM-2		17
[i] Sample Quar			A.3458	ach (NO ₂ , SO ₂ , NH;	M
[j] Sample Code				, 14 - 111 - 1 - 11 - 1	
	dition on Receipt		Fit for Analysis		1 1/3 1 1/4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
7	ed to be tested		As per contrac		
	specific Method of Te	ist Lista in its			
	ed by the party ::::		No 22.10.22		<u>.04.3</u>
	ving the sample	ulatian Plata	22,10,22	100 (100)	<u>1.7 %</u>
TOT POTATYSIS SEE	rt Date / Analysis Com	pietion, Egate	22,10,227,24,10	Sampling Sta	San J. Dinasili
Parameter	s Umit:	Limit as per	Method of	Near at the top	
ramileles	• Orint	NAAQS 2009	Test		Plant)
1 Carbon Monovid	e (CO)mg / m³	******	IS 6182 (Part-10)	0.3	
2: Benzene (C ₆ H ₆)			19 5182 (Part-11).		
3. Benzo(a) Pyren			IS 5182 (Part-12)		0
4. Arsenic (As)	ng / m ³	(6	AAS:Method	1.2	
5. Nickel as Ni	ing / m³.	20	AAS Method	6.9	
-,		. :"	110 COA		el 41
6 Mercury (Hg)	μg / m³	Not Specified	(Method (O-5)	8,0,8	2 (5) ()
				1 10 1 10	



Verifled by : Technical Manager.



Date: 2022.11.17 16:18:32 +05'30'

Authorized Signatory Quality Manager

- Test Report endorsed only the tests and not the product certificate.
- . Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122°C, Agaha, Road No. SA, Pallipuira Colony, Pausa - 200 013 (Botaca

Mob. +918676886349 : +919431047908

affigure | Signature of the configuration of the co





(Serving since 1988)

RECOGINSED AS ENVIRONMENTAL LABORATORY BY INVERCO, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1996, DEPTT.
OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD.

TEST REPORT

	:	·:	***********	*** * * **	* * * * * * * * * * * * * * * * * * * *		
Ref. No. STH/TR/22-23/3515	Dt: 16.	11.2022 Your \			Dt: 31.07.2022		
				ra Super Therm	al Power		
		F - 12 - 15 ****	Project	1.00	44,4574,524		
[a] Name and address of the	bë Customer		At: Tandwa				
kati na na na na m		' ::	Dist- Chatra Jharkhand- 82	S 201	::. <u>+</u> ::		
[b] Details of Sample	 :::	~ i;		Monitoring (As per	N44OS)		
[c] Sample Collected by	: _;		SHIVE TEST HOL		· · · · · · · · · · · · · · · · · · ·		
[d] Sampling Location	· · · · · · · · · · · · · · · · · · ·	* *:		a the top of Time Offic	z (Misin Plant)		
[e] Method of Sampling			iS 11255 (Part-1, 2,				
[f] Sampling Environment	al Condition	1 3 4	Temp_(°C)	29 Humidity	(%) 68		
[g] No. & Type of Contain			One poly Jer				
[h]: Instrument ID:		j. : : :	RDS-2, FPM-2		. : .		
(i) Sample Quantity ::	· · · · · · · · · · · · · · · · · · ·		30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₃)	•••• •• • • • • • • • • • • • • • • •		
[j] Sample Code	. ::.	·! :::!	A-3575	·!:::: · :	÷		
[k] Sample Condition on R	leceipt		Fit for Analysis				
[I] Ltems required to be to:			As per contract	: .			
[m] Whether any specific N been suggested by the			No.				
[ii] Date of receiving the sa	ample	T	28,10,22	ms <u>- 1</u> 1			
[6] Analysis Start Date / A	malysis Con	ipletion Date	28.10.227.30.10.2	28.10.227.30.10.22			
thought of the tr	'	Limit as per .	Method of		ation / Result		
Parameters	Unit	NAAQS 2009	Test	Near at the top	of Time Office Plant)		
1. Particulate Matter (PM ₁₀)	μ g / m³	100	IS 5182 (Part-23)	69) <u>,3 (########</u>		
2 Particulate Matter (PM _{2.5})	μg / m³	60	CPCB	38	5 2		
3. Sulphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2)	12	.1		
4. Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6)	32	2.8		
3. Lead (Pb)	μg/m³	1 1 00	IS 5182 (Part-22):	10.0	72 ::		
174 17 A	40.00				• .		
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	1" 3	8		



SHIBESHW Dightally signed by: SHIBESHWAR PRASAD AR PRASAD Date: 2022,11.16

> Verified by : Teolinical Monager



Shreyasee Prasad

Design agents by Shrepases Friend

Authorized Signatory
Quality Manager

END OF TEST REPORT -

This report applies only to sample tested as above

Test Report endorsed only the lasts and not the product certificate.

.. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastka, Road No. 5A, Palliputer Colony, Patra = 800-013 (Biliar)

Mob +918676886349 +919431047908 Email: stheatte Libratico.

Website - www.shirvarest.com : www.shivareshninsa.com

Stheams (@values co.in . info@shivesest.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF MOM, UNDER ENVIRONMENT (PROTECTION) ACT OF INDUSTRY, FORGETS & ENVIRONMENT, GOVE OF BANK AND BOLAR STATE POLLUTION CONTROL BOARD

TEST REPORT

BUC NEED CTRUMP AS AS MOSTON	Atl The . 24	11 2024 V 1	March California Std. See	00285067-037-1019 Dt: 31.07.2022		
Kei. 140 51 N/1 N/22-(3/8015)	A) D(:10	111-2022 1 OUT		oura Super Thermal Power		
			Project	idra nobel niestira iowei		
[a] Name and address of the	Customer		At: Tandwa	· · · · · · · · · · · · · · · · · · ·		
fol vanis one aggregative no			Dist- Chatra			
			Jharkhand-			
[b] Details of Sample	÷	- : -: : : · · · · · · · · · · · · · · ·		ality Monitoring (As per NAAQS)		
[c] Sample Collected by				OUSE on 27.10.22		
[d] Sampling Location		·		er at the top of Time Office (Main Plum)		
[c] Method of Sampling	:.		IS 1 (255 (Part-1,			
[f] Sampling Environments	l Condition	:	Lemp, (°C)	29 Humedity (%) 68		
[g] No. & Type of Contains			One poly Jan.			
[h] Instrument ID		:	RDS-2, FPM-2			
[i] Sample Quantity	<u>:</u> :	·: .:	. 30 ml x 6 for e	ech (NO ₂ , SO ₂ , NH ₃)		
[j] · Sample Code		:	A-3515	· , · · . · · · · · · · · · · · · · · ·		
[k] Sample Condition on Re	ecipl		Fit for Analysis			
[l] Items required to be test			"As per contrac			
[m] Whether any specific M	ethod of Te:	st has:	i	1.1 1		
been suggested by the p			··· No			
[n] Date of receiving the sai			28.10.22			
[o] Analysis Start Date: An		pletion Date	28,10,227,30.10	0.22		
• • • • • • • • • • • • • • • • • • • •	'	4 7 1 1 2 2 2 2 2	have a dee	Sampling Station / Result		
··· Parameters .	Unit	Limit as per	: Method of	Near at the lop of Time Office		
·	. ::	NAAQS 2009	Test	(Main Plant)		
1. Carbon Monoxide (CO): "	mg / m ³	4	IS 5182 (Pert-10)			
2. Benzena (C _e H _e)	μg /:m³ ·	5	IS 5182 (Part:11)	···· :< 5.0 · ···· ··		
3. Benzo(a) Pyrene	_ng /im³	1	(S 5182 (Part-12)	< 1.0		
4. Arsenic (As)	∙ng / m³	6	AAS Method	0.79		
5. Nickel as NI	ng/m³	20	AAS Method			
	· :		USEPA			
6. Mercury (Hg)	μ g/m³ .	Not Specified	··· (Method ID-6) ···	.[·		

SHIBESHWAR PRASAD Daye: 2022.11.16

> Verified by: Tealmical Manager



Shreyase

Shreyasee Prasad Date 2022.11.16 Prasad F3:48:48 +05'30'

Authorized Signatory Quality Manager

Digitally signed by

This report applies only to sample lested as above; Total Liability of our Laboratory is limited to invoiced amount,

Test Report endersed only the tests and not the product certificate

Test Report can not be reproduced partially or full for legislicourt purpose without written permission of the Laboratory.

122-C; Absthe, Road No. SA, Pattipatte Colony, Palm - 200 013 (Biliar)

Mob. +91\$676\$\$6249 . +919431047908

Wehaite: www.shryanest.com; www.shryanestheiuseicomi

sthoetnal@vahoo.co.in ; jam@dhivaest.com





ABORATORY BY MORFCC, GOVT. OF INDIA, UNDER BINN & ENVIRONMENT, GOVT. OF BUAR AND BUAR STATE PO

TEST REPORT

. [Ref. No. STH/TR/22-23/3520	Dt : 16.11.	2022 Your W	ork Order No. 400028	5067-037-1019 Dt: 31.07.2022
띪	li Granda (Tabana)				a Super Thermal Power
	[a] Name and address of the	Customer		Project At: Tandwa :Dist- Chatra:	
1	i, "i			Jharkhand- 825	<u> </u>
····	[b] Details of Sample	: ' '			Monitoring (As per NAAQS)
	[c] Sample Collected by	: '	· · · · · · · · · · · · · · · · · · ·	SHIVA TEST HO	USE on 28,10.22
	[d] Sampling Location		·	"Collected from News at	the top of Time Office (Main Plant)
	[e]: Method of Sampling		:	IS 11235 (Part-1,2,3)	
	[f] Sampling Environmental		· · · · · · · ·	Temp, (°¢)	29::::::::::::::::::::::::::::::::::::
. /	[g] No. & Type of Container		· · · · · · · · · · · · · · · · · · ·	One poly Jar	a mi danama ma ma
a ì	[h] Instrument ID			RDS-2, FPM-2	:
	[i] Sample Quantity	: • • •		30 ml x 6 for each (NO2, SO2, NH2)
	[i] Sample Code	:	¥1. T ¥ .1	A-3520	<u> </u>
-	[k] Samplé Condition on Rec		* 2.7	Fit for Analysis.	<u> </u>
ا	[I] Items required to be teste			As per contract	
	[m] Whether any specific Mea been suggested by the par	Try	t has the little	No	_ f 4
	[a] Date of receiving the sam			29.10.22	
1	[o] Analysis Start Date / Ana	lysis Comp	letion Date	29.10.22/31.10.2	
: <u>;</u> .	Parameters	Onit	Limit as per NAAQS 2009	Method of	Sampling Station / Result: Near at the top of Time Office (Main Plant)
	1. Particulate Matter (PM ₁₀)::	μg / m³	:-100	IS 5182 (Part-23)	69.9
: ; .	Particulate Matter (PM _{2.5})	μ g / m³	60	CPCB (GMAAP Vol. I)	.38.7.
		μg/m³	80	IS 5182 (Part-2)	· · · · 12.8 · · · · · · · · · · · · · · · · · · ·
ı	4. Nitrogen Dioxide as NO ₂	μg/m³	· .: . 80	IS 5182 (Part-6)	33.3 Harrier
٠.		μgi / m³.	1 "	IS 5182 (Part-22)	0.107
{	6. Ammonia as:NH ₃	μg / m³	:400	IS 5182 (Part-5)	
ı		na/m³	.180	IS 5182 (Part-9)	17.7

Verified by : Technical Manager



Shreyasëe Prasad

Date: 2022.11.16 13:53:30 +0530 . Luthorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product conficient.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C; Asatha, Road No. SA. Pediguera Celcery, Prena – 400 013 (Biliar).

Mobil +918676816249 ; +91943104790\$

Website www.shivisesricom . wow shiratesthouse com



VA TEST HOU

(Serving since 1988)

ENTAL EABORATORY BY MOEFOC, GOYT, OF MOMA, UNDER ENVIRONMENT (PROTECTION) ACT 1965, DEP I'E GOVT, OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

<u>TEST REPORT</u>

·	····	:.*				
Raf. No. STH/TR/22-23/35200	(A) Dt : 10	6.11.2022 Your V	Verk Order No. 4000	285067-037-1019 Dt.: 31.07.202		
		: : .	North Karanpi	ura Super Thermal Power		
		: ::::.	Project			
[a] Name and address of the	ë Customer		At: Tandwa			
	7 7		Dist- Chatra			
	. ::		Jharkhand-8	25.321		
[b] Details of Sample	···:			lity Monitoring (As per NAAQS)::::		
c) Sample Collected by	' :	1 1::		OUSE on 28.10.22		
[d] Sampling Location	: . ':'			as the top of Time Office (Main Plant)		
[6] Method of Sampling		::::: .	IS 1.1255 (Part-1,2,			
[f] Sampling Environments	al Condition		Temp. (°C).	29 : Humidity (%) :: B8		
[2] No. & Type of Contains			::Onë poly Jan:	.::		
[h]: Instrument ID			RDS-2, FPM-2	 		
[i] Sample Quantity	: : ·	··· · .	30 jill x 5 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code	·:		A-3520	: ::		
[k]: Sample Condition on Re	ecemt		Fit for Analysis As per contract No			
[I] Items required to be test		·				
[m] : Whether any specific M		st has				
been suggested by the p						
[n] Date of receiving the sa			29.10.22	<u> </u>		
[o] Analysis Start Date / Ar		pletión Daté	29.10.22 / 31.10.22			
1 : 1 : 1 : 1 :	i.			Sampling Station / Result :		
Parameters	Unit	Limit as per	Method of:	Near at the top of Time Office		
		NAAQS 2009	Test :	(Maio Plant)		
i. Carbon Monoxide (CO)	mg/m³	··· 4 ··	IS 5182 (Part-10)	0.582		
2. Benzene (CeHs)	μg (m³	5	IS 5182 (Part-11)	. < 5.0		
Benzo(a) Pyrene	ng/m³	1 1	IS 5182 (Part-12)	<1.0		
. Arsenic (As)	ing / m³	6	AAS Method	0.57		
5. Nickel as Ni	ng/m³	20	AAS Method	6.99		
	1 :	-	US EPA			
č. Mercury (Hģ)	ug m³	Not Specified	(Method KO-5):	<0.001		



Digitally signed by SHIRESHWAR PRASAD AR PRASAD 19:46:39 + 05:30

Verified by : - Technical Manager



Shreyasee Prasad

Sheeyasee Prased Gale: 2022.11.16 13:53:46 +05'30' Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report andersed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C: Aastha, Road No. 5A, Pathipetra Colony, Patrix = 800 0) J (Bihar)

Mob., 4918676886249 (+91943T047908)

Email: stituma L@vahoo.co.m . jmb@shirmest.co

Website : www.shimtest.com ; www.shrvatesthouse.com





LABORATORY BY MOEFICE, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. BENT, GOVT, OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/2942 Dt: 13.10.2032 Your Work Order No. 4000285067-037-1019 Dt North Karanpura Super Thermal	32.07.2022
The control of the co	
[a] Name and address of the Customer Att Tendwa	: · · : : : : : : : : : : : : : : : : :
Dist- Chatre	:: ''' :: :
Uharkhand-825-321	
[b] ::: Details of Sample:	14QS):::::::
[c] :: Sample Collected by :::: SHIVA:TEST HOUSE on 01:10:22.	:
[d] Sampling Location Collected from Near at the top of Switch Varid A	Office Building
[e] Method of Sampling	··· · <u>.</u> · ·
[f] Sampling Environmental Condition Temp. (°C) 32 Humidity (°	6) 162
[g] No. & Type of Container One poly Jar	
[h] Instrument ID PDS-4, FPM-4	<u>.: </u>
[i] : Sample Quantity	: '':'.'
[j] Sample Code	
fk Sample Condition on Receipt Fit for Analysis Fit for Analysis The An	···. :
	.::\
[m] Whether any specific Method of Test has:	!
been suggested by the party ::::	
[n] Date of receiving the sample 02.10.22	
[6] Analysis Start Date / Analysis Completion Date 02:10:22 / 04.10.22	
Limit as per Method of Sampling Stati	
Parameters. Unit MAAOS 2000 Tool INCOME At the top of	
Office But	
1. Particulate Matter (PM ₁₀) μg / m ³ 100 IS 5182 (Part-23) 70.7	
2. Particulate Matter µg / m³ 60 CPCB 34.4	ii: i
(CM/OF VOL.)	
3. Sulphur Dioxide as SO ₂ μg / m ³ 80	
3. Sulphur Dioxide as SO ₂ μg / m ³ 80 IS 5182 (Part-2) 14.6 4. Nitrogen Dioxide as NO ₂ μg / m ³ 80 IS 5182 (Part-6) 32.1	. :
3. Sulphur Dioxide as SO ₂ μg / m ³ 80 IS 5182 (Part-2) 14.6 4. Nitrogen Dioxide as NO ₂ μg / m ³ 80 19 5182 (Part-6) 32.1 5. Lead (Pb) μg / m ³ 1 IS 5182 (Part-22) 02.9	. : k:; :
3. Sulphur Dioxide as SO ₂ μg / m ³ 80 IS 5182 (Part-2) 14.6 4. Nitrogen Dioxide as NO ₂ μg / m ³ 80 IS 5182 (Part-6) 32.1	



"Technical Manager

AR PRASAD 11.55.51 +05.30 Date: 2022.13.11 Verified by:



Shreyasee. Prasad

Authorized Signatory: Quality Monager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report andorsed only the tests and not the product certificate.

Test Report can not be repreduced partially or full for legal/court purpose without willian permission of the Leberator

122-C, Aastha, Road No. 5A, Ppripheta Colony, Passa — 800 013 (Bilitir)

Mobil +918676886249; +91943T01790\$ Salari di no colle Silanualità



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOYT, OF INDIA, UNDER ENVIRONM ENT (PROTECTION) ACT 1988, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE FOLLUTION CONTROL BOARD

TEST REPORT

<u> </u>							
Ref. No. 5TH/TR/22-23/2942	(A) Dt : 13	. <i>10.2022</i> "Your V	Vock Order No. 400	0265067-037-101 9	Dt: 31.07.2022		
		1:	::: North Karange	ura-Super Therm	al Power		
I		٠.	Project				
[a] Name and address of th	: e.Customer		At: Tandwa	ilian talah			
Tel			Dist-Chatra	• 1:: . : 1. •	- 35 74. 5		
Ti:	-: :		: ::3harkhand::8	95.301			
b Details of Sample					AND MATORI		
		<u>. 1</u>		lity Monitoring (As			
[c] Sample Collected by	<u> : </u>	:		OUSE on 01,10.2			
[d] Sampling Location	<u> </u>			r at the top of Switch Ym	rd Office Building		
[e] Method of Sampling	*:		· · · IS 11255 (Part-I)2	!3-& ን)	:		
[f] Sampling Environment	al Condition	<u> :: </u>	Те тр. (%C)	32 Humid	lity (%) 68		
[g] No. & Type of Contain	cir · ·	• • • • • • • • • • • • • • • • • • • •	One poly Jan	;:	. " "		
[h] Instrument ID		::	· RD3-4, FPM-4.	· · · · · · · · · · · · · · · · · · ·	: :ii		
[i] Sample Quantity	::		30 ml x 6 for ea	ch (NO ₂ , SO ₂ , NH	3) : ::		
[j] Sample Code :::	:. :		A-2942:		• ::		
[k] Sample Condition on R	eceipt		Fit for Analysis	·· ·	:		
[I] Items required to be tes		:	As per contract				
[m] Whether any specific M		st has					
been suggested by the p	ártv		Ne:	. # 1.	: : '		
[n] Date of receiving the sa			02.10.22	<u>::: ::</u>	::		
[o] Analysis Start Date / Ar		nletion Date	02:10.22/04:10:22				
	: :	· · · · ·		Sampling Sta	tion / Result		
Parameters	Unit	Limit as per	: Method of ::	Near at the top			
	J	NAAQS 2009	Test :::	Office B			
- Carban Namenida (CO)			10 6465 (5-4 46)				
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Pert-10)	 	27		
2. Benzerie (CeHs)	μg/m³	5	IS 5182 (Part-1:1)	< 5			
3. Berzo(a) Pyrene	ng / m³	1 .	: IS 5182 (Part-12)	-1			
4. Arsenic (As)	ng/m³	:: <u>::::</u> 6:	AAS Method	1.0			
5. Nickel as Ni	ing / m³	20	AAS Method		10		
6. Mercury (Hg)	μg/m³	Not Specified	USEPA)O1:: .:		
T. (************************************	Pa		(Mathod IO-5)				

SHIBESHW

Digitally signed by SHIBESHWAR PRASAD AR PRASAD Dave: 2022.11.11

> Verified by Technical Manager



Shreyasee Prasad

Digitally signed by ... Shreyasee Prasad Date: 2022.11.11 12:01:39 +05'30'

athorized Signatory Quality Manager

This report applies only to sample tested as allowe.

Total Liability of our Laboratory is limited to invoked amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C. Aasilia, Rood Ma. SA. Perjapetra Column, Patris — 800 013 (Biltar).

Mub +918676886249 . +919451047908"

. Emall∶ Subcomplication collection in the property of the subcomplete states o

Website: www.shivelest.com | www.shivitesthiouse.com

Page t of I -





GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL I

<u>TEST REPORT</u>

Ref. No. STH/TR/22-23/351	4 Dt : 16.11.2022 : Your W	Vork Order No: 4000235057-037-1019 Dx: 31.07.2022
- t	1-43-41 2-4	North Karanpura Super Thermal Power
		Project
[a] Name and address of t	he Customer	At: Tandwa
	t ing tagan it in the ing a car	Dist-Chatra
· :	_ :::::::::::::::::::::::::::::::::::::	Jharkhand-825 321
[b] Details of Sample		Ambient Air Quality Monitoring (As per NAAQS)
[c] Sample Collected by		SHIVA TEST HOUSE on 27,10,22 - Test to
[d] Sampling Location	<u> </u>	Collected from New at the top of Switch Yard Office Building
[c]: Method of Sampling	<u> 1921 - 1 </u>	IS 11255 (Part-1,2:3 #/7)
[f] Sampling Environment		Temp. (%) 29 Humidity (%) 68
[g] No: & Type of Contain		One poly Jaronness and an armost and armost an armost armost an armost an armost armost an armost
(h): Instrument ID		RDS-4, FPM-4
[i] Sample Quantity	majorini menerata ya menerata da kendara da k	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)
[j] Sample Code		A-3514
[k] Sample Condition on I		Fit for Analysis
(i) Items required to be te		As per contract
[m] Whother any specific M		No.
been suggested by the	ратту: - , ,	Maria de la compania del compania de la compania de la compania del compania de la compania del compania de la compania de la compania de la compania del compania de la compania del compania d
 Date of receiving the s 	ample::::::	:: 1 26.10.22
[o]: Analysis Start Date / A	inalysis Completion Date	28,10,22 (30,10,22 ··
77 (a. 1949)	Limit as per	Method of Sampling Station / Result
Parameters:	Unit NAAQS 2009	
<u> </u>		Office Building
1. Particulate Matter (PMio)	µg / m³ 100	IS 5182 (Part-23) 71.5
2. Particulate Matter	ug/m³ 60	CPCB
(PM _{2.6})	h 3 (m³ 60	(GMAAP Vol. I).
3. Sulphur Dioxide as SO ₂	μg / m ³ · ··· ··· 80· ···	IS 5182 (Part-2) 13.9
4. Nitrogen Dioxide as NO2:	µg / m³ 80	(S-5182 (Part-6) 32.8
Lead (Pb)	μg / m³ 1	IS 5182 (Par)-22) 0.18
6. Ammonia as NH ₃	μg / m² 400	1S 5182 (Part-5) 4.0 :::
7. Ozone/(0 ₃)	μg / m³ 180	IS 5182 (Part-9) 18.5
	1.F-100 - 177 1. 1.1-4-4	1 1 TO THE PERSON OF THE PERSO



Verified by : Technical Manager



Shreyase Prasad

Shreyasae Prasad Date: 2012.11.16 · .13/48/10+05/30

Authorized Signatory:

This report applies only to sample leated as alog-

Test Report imdorsed only the tests and not the product certificate.

. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laborators

122-C, Austlia, Road No. SA, Parligues Colony, Page - \$00:013 (Sinac)

Mob.: +918676816249 : +919431047900:

Welferle: www.shiveetst.com . www.shivseestheirse.com

stimute i @como co un confessioni reconces



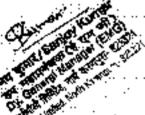
VA TEST HOUSE

(Serving since 1988)

AL ENVIRONMENTAL LABORATORY BY MOEFCC; GOVT, OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT RENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

٠.			'. i '	'. i '		i ·	
. Ref. N	lo. STH/TR/22-23/3514(A) Di: 10	\$ <i>11.2022</i> Your V	Vork Order No. 4000	285067-037-1019	Dt: 31.07.2022	
. :		.;; ;;	·	North Karanp	ura Super Thern	ıal Power	
· :	r na 11 na na			Project			
[a]	Name and address of the	is Customer	. '''	At: Tandwa	, Y. " :	- ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	
: :-	···		. ::	Dist- Chatra		•	
		:	<u>· : : : : : : : : : : : : : : : : : :</u>	Jharkhand-8		.: .	
<u>[₽] ::</u>	Details of Sample		· · · · · · · · · · · · · · · · · · ·		dity Monitoring (As	per NAAQS)	
[c] ···	Sample Collected by .	·	<u> :: </u>		0USE:on 27.16.22	1. 1.1.1 1.1	
[d]	Sampling Location		 		er the top of Switch Ye	rd Office Building	
<u>[e]</u>	Method of Sampling	· ·	<u> </u>	" IS 11255 (PaH-1,2			
Ū.	Sampling Environmenta		<u>:.!`</u>	Temp. (°C):		My (%) : 68	
[8]	No. & Type of Containe	<u> </u>	<u>::</u>	One poly Jar			
<u>[h]</u>	Instrument ID	· <u> </u>	<u>·</u>	RDS-4, FPM-4		<u> </u>	
<u>(i)</u>	Sample Quantity				ach (NO ₂ , SO ₂ , NH		
<u>fil · ·</u>	: Sample Code :::		1- <u>2.3 (</u> 3 1	A-3514	:· · ·		
· [[k]]	Sample Condition on Re		· · · ·	Fit for Analysis			
111	Items required to be test		<u> </u>	As per contract			
[m]	• Whether any specific M		et has	No.:.	:		
:	been suggested by the pr						
Tol:	Date of receiving the sai		· ·- · · · · · · · · · · · · · · · ·	28.10.22	<u> </u>	·	
[6] .	Analysis Start Due / An	iálysis Com	oletioù Date	28:10.22/30.10			
.1.			Limit as per:	Method of		tion / Result	
: ; :	Parameters	Unit	NAAQS 2009	Test ::	Near at the top	•	
·				44 5 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Office E		
	ton Monoxide (CO)	mg/m³	4	(\$ 5182 (Part-10)	0.3		
	nzene (C _e H _e)	μg√:m³ :	<u>5</u> :	:: IS 5182 (Part-11)			
	nzo(a) Pyrene	ng /:m³	1	(\$ 5162 (Part-12)	< 1		
	enic (As)	∷ng / m³	·:".: "6::	AAS Method			
¹ <u>5. Nic</u>	kelas Ni	∵ng / m³	:: 20	AAS Method	7.1	6 : ::	
. ∟8. Mei	roury (Hg),	µg/m²	Not Specified	USEPA		101	
		P-30 7 .77	, tot openion	(Method IO-5)			



Digitally signed by A SHIBESHWAR PRASA AR PRASAD 19:42 41 +05'90'

> Verified by: Technical Manager



Shreyase Prasad

Digitally signed by Shreyasee Prasad Oate: 2022.11.16 13:48:21 +05'30" Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is firnited to invoiced amount.

Test Report endersed only the tests and not the product certificate

Test Report can not be reproduced partially or full for legalicizary purpose without written permission of the Laboratory

122-C: Assito, Road No. SA, Pattigutes Colony, Patrix = 200 013 (Releas)

Mob.: +918676886249 (+919431047908)

sthrama i @rahoo.co.in . mfo@shiy wes



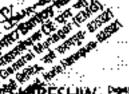
VA TEST HO



(Serving since 1988).

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MISSICS, GOVE OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 198 OF INCUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

	: · · · · · · · · · · · · · · · · · · ·	<u> </u>	
Ref. No. STH/TR/22-23/3519	Dt: 16.11.2022 Your.		
nlinia infriit.		North Karanpu	ra Super Thermal Power
11 - Johann III di Para	a y ^{vere} in et e-maile	Project	
[a] : Name and address of the	e Customer 🐰 💖	At: Tandwa	
	NAME OF THE REAL PROPERTY.	Dist- Chatre	
: <u> </u>	3 (34)	Jharkhand- 82	
[b] Details of Sample			Monitoring (As per NAAQS)
[c] Simple Collected by	<u>, , , , , , , , , , , , , , , , , , , </u>	SHIVA TEST HO	NUSE on 28.10.22
fdi Sampling Location	<u> </u>		i die top of Switch-Yord Office Building
[16] Method of Sampling		"IS 11255 (Part-1,2,3	
[f] Simpling Environment	al Condition	Temp, (°C)	29":: Humidity (%) :: 168 ::
[g] No. & Type of Contain	er - erece	One poly Jar	
[h] Instrument ID		RDS-4, FPM-4	
[i] Sample Quantity	in the second of the second	30 ml x 6 for each	(NO ₂ SO ₂ NH ₃)
[i] Sample Code	: : <u> </u>	A-3519	# 1 : 1: 1
[k] Sample Condition on R	eceipt	Fit for Analysia	
[1] Items required to be tes	ted " · · · · · · · · · · · · · · · · · ·	As per contract	· · · · · · · · · · · · · · · · · · ·
[m] Whether any specific N	fethod of Test has: . : ::	Ala .	Mr. 1 (410)
been suggested by the p		No. 233 - 3	
[n] Date of receiving the sa		29.10.22	i ni a
[o] Analysis Start Date / A	galysis Completion Date	29.10.22731.10.	22 (2) (2) (3) (4) (4)
		44.44.4	Sampling Station / Result
Parameters	Unit Limit as per NAAQS 2009		Near at the top of Switch Yard
		Test	Office Bullding
1. Particulate Matter (PMid)	µg / m³ :: 100°:	IS 5182 (Part-23)	30. x 72.0 (1.11)
2. Particulate Matter		· ··· · · · · · · · · · · · · · · · ·	40.3
(PM _{2.5})	μ g / m³ 60 - 2	: (GMAAP Vol. I)	40.3
3. Sulphur Dioxide as SO:	jμg / m³ (12.80)≟	IS 5182 (Part-2)	7 (F) 14.2 (F) (m) (F)
4. Nitrogen Dioxide as NO ₂	μg/m³ 80	IS 5182 (Part-6)	33,5 5 5 5
5 Lead (Pb) ···	μg / m³ 1 ::::	'.'	0.21
6. Ammonia as NH ₃	μg/m³) 400.	IS 5182 (Part-5)	2 : 4,2
7. Ozone (O ₂)	μg / m³ 180	IS 5182 (Part-9)	20.4
	1.0		



SHIBESHWAR PRASAL

Verified by : Teclmical Manager



Shreyasee Prasad

EGIN: 2022.11.16 13:50:27+05/30 Authorized Signatory

Quality Manager

This report applies only to sample tested at above.

Total Liability of our Laboratory is limited to invoiced amount. Test Report endorsed only the tests and not the product conficate

Tast Report can not be reproduced partially or full for legal/court purpose without written permission of the Labor

122-C; Aastha, Road No. SA, Parlipoline Colony, Pages - 800-013 (Billian)

Mob., +918676886249; +919431047901

Ęmaij 👸

sthintina hidvahoo.on.in ; infi

Websie : www.shividescom . mate shiredesthouse som



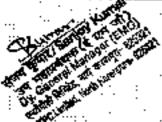
SHIVA TEST HOUSE

(Serving since 1988)

RECOGNISED AS ENANORMENTAL LABORATORY BY MOEFCC, GOVT. OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1866, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

<u>' '</u>		•	i ·		*. : *
Ref. No. STH/TR/22-23/35190	A) Dt: 16	i. <i>11.2022</i> Your V	Vork Order No. 4000	285067-037-1019	Dt: 31:07.202
			North Karanpy	ra Super Therm	al Power
		: 1	Project	· · ·	·
[a] Name and address of the	- Customer	•	At: Tandwa	. :	
			Dist- Chatra		::
		. : :	Jharkhand- 82	5 321	
[b] Details of Sample			Ambjein Air Qua	ltry Monitiöring (As	per NAAQS)
[c] Sample Collected by	•		' SHIVA TEST H	OUSE on 28.10.2	2
[d] Sampling Location	· :		Collected from Near	at the sop of Switch Yo	rd Office Building
[e] Method of Sampling		":	IS 11255 (Part-1,2,	3 & 7)	
(1) Sampling Environmenta	Condition		Temp, (°C):	29 Humi	56ty (%) 68
[g] No. & Type of Contains	r		· · · One poly Jar · ·		···· : · · · .
[h] Instrument ID	. '.:		RDS-4, FPM-4		
il Sample Quantity		:	30 ml x 6 for ea	ch (NO ₂ , SO ₂ , NH	z):
[j] :: Sample Code		÷:	A-3519	·	
[k] Sample Condition on Re	xceipt	•	Fit for Analysis		• • • • • • • • • • • • • • • • • • • •
[I] Items required to be test			As per contract		
[m] Whether any specific M	ethod of Te	st has	No.		· · :
been suggested by the pr		. : :	No		···: :.
n Date of receiving the sai			29.10.22		·
[e] Analysis Start Date / An	álysis Com	pletion Date	29.10.22/31.10	0.22::::	- :
· · · · · · · · · · · · · · · · · · ·		1		Sampling Ste	tion / Result
Parameters	Unit	Limit as per	Method of	Near at the top	
	٠.	NAAQS 2009	Test	Office E	
t. Cárbon Monoxide (CO):: ; ;	mg/m³	1.141	IS 5182 (Part-10)		66
2. Benzene (C _s H _s)	μg / m³.	5	IS 5182 (Part-11)	 . €	5.0
3. Benzo(a) Pyrene	ng/m³	1 :. ''	IS 5162 (Part-12)		1.0
4. Arsenic (As)	∵ng / m³	6	AAS Method	· · O.!	
5. Nickel as Ni	ing / m³	20	AAS Method	8.4	
			. USEPA ::		



SHIBESHW SHIBESHWAR PRASAD SHIBESHWAR PRASAD AR PRASAD Date: 2022.11.16 13:46:09 +06:30

Verified by : Technical Manager



Shreyasee

Prasad

Digitally signed by Shreyasee Prasad Date: 2022.11.16

13:53:16 #0530' Anthorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above:

Total Liability of our Laboratory is limited to invoked amount.

Test Report endorsed only the tests and not the product conflicate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C; Altatha, Road No. SA, Pathletes Colony, Patro - 000 013 (Riban)

M66. +916676386349 . +919431047908 Email: sthpstmals@ss

Website , www.shiplatedi.com ; www.shaquestholice.com

production of a supplemental production of the supplemental pr

34100 (2500)

Page t of t



SHIVA TEST HOUSE



(Serving since 1988)

RECOGNISED AS EMARONMENTAL LABORATORY BY MACEFOC, GOVE OF MOIA, UNDER EMARONMENT (PROTECTION) ACT 1986, DEPTT.
OF INDUSTRY, FORESTS & EMPROMMENT, GOVE OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

<u>' ; ; · · · · ; · · · · · · · · · · · · </u>		;;		
Ref. No. STH/TR/22-23/294	1 Dt : 13.16	.2022 Your V	Vori	k Order No.: 4000285067-637-1019. Dt.: 31:07.202.
		d da	T.;:	North Karanpura Super Thermal Power
			:	Project
[a] Name and address of i	the Custome	, :::::::::::::::::::::::::::::::::::::		At: Tandwa
		· · · · · · ·	. <u>.</u>	Dist- Chatra
		4 4		Jharkhand- 825 321
[b] Details of Sample	· · · · · ·	a Patandaa	₩	Ambient Av. Quality Monitoring (As per NAAQS)
c Sample Collected by		· · · · · · · · · · · · · · · · · · ·	T	SHIVA TEST HOUSE on 01.10.22
d : Sampling:Location	::	. :::	٠;	Collected from Near at the top of DM Plant [1941]
[e] Method of Sampling			.::	IS 11255 (Part-1,2,3-& 7)
[f] Sampling Environment	tal Conditio	n et juligje	Т	Temp (°C) 32 Humidity (%) 66
[g]. No. & Type of Contain	ner		į:	One poly Jan
[h] Instrument ID	7000	· (*)		ROS-3, FPNF3
[i] Sample Quantity	·			30 ml x 6 for each (NO ₂ ; SO ₂ , NH ₃)
[i] Sample Code	11.1	* *** **		4-294(1): 0.00 d.1
(k): Sample Condition on	Receipt :	·· : : : :	1	Fit for Analysis
[I] Items required to be to	sted	er in en tre		- As per contract
[m] Whether any specific		est has	Т	Notice (in the control of the contro
been suggested by the			: ¡÷.	
n) Date of receiving the :		_ <u></u>	4:	302.10.22 The term of the second
[o] Analysis Start Date 7	Amalysis Cor	npletion Date	Т.	02:10:22 / 04:10:22
Bernmelee	t leds	Limit as per	Т	Method of Sampling Station / Result
Parameters	Unit	NAAOS 2009.		Test Near at the top of DM Plant
 Particulate Matter (PM₁₀). 	μg/m ^{3:}	. 100	131	IS 5182 (Part-23) 67.6
2. Particulate Matter		: : : : : : :	Т	ALCROB LINEAR AND ALCROSIC
(PM25)	ng/m³	60	.	(GMAAP Vol.1) 35.0
3. Sulphur Dioxide as SO ₂	μg/m³	80	1:1:	T8 5182 (Part-2) 12.6
4. Nitrogen Dioxide as NO ₂		80	T	IS 5182 (Part-6) 31.4
5. Lead (Pb)	ug / m³.		1.1	IS 5182 (Part-22) 0.213
6. Ammonia as NH ₃	μg / m³:	400		IS 5182 (Parl-5) 2.8
7. Ozone (O ₃)	μg/m³		100	IS 5182 (Part-9) 12.7
==>,10400)	. 1 1450 . 411			the Australia makes and the second se

Comment of Control of the Control of

::::

SHIBESHW SHEESHWARPRASAL AR PRASAD Date: 2022.11.11 11.58.27 +05.30

Verified by . Technical Manager



Shreyasee Prasad

Digitally signed by Sureyasse Prased Date: 2022,11.11
12:00:46 +05:30'
Authorized Signalory
Quality Manager

- END OF TEST RÉPORT -

This report applies only to sample tested as above:

Total Leiblity of our Laboratory is limited to invoiced amount

Test Report endorsed only the tests and not the product certificate

Test Report can not be reproduced partially or full for legal/court surpose without written permission of the Laboratory

Canada do do

192-C. Wasike, Road No. S.A. Pauliputra Colony, Pana - 500 013 (Bake)

Mob.: +912676186249 : +919431047908 Estable - @legate | 575-all

Website . www.shiwaiesLonm : www.shiwaieshibese and

ethorne (Moshoo eo in : info/Ashionida)

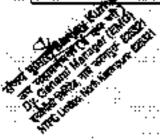
Page t of t



(Serving stace 1988)

Recognised as environmental Exboratory by MoEFCC, GOVE OF WOR, Under Environment (Protection) act 1986, DEPT BY, GOYT, OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

Ref. No. STH/TR/22-23/29416	A) Dt. 13.	10.2022 Your W	ork Order No. 4000	285067-037-1019 D	31.07.2022	
	:			ara Super Thermal	Power	
	. :	p 5:	Project		11 71	
[a] Name and address of the	Customer	.7. 14. ::	At: Tandwa	::: : : :		
Abda — aminidi "			Dist-Chatra		. : ::	
1.: : :		.::.	Jharkhand- 8			
[b] Details of Sample ::		4 71		lity Monitoring (As per	NAAQSE	
[c] Sample Collected by	<u>.:. </u>	- i		OUSE on 01.10.22	- ::	
[d] Sampling Location				at the top of DM Plant	<u>: : : : : : : : : : : : : : : : : : : </u>	
[e] Method of Sampling			: :1\$.11255 (Part-1,2)			
[f] Sampling Environmenta			Temp/(°C)	\$2: Humidity	(%): <u>: : :: 66</u>	
[g] No. & Type of Contains	<u> </u>		One poly Jar RDS-3, FPM-3			
	.(h) lastrumen iD				:	
[i] Sample Quantity		······································		ch (NO ₂ , SO ₂ , NH ₃)	 	
[i] Sample Code		* *::*. : :. :*	A-2941			
[k] Sample Condition on Re		<u> </u>	:Fit for Analysis			
[1] Items required to be test			As per contract			
[m] Whether any specific M		st has	No			
been suggested by the p				· ::·	<u></u>	
[n] Date of receiving the sar			02.10.22		:	
[c] Analysis Start Date / An	ialysis Com		02.10.22/04.10.			
Parameters	Unit	Limit as per	Method of	Sampling Statio		
		NAAQS 2009	Test	:. Near at the top o		
Carbon Monoxide (CO)	mg/m³	∮	IS 5182 (Part-10)	0:227		
2. Běnžehe (C ₈ H ₈)	μg/m³	5	IS 5182 (Part-11)	< 5.0		
3. Benzo(a) Pyrene	ng / m³	1 ::::	: IS 5182 (Part-12)	< 1 <u>.0</u>		
4. Arsenic (As)	ng/m³	6	AAS Method	: 0,43:	<u>: : : : : : : : : : : : : : : : : :</u>	
5. Nickél as Ni	ng/m³	20	AAS Method	2.93		
3. Mercury (Hg)	μg / en³	Not Specified	US EPA (Method (O-5)	<0.00	! <u>.</u>	



SHIBESHW SHIBESHWAR PRASAC AR PRASAD (0.00-2022.11.11

Verified by: Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date:2022.11.11 1201:03 +05:30 Authorized Signatory Quality Manager

This report applies only to sample lesied as above: Total Liability of our Laboratory is lithibid to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C, Aastes, Road No. 5A, Parliptiga Cylony, Potna – \$00,013 (Rahar)

Mob #9186768\$6749 +919431047908

sthomas (@vshoo co in ; Info@s)



SHIVA TEST HOUSE

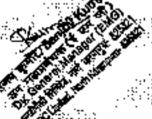


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BEIGR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

<u></u>		<u>: </u>	30.745749		Tayler:	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
Ref.	No. STH/TR/22-23/345	7 - Dt :- J& []	1.2022 Your Wo			
90.3	44.33	,		North Karanpui	a Super Them	nal Power
6-1	Nices and address of			Project		·"··","!= <u>!</u> !":"
[2]	Name and address of t	ne a ustomer		At::Tandwa Dist- Chatra	, waanii ii	976 March 11
	. 11 11,	132484		Jharkhand- 82		
[6]	Details of Sample	· (*)	20 (10 pp (24 p)	Ambierii Atr Quality		MAAQS)* :: *
(c)	Sample Collected by			SHIVA TEST HOU	SE on 19.10.22	San Wale
įď	Sampling Eccation	-999ra		Collected from Near a	the top of DM Plini	H 151 172
[e]	Method of Sampling		·	7\$ 1)255 (Part-1,2,3		The second second
[1]	Sampling Environmen			Temp. (°C)	30 Humldi	ty (%) :: 68
[8]	No. & Type of Contain		· · · · · · · · · · · · · · · · · · ·	One poly Jan		11 y 12 14 17 18
<u>[h]∵</u>	Instrument ID	A 10 10 10 10 10 10 10 10 10 10 10 10 10	<u> </u>	RDS-3, FPM-3		
<u>(i)</u>	Sample Quantity			30 ml x 6 for each	(NO2; SO2; NH3)	:5.5:5.5
<u>[i]</u>	Sample Code		- 1.55 to 1.55	A-3457	·4.5 1 1	
<u>[k]:</u>	Sample Condition on I		· · · · · · · · · · · · · · · · · · ·	Fit for Analysis		191391 1913
<u>m.</u>	ltems required to be te		·	As per contract		
[m]	Whether any specific to been suggested by the		st has	No at 17		and the second
Int	Date of receiving the s		310	22,10,22		
lol :			pletion Date	22.10.22/24.10.22	2 13:00:0075::	9 (4 (1) (6)
	Perameters	Unit	Limit as per	Method of		Station / Result
d): ::			NAAQS 2009			top of DM Plant 🥶
1. "	Particulate Matter (PM ₁₀) μg/m³	100	18 5182 (Part-23)		70.7
2. P	articulate Malter (PM _{2s})	- ին դա ₃	60	CPCB	A contracting the second	35,9
3.3	Sulphur Dioxide as SO ₂	μg / m³	a 80 mil	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		13.8
4. N	lltrogen Dioxide as NO ₂		80	IS 5182 (Part-6)	2000 No. 120	33.4 (1.4) \(\frac{1}{2}\)
<u>5, l</u> u	ead (Pb)	րց (m³.,	. NAC 444. W	IS 5182 (Part-22)		.216
m 'A	mmonia as NH ₃	μg:(m³ ·	400	IS 5182 (Part-6)	379-5	3.2
<u></u>	41.41 (A.198 44 141)(13)	1 880 (1997)		I THE OTHER TRANSPORT		



3/4

SHIBESHW SHIBESHWAR PRASAC AR PRASAD 1459413 +05300

Verified by : Technical Manager



Digitally signed by Shreyasee Presad Bate: 2022.11.17 16:18:32.+05:30

Authorized Signatory
Quality Manager

This report applies only to sample tested as above

Total Liability of our Leboratory is limited to involced amount.
 Test Report enforced only the tests and not the product chilifolin.

Test Report can not be reproduced partially or full for legit/court purpose without written permission of the Laboratory.

Contact us:

1230, Artifig. Road No. SA. Patigores Colour, Pater - 3001/13 (Bihar)

Mnb. +918676816249 (+919431047901

:: Email: : 81

subprimat@value co.in . milomshivees com

Website . www.thivsats/com. www.shimatesthouse.com

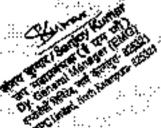
THE PERSON NAMED IN

Page frôf I



LABORATORY BY MCEFCC, GOVE OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT RECOGNISED AS ENVIRON OF MERISTRY, FORESTS & ENVIRONMENT, GOYT, OF BIHAR AND BRIAR STATE POLLUTION CONTROL BOARD

North Karampura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand. 825. 321	Ref. No. STH/TR/22-23/34570	A) Dr. R	£11.2022 Your	Work Order No. 400	0285067-03	7-1019 D1:	31.07.2022
[a] Name and address of the Customer At: Tandwa Dist- Chatra Jharkhand- 825, 321 [b] Defails of Sample Sample Collected by Ship TEST HOUSE on 19, 10, 22 (d) Sampling Location (e) Method of Sampling (f) Sampling Environmental Condition Temp. (C) (a) Type of Costainer (b) Instrument ID (c) Sample Quantity (d) Sample Code (e) Method of Container (f) Sample Code (h) Instrument ID (h) Instrument ID (h) Instrument ID (h) Sample Quantity (g) Simple Code (h) Sample Code (h) Sampling Station / Result (h) Limit as per (h) Limit as per (h) Limit as per (h) Sample Code (h) Sampling Station / Result (h) Sample Code (h) Sample Cod							
Dist Chatra Chatr	The company of the control of the co	's veriers	and the second	Project	117	, v 1.11 pr. 11	
Defails of Sample Ambient Air Quality Monitoring (As per NAAQS)	[a] Name and address of the	e Customer	n worn de			. •	
[b] Details of Sample [c] Sample Collected by [d] Sampling Location [d] Sampling Location [d] Sampling Location [d] Method of Sampling [d] Sampling Environmental Condition [d] Sampling Environmental Condition [d] No. & Type of Container [h] Instrument ID [ii] Sample Quantity [iii] Sample Quantity [iiii] Sample Code [iiii] Sample Condition on Receipt [iiii] Sample Condition on Receipt [iiii] Sample Condition on Receipt [iiii] Items required to be tested [iiii] Whether any specific Method of Test has been suggested by the party [iiii] Date of receiving the sample [iiii] Limit as per Method of Sampling Station / Result [iiiiii] No [iiiii] Parameters [ivided of Method of Test has been suggested by the party [ivided of Sampling Station / Result [- 1000 mg			:::	100.000	
[c] Sample Collected by SHMA TEST HOUSE on 19,10.22 [d] Sampling Location	at <u>141 </u>	- النميي					
[d] Sampling Location [e] Method of Sampling [f] Sampling Environmental Condition [f] No. & Type of Container [h] Instrument ID [f] RDS-3, FPM-3 [f] Sample Quantity [f] Sample Quantity [f] Sample Conde [f] Sample Condition on Receipt [f] Items required to be tested [f] Items required to be tested [f] Items required to be tested [f] As per contract [m] Whether any specific Method of Test has been suggested by the party [n] Date of receiving the sample [o] Analysis Start Date / Analysis Completion Date Parameters Unit Limit as per NAAQS 2009 Test Near at the top of DM Plant 1 Carbon, Monoxide (CO) Ing / m³ [1 S 5182 (Part-10) 0.227 [2 Benzene (CaHe)			13. 43.				1.1 <u>0</u> 8)
Sampling Is 11255 (Part 12.3 & 7)		. 3'	10 (AS) 11 (AS)				Spranist.
Sampling Environmental Condition Temp. (%) 30 Humdity (%) \$8 \$8 \$10, & Type of Container One poly Jar	·		:			H Plant	
[g] No. & Type of Container [h] Instrument ID RDS-3, FPM-3 [ii] Sample Quantity 30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃) [ji] Sample Code A-3457 [k] Sample Condition on Receipt [li] Items required to be tested As per contract [m] Whether any specific Method of Test has been suggested by the party [n] Date of receiving the sample [o] Analysis Start Date / Analysis Completion Date Parameters Unit Limit as per Method of Sampling Station / Result 1. Carbon Monoxide (CO)mg / m³			275 (3.17)				
[h] Instrument ID [i] Sample Quantity [j] Sample Code [k] Sample Condition on Receipt [l] Items required to be tested [m] Whether any specific Method of Test has been suggested by the party [n] Date of receiving the sample [o] Analysis Start Date / Analysis Completion Date Perameters Unit Limit as per Method of Sampling Station / Result 1. Carbon Monoxide (CO)						Humidity (%)	. 68
Sample Quantity 30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)		<u>ir stagar</u>			:	100,749	· · / · · / - <u>:</u>
[i] Sample Code [k] Sample Condition on Receipt [l] Items required to be tested [m] Whether any specific Method of Test has been suggested by the party [n] Date of receiving the sample [o] Analysis Start Date / Analysis Completion Date Perameters Unit Limit as per Method of Sampling Station / Result 1. Carbon, Monoxide (CO)					· .		
Reserve Condition on Receipt Fit for Analysis		1.5	: /%; [tv:		<u>ich (NO_{2:} S</u>	O₂, NH₃)	<u>::11:11:11:11:11:11:11:11:11:11:11:11:1</u>
[I] Items required to be tested As per contract [m] Whether any specific Method of Test has been suggested by the party [n] Date of receiving the sample 22.10.22 [o] Analysis Start Date / Analysis Completion Date 22.10.22 24.10.22 Parameters Unit Limit as per NAAOS 2009 Test Near at the top of DM Plant 1 Carbon Monoxide (CO) Ing / m ³ 4 (IS 5182 (Part-10) C.227 2 Benzene (CaHe) μg / m ³ 5 (IS 5162 (Part-11) < 5.0 3 Benzo(a) Pyrene ng / m ³ 1 (IS 5162 (Part-12) < 1.0 4 Arsenic (As) ng / m ³ 6 AAS Method 0.50 5 Nicket as Ni ng / m ³ 20 AAS Method 4.40			· · · · · · · · · · · · · · · · · · ·		<u> </u>	·	351.9
[m] Whether any specific Method of Test has been suggested by the party [n] Date of receiving the sample [o] Analysis Start Date / Analysis Completion Date Parameters Unit Limit as per Method of Sampling Station / Result No. 1 Carbon Monoxide (CO) mg / m³ 4 IS 5182 (Part-10) 0.227 2 Benzene (C ₀ H ₆) µg / m³ 5 IS 5182 (Part-11) < 5.0 3 Benzo(a) Pyrene ng / m³ 6 AAS Method 0.50 5 Nickel as Ni ng / m³ 20 AAS Method 4.40			. 1::37	Fit for Analysis	13:11 ·	. 1 - 11-11-11	
Date of receiving the sample 22.10.22			75 1	As per contract		:,. :	376 333
Date of receiving the sample 22.10.22				No		-	
[0] Analysis Start Date / Analysis Completion Date Parameters Unit Limit as per NAAQS 2009 1. Carbon Monoxide (CO)			· 33	7 N		<u> </u>	· · ·
Parameters Unit Limit as per NAAOS 2009 Method of Test Sampling Station / Result 1. Carbon Monoxide (CO) mg / m³ 4 IS 5182 (Part-10) 0.227 2. Benzene (C _s H _e) μg / m³ 5 IS 5182 (Part-11) < 5.0						,	
Parameters	[o] : Analysis Start Date /:Ar	alysis Com				·.:	<u> </u>
1. Carbon, Monoxide (CO)	Parameters	Doit		4.			
2. Benzene (C _s H _e) μg / m ³ 5 (S 5(62 (Part-11)) < 5.0 3. Benzo(a) Pyrene ng / m ³ 1 (S 5162 (Part-12)) < 1.0 4. Arsenic (As) ng / m ³ 6 AAS Method 0.50 5. Nickel as Ni ng / m ³ 20 AAS Method 4.40		A11/2	NAAQS 2009	Test	Near at	the top of D	M Plant 😬
2. Benzo(a) Pyrene ng / m³ 1 (8.5162 (Part-12) < 1,0 4. Arsenic (As) ng / m³ 6 AAS Method 0.50 5. Nickel as Ni ng / m³ 20 AAS Method 4.40	1. Carbon Mohoxide (CO)	. mg/m³	4 ⁽⁴	IS 5182 (Rart-10)		0.227	.:-;
4. Arsenic (As) ng / m³ 6 AAS Method 0.50 5. Nickel as Ni ng / m³ 20 AAS Method 4.40	2. Benzene (C ₆ H ₆)	μg/m³	5	(S 5 (62 (Part-11)	;; ;;;	< 5.0	7.
5. Nickel as Ni ng / m³ ng / m³ AAS Method 1999 4.40	3.: Benzo(a) Pyrene	ng / m³	1 . 35,	IS 5162 (Part-12)	_::	. ≤.1.0	
5. Nickel as Ni ng / m³ ng / m³ AAS Method 1999 4.40	4. Arsenic (As)	ng / mi ^{s *}	6	AAS Method ::	. :	0.50	
a Manual Man Daniel Manual Man	5. Nickel as:Ni		20:	AAS Method	1,000	4.40	· :.;;;; ; ; ·
ab = c + c + c + c + c + c + c + c + c + c			Not Specified		112	0.60	



SHIBESHW Digitally signed by SHIBESHWAR PRAS AR PRASAD 1459:26 + 05:30

Verified by :

· Technical Manager



Authorized Signatory Quality Manager

Total Liability of our Laboratory is licelized to invoiced amound.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

1224C, Austhia, Road No. 5A, Palliphtra Colony, Page - \$00,013 (Bahar)

MAR +918676486249 - +919451047908

Allicheta | Prahoo.co in . info@diiv6text.com



CEST HO



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MIEERCO, GOVE OF MON, LINDER ENVIRONMENT (PROTECTION) ACT 1986, DEPT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BEHAR AND BINAR STATE POLLUTION CONTROL BOARD.

				194, 144
Ref. No. STH/TR/22-23/3516	'Dt'; 16.1.	1.2022 : Your Wo	tk Order No.: 40002850	67-037-1019 Dt.: 31.07.2022
era di dia n	•.: .:			a Super Thermal Power
	::_	1	Project	The state of the s
[a] :: Name and address of the	ië Customer		At: Tandwa	
Ela caracteria e			: Dist- Chatra : :	
fit and the second second		 	Jharkhand- 825	
[b] Details of Sample	<u>.:</u>	11.11		Moditioning (As per NAAQS)
[c] Sample Collected by [d] Sampling Location		7. 7. 7. 7. 7. 19 1	SHIVA TEST HOUS	the top of DM Plant
	·· ·		i 18.11255 (Part-1,2,3.	
(e) Method of Sampling (f) Sampling Environment	al Mandisias	· · · · · · · · · · · · · · · · · · ·	Temp: (°C)	29 Humidity (%) 68
[g] No & Type of Contain			and Orie poly Jarana	29 ((a)((a)) (3)
[h] Instrument ID	<u></u>	<u> </u>	RDS-3 FPM-3	: an angay anse
[i] Sample Quantity	::.		30:ml x 8:for each (NO2/SO2, NH3)
[j] Sample Code	· .		A-3516	7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
[k] Sample Condition on R	eceint :	1	Fit for Analysis	* * * * * * * * * * * * * * * * * * *
[f] Items required to be tes			As per contract :	
[m] Whether any specific N		er historium 1	11 (i.e. 1), 11	TRANSPORT TO THE LANG.
been suggested by the			No	
[n] Date of receiving the sa		. 770	28.10.22	
[o] Analysis Start Date / A			28.10.22 / 30.10.22	The state of the state of
11.00	: ["	Limit as per	Method of	Sampling Station / Result
Parameters	Unit	NAAQS 2009	Test	Near at the top of DM Plant:
1. Particulate Matter (PM ₁₀)	L μg / m³	100	::IS 5182 (Part-23)::	66.4
		60	CPCB	
2. Particulate Matter (PM ₂₅)	μg / m³	······:•	(GMAAP Vol. I)	37.6
3. Sulphur Dioxide as SO ₂	μg / m³	80	:: (\$ 5182 (Part-2)	13.1
4. Nitrogen:Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6)	31.6
5. Lead (Pb)	μg/m³	William .	IS 5182 (Part-22)	7:77 C.H. 0.148 F. CH.
s. Ammonia as NHs	μg / m³-	400	IS 5182 (Part-5)	jiji 3. 40 ii
7. Ogone (O ₂)	μg/m³	180	··· IS 5182 (Part-9)	
1, 3,				

AR PRASAD (3,34)540 +05'30'

Verified by : Technical Manager



Shreyasëe Prasad

p. 771,000

Date: 2022.11.16 13:49:03 +0530' http://dx.digitatory Quality Monoger

This report applies only to sample tested as above

Total Latelity of our Laboratory as lunked to involced amount;

Total Report endersed only the tests and not the product certificate.

4. ... Test Report can not be reproduced partially or full for legislocourt purpose without written permission of the Laborator

122-C; Aastha, Road No. 5A. Pathipuera Coloury, Panne - 400 0 J.3 (Bilbar)

Moli. 4918676886349 : +919431047944 Empil : artifamia)@jajhon.co.m : infn@ihivitesq

www.shireteest.com : www.shiretesthouse.com





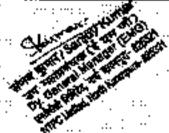
VA TEST HOUSE

(Serving since 1988)

AS ENVIRONMENTAL LABORATORY BY MORFOC, GOVT, OF INDEX, UNDER ENVIRONMENT (PROTECTION) ACT 1908, DEPT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

				'. i		:	
Ref. No. STH/TR/22-23/3516(/	1) Dt: <i>I</i> :	6.11:2022 Your	Work Order No. 400	0285067-037	-1019 Dt: 31	1.07.202	
		•	North Karanpi	ra Super '	Therma) Pow	éτ	
		·:	Project		· · · · · · · · · · · · · · · · · · ·		
[2] Name and address of the	Englomer		At: Tandwa	4.3		٠:	
[1]	- CUNNAINA		:: Dist-Chatra				
il. He had	* : : : -		Jharkhand- 8	06 201			
b] Details of Sample	• • • • • •	<u>:</u>	Ambient Air Qua		er (de ner Md)	V067 :	
c Sample Collected by	:	-:	SHIVA TEST HO			<u></u>	
		··.				·	
d] Sampling Location			Collected from Near				
e] Method of Sampling		·	IS.11255 (Part-1,2,				
f] Sampling Environmental			Temp. (°C)	. 29	Humidly (%)		
g) No. & Type of Container	г ·		∷: Of iĕ poly Jar∷	· ··· ·			
h] Instrument ID	:. i '		RDS-3, FPM-3				
Sample Quantity		::.	30 mil x 6 for ea	ch (NO ₂ , SC	D ₂ , NH ₃)	' - i;	
Sample Code	:		A-3516			:	
t]. Sample Condition on Re	ceipt	·	··· Fit for Analysis	:	·.: ·		
li Items required to be teste	M		As per contract				
m] Whether any specific Me		sı has	` ``` ` `				
been suggested by the pa			No :				
Date of receiving the san		· · · · · · · · · · · · · · · · · · ·	28.10.22		 		
Analysis Start Date / An		pletion Date	28/10/22 / 30/10.	22			
	:	Limit as per	Method of		ng Station / R	esult .	
Parameters	Unit	NAAQS 2009	Test		the top of DM		
Carbon Monoxide (CO)	mg/m³	. 4	IS 5182 (Part-10)	· · · · · · · · · · · · · · · · · · ·	0.568	i imit	
	μg / m ³	···· :E	IS 6182 (Part-11)		< 5.0		
Renzene (C.H.)			120.07 (Laut. 1)		7 3.0		
			IC 6490 (Ded 40)				
. Benzo(a) Pýreňe	ng / m³	1	IS 6182 (Part-12)		.< 1.0 :		
. Benzo(a) Pyretie . Arsenic (As)	ng / m³ ng / m³	6	AAS Method		0.50		
. Benzene (C ₆ H ₆) . Benzo(a) Pyretie . Arsenic (As). . Nickel as Ni	ng / m³			· ··		: ."	



SHIBESHW SHIBESHWAR PRASAD AR PRASAD 13:48:53 +05:30

> Verified by : Technical Manager



Shreyasee Prasad

Date: 2022.11.10 15/49/16 +05/30 Authorized Signatory

Quality Manager

This report applies only to sample tested as above.

Total Clability of our Laboratory is limited to invoiced amount. Test Report endorsed only the lests and not the product distribution.

Test Report can not be reproduced partially or full for legisloourt purpose without written permission of the Laboratory.

172-C. Assitta, Road No. SA, Patiliparta Colony, Patna - \$00 013 (Bihar).

Mob.: +9| 3676386349 : +919471047908 Enish Sthourse I @ valuo oco un : Imfo@shwarest.com

Website: www.shinistest.com; www.shivatesdoone.com



VA TEST HO



(Serving since 1988)

ENTAL LABORATORY BY MORFOC, GOVE OF MOIA, LINDER ENAROMMENT (PROTECTION) ACT 1986, DEPIT. GOVE OF BHAR AND BRIAN STATE POLLUTION CONTROL BOARD

1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	٠	:-::: :	1	1	244 CB
Ref. No. STH/TR/22-23/3521	Dt: 16.11.20	922 Your W	ork Order No.: 400024	5067-037-1019	Dt : _31.07.2022
:			North Karanpu	a Super Therm	al Power
ֆանում կնում և և			Project		
[a] Name and address of the	té Customer	. :	AL Tandwa	. #41 /2 -41 *	::, .,
		- '''	Dist-Chatra: :	,.:: '' ·	* · · · · · · · · · · · · · · ·
· · · · · · · · · · · · · · · · · · ·		. : ;;;	Jharkhand- 82	5/321	· · · · ·
[b] Details of Sample	·:		Ambieut Air Quality	Monitoring (4s per .	NAAQS;
[c] Sample Collected by	`::	:::::::::::::::::::::::::::::::::::::::	SHIVA TEST HO	USE on 28,10.22	2
[d]: Sampling Location	::-::: :-i	-::	Collected from Near a	the top of DM Plant	:: : : : : : : : : : : : : : : : : : :
[e]: Method of Sampling		;;;:	IS 11255 (Part-1,2,3	& 7)	A #
[f] Sampling Environment	al Condition	. !	Temp: (°C)	29: Humidity	(%) 68
[g]: No. & Type of Contain			One poly Jar		
_E [h] Instrument (D)	· :::: ': : .		ROS-3, FPM-3		· · · · · · · · · · · · · · · · · · ·
[i] Sample Quantity	·:	10.50	30:ml x 8 for each	(NO ₃ : SO ₃ : NH ₃)	· · · · · · · · · · · ·
[j] Sample Code	*::	:: **:	A-3521		fa. 1 A s.
[k] Sample Condition on R	eceipt::::::	: .:	Fit for Analysis	[] [] []	(r 1)
[I]: Items required to be tes		:::	: As per contract :	·	
[m] Whether any specific N		has	Mini in	, H. W. G. L	. ::::.::::
been suggested by the		FF F	No::::		. : 100.000
[n] Date of receiving the sa		43.0	29.10.22	.:.' (# P	<u>````</u>
[6] Analysis Start Date / A	nalysis Compl	letion Date	29.10.22/31.10.	22	· · · · · · · · · · · · · · · ·
10.08	70.	Limit as per	Method of	:Sampling Sta	ation / Result
Parameters	Unit	VAAQS 2009	Test sin		p of DM Plant
1. Particulate Matter (PM ₁₀)	µg7 m³	100	IS 5182 (Part-23)	6.7	.0
2. Particulate Matter	1	1.1	CPCB		
: (PM _{2.5})	μg/m³	60	(GMAAP Vol. I)	38	8.4 × 1.3000 75.
3. Sulphur Dioxide as SO ₂	μg.//m³	80 ::	IS 5182 (Part-2)	1: 1 ¹ 13	1.5% × 1.5%
4. Nitrogen Dioxide as NO ₂	μg/m³	: 80	(S 5182 (Part-6)	32	2.3
5. Lead (Pb)	μg/m³	No. M 10	IS 5182 (Part-22)	9:11:10.0	
& Ammonia as NH ₈	μ g / m ³	400	(S 5182 (Part-5)	1.36	
7. Ozone (Q.)	<u>нд 7 m³</u>	180	1S 5182 (Part-9)	11	
7. CZORCICOS	low Mary and a	. 100.	19 0.195 (temper)	1 12	of 1,7 715.



AR PRASAD 13.47:09 +05'20"

Verified by : Technical Manager



Shreyasee Prasad

Shreyasee Prasad Date: 2022.11.16 13:54:02 +05:30 Ailthorized Signatory Quality Manager

This report applies only to sample tested es above

Test Report endersed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legislocuit purpose without written permission of the Laboratory

122°C. Aasthá, Road No. SA. Pálilpéara Colony, Patris - \$00 015 (Bihar)

M66. +918676486249 .+919434647908-

Email: Standard Stratego, on in : info@thivate

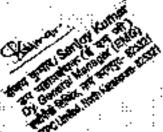
unamphinales com com



ENTAL LABORATORY BY MORFOC, GOVT. OF SHOW, UNDER ENVIRONMENT (PROTECTION) ACT 1968, BEFOR RECOGNISED AS ENVIRON ENT, GOVT. OF BEAR AND BEIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

		1	i'		
Ref. No. STH/TR/22-23/3521(À) Dt; 16	611.2022 Your !	Work Order No. 400 0	285087-037-1019	Dt: 31:07.2022
	- : :	· .:	North Karanp	ura Super Thern	ist Power
		. : ."	Project	·:	
[a] Name and address of the	Customer	:	At: Taridwa	. 2 1.11.* *	:::::: :
7 1 . 11. 11. 11. 11. 11. 11. 11. 11. 11.	٠	.: .	Dist-Chatra		
			Jharkhand- 8		··· _: ∵
[b] Details of Sample	• :		Ambient Air Que	dity Manitoring (As	per NAAQS) :::
[c] Sample Collected by :	·::	· .:		10USE on 28,10,2	
[d] Sampling Location				at the top of DM Plant	
[e] Method of Sampling	:: : :	·· ::	IS 11255 (Part-1,2		
[f] Sampling Environmenta	I Condition	i ::	Temp: (°C)		₩y (%) ··· : 68
[g] No. & Type of Contains			: Orie poly Jar:.	· ·	;
[h] Instrument ID	•	_ : : : : :	RDS-3, FPM-3	· · · · · · · · · · · · · · · · · · ·	:: ·:
i] Sample Quantity		· .	30 ml x 6 for ea	ech (NO ₂ , SO ₂ , NH	a)
[j]Sample Code	`		A-3521	· · · · · · · · · · · · · · · · · · ·	· · · .
[k] Sample Condition on Re	ceipt		Fit for Analysis		:
$[{f l}_{m l}]$. Items required to be test	eq .		As per contract	i ···	.: : .
[m] Whether any specific M	ethod of Te	\$t h≊9∷∷∷	N _O	: ": ' ' :	; ' ;'
been suggested by the pa	arty .	:	. NO		:
[n] Date of receiving the sai	mple	: ::	29.10.22	·:	:
[o] Analysis Şlart Date / An	alysis Com	pletion Date	29.10.22731.1	0.22	
Bernmater	: : 11_9	Limit as per	Method of	Sampling Sta	tion / Result .
Parameters	Unit	NAAQS 2009	Test	Near at the to	of DM Plant
. Carbon Monoxide (CO)	mg·/mi ³	4	IS 5182 (Part-10)	0.7	96
2. Berizene (C _s H _e)	. μ <u>α / m</u> ³	55	IS 5182 (Part-11)	< 5	5.0
3: Benzo(a) Pyrene	ng / m³	1	(S 5182 (Part-12)	<-1	.,0…:
4. Arsenic (As)	ng /:m³		AAS Method	0.2	21
5. Nickel as Ni	ing / m³	• 20	AAS Method	::. :: ' 4.'	1
S. Mercury (Hg)	μ g / m³	Not Specified	USEPA)O1···



AR PRASAD

Verified by: Technical Monager



Shreyase Prasad

Date: 2022.11.16 13:54:18+05'30' Authorized Signatory Quality Manager -

- Total Lisbility of our Laboratory is similed to invoiced amount. Test Report endorsed only the tests and not the product darbitidate.
- Test Report Can not be reproduced partially or full for legal/court purpose without written permission of the L

Contact us :

125-C: Advillo, Road No. SA, Paulpuite Colony, Patria – 800 013 (Billion)

Mob., +91\$6768\$6249 ; +919431047908**

WWW Shovaled one; www.phivalesthouse

silubtrationalice co.in . modestivate





ENTAL LABORATORY BY MOEFCC, GOVT, OF INDIA, UNDER ENVIRON IENT, GOVT, OF BHAR AND BRIAN STATE POLLUTION CONTROL BOARD

	to the second of
Ref. No. STH/TR/22-23/3555 Dt 16.11.2022 Your	
	North Karanpura Super Thermal Power
Maria de la Carta de	Project A Mark Alexander 1998
[8] Name and address of the Customer	At: Tandwa
 Fig. 1.25 Training at 1.25 Training to 1.25 Training 	Dist-Chatra
	Jharkhand- 825 321
[b] Details of Sample	Ambient Air Quality Monitoring (As per NAAQS)
[e] :: Sample Collected by	SHIVA TEST HOUSE on 01.11.22
[d] Sampling Location	Collected from Mean at the top of Tejasavi Building (Township)
[e]:Method of Sampling	· · · · · · · · · · · · · · · · · · ·
[f] Sampling Environmental Condition	Temp:(°C) 29 Humidity (%) 68
[g] No. & Type of Container	3 One poly Jan 1 3 3 10 10 11 11 11 11 11 11 11 11 11 11 11
[g]. No. & Fype of Container [b] Instrument ID.	P. RDS-1, FPM-1
[i] Sample Quantity	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)
[j] Sample Code	A-3555 H. 75 H. 164 3. H.
[k] Sample Condition on Receipt	Fil for Analysis
[I]: Jiems required to be tested	As per contract
[m] Whether any specific Method of Test has	14 A 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
been suggested by the party	Notice of the set of
[n] Date of receiving the sample.	02.11.22
[6] Analysis Start Date / Analysis Completion Date	02,ft,22/04.11.22
- 40 h	Sampling Station / Result:
Parameters Unit Limit as per NAAQS 2009	Method of Near at the iop of Tejasavi
H MAAQS 2009	Test Building (Township)
1. Particulate Matter (PM ₁₀) µg / m ³ 100	IS 5182 (Part-23) 69.8
2 Porticulate Motton 1997 1997 1997	CPCB and strong of appropriate to the
(PM _{2.5}) µg7m³ 60	(GMAAP Vol. 1) 38.6
3. Sulphur Dioxide as SO ₂ :: µg / m ³ ::: 80	IS 5182 (Part-2) 11.9 11.9
4. Nitrogen:Dioxide as NO _{2::} μg / m ³ 80:	IS 5182 (Part-8) 32.0
γο Lead (Pb) μg / m³ 1	IS 5182 (Part-22) 0.19
e. Ammonia as NHs µg / m³ 400	
7. Ozone (O ₃)	IS 5182 (Part-9) 18.5 i



Digitally signed by SHIBESHWAR PRASAD Date: 2022.11.16 15:18:06 +05:30

Verified by: Technical Manager



Dogitally signed by :: Shreyasee Presad Date: 2022.11.16 15:22:13 +05/301

Authorized Signatory: Quality Manager

This report applies only to sample tested as above.

Total Liabitay of our Laboratory is: impled to inversed amount

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written peop

132-C; Astille, Road No. 5A, Palliptine Golony, Pains - 100-013 (Billian)

Mabi +918676886349 ; +919491047908

<u>all-harra l'éMahon co an ; jinfo/è</u>



SHIVA TEST HOUSE

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MARFCC; GOVT. OF INDIA. UNDER ENVIRONMENT (PROTECTION) ACT 1986; DEPTT. OF INDIASTRY, FORESTS & ENVIRONMENT, GOVT. OF SHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

<u> </u>			
Ref. No. STM/TR/22-23/3555(A) I	ot: 16.11.2022 "Your"		
· · · · · · · · · · · · · · · · · · ·	::	North Karanpe	ira Super Thermal Power
		Project	17 10.0
[a] Name and address of the Cus	tomer	At: Tandwa	
77 PH H PH P H	""	Dist-Chatra	
		Jharkhand- 8	<u> 25 321</u>
[b] Details of Sample		Ambient Air Qua	lity Mönitoring (As per NAAOS)
[c] ::::Sample Collected by		SHIVA TEST HO	USE on 01. 11.22
[d] Sampling Location	`i.i. · · ·:	Collected from New	at the top of Tejasavi Smilding (Township)
[e] Method of Sampling		IS 11255 (Part-1,2	3& ን
[f] Sampling Environmental Cor	idition	Temp. (°C)	29 Hurnidity (%) 68
g) No. & Type of Container	· · · · · · · · · · · · · · · · · · ·	: One poly Jar	:. ''
h) Instrument ID		RDS-1, FPM-1	··· : · · · · · · · · · · · · · · · · ·
[i] :: Sample Quantity :: :	:	30 ml x 6 for ea	ch (NO ₂ , ŞO ₂ , NH ₃)
[j] Sample Code	•	A-3555	
[k] Sample Condition on Receipt	<u>r jii. </u>	··· Fit for Analysis	
Items required to be tested		As per contract	· · · · ·
[m] Whether any specific Method	of Test bas		
been suggested by the party		No	
[n] Date of receiving the sample		02,11,22	·.: ·
[o] Arialysis Start Date / Analysi	s Completion Date	02.11.22 / 04.11.	22 - :: :: :::
	· · · · · · -	4 Wildelin and 1-4	Sampling Station / Result
Parameters I,	Init: Limit as per	Method of:	Near at the top of Tejasavi
	MAAQS 2009	: Test :	Building (Township)
Carbon Monoxide (CO) mg	/ m³ 4	IS 5182 (Part-10)*	0.341 · . · · ·
	/:m³-: 5 :::	IS 5182 (Perl-11)	< 5.0
	/m³ 1	(S 5182 (Part-12)	×1.0
	/m³6.	AAS Method	0.47
	/m³ ::: 20:	. AAS Method	2.86
'.':::'	··::	USEPA	· · · ·
6. Mercury (Hg) µg	/m³ Not Specified	:: (Method IO-5):::-	0.43
			



AR PRASAD Date: 2022.11.16

Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by
Shreyasee Prasad
Daxe: 2022.11.16
15:22:25:+05:30'
Authorized Signatory

Quality Manager

END OF TEST REPORT

. This report applies only to sample tested as above.

Total Lightly of our Laboratory is firmled to invested amount.

Test Report andorsed only the tasks and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

Mametal at use 1

122-C: Aastha, Road No. SA, Patliptera Colony, Paner - \$00 013 (Bihar)

Mob.: +918676886249 : +91943104790\$ E

silmatus i@yahoo.on.in ; info@shivaest com

Website: www.shlverex.com . www.shirstesthouse.com

Page I of I



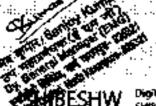
FEST HOUS



(Serving since 1988)

ABORATORY BY MAEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1989, DEPTT. BHT, GOVT, OF BHIAN AND BHIAR STATE POLLETION CONTROL BOARD OF HIDUSTRY, FORESTS & ENVIRON

<u> </u>	
	Work Order No.: 4000285067-037-1019 Dt : 31.07.2022
	North Karanpura Super Thermal Power
	Project, as the first organization of the project o
[a] Name and address of the Customer	At: Tandwa
	Dist-Chatra
	Jharkhand 825 321
(b) Details of Sample	Ambient Air Quality Monitoring (As per NAAOS)
[c] Sample Collected by	SHIVA TEST HOUSE on 02 11,22
[d] Sampling Location	Collected from Near as the top of Tejasavi Building (Township)
[e] Method of Sampling.	IS 11255 (Part-1,2,3 & 7)
[f] Sampling Environmental Condition	Temp.(°C) 27 Humidity (%) 69
g]. No. & Type of Container	One poly Jar
[h] Instrument [D]	RDS-1, FPM-1
[i] Sample Quantity	30 ml x 6 for each (NO ₂ , SQ ₂ , NH ₃)
[j] Sample Code	A-3573
[k] Sample Condition on Receipt	Fit for Analysis
[I]: Items required to be tested	- As per contract 2 and house a 2 and house
[m] : Whether any specific Method of Test has ::	No.
been suggested by the party	The property of the state of th
[n] Date of receiving the sample	03.11.22
[o] Analysis Start Date / Analysis Completion Date	03:11.22 (05.11.22
	Method of Sampling Station / Result
Parameters Unit Limit as per	Many of the Total and
NAAQS 2009	Test Building (Township)
1. Particulate Matter (PMie) µg / m³ 100°	IS 5182 (Part-23) 69.4
2: Particulate Mattec	COCR
2. Particulate water μg t m³. 60	(GMAAP Vol. I)
3. Sulphur Dioxide as SO ₂ grg / m ² grs 80 c	IS 5182 (Part-2) 13.6
I. Nitrogen Dioxide as NO ₂ μg / m ³ 80.	IS 5182 (Part-6) 33.6
3. Lead (Pb) μg/ m³ 1	
6. Ammonia as NH ₃ µg / m ³ 400	IS 5182 (Part-5) 4.7
7. Ozone (O ₃) μg / m ³ 180	IS 5182 (Part-9) 15.3
1. Carolic (Sca) / Nat III	



Dig 18lly signed by SHIBESHIWAR PRASAD AR PRASAD 15 2000 + 105 30 Date: 2022.11.16

Verified by : Technical Manager



Shreyasee Prasad

Orgitally signed by Shreyasee Prasad Date: 2022,11.16 15:26:33 +05'30' Authorized Signatory ... Quality Manager :

This report applies only to sample tested as above.

Total Liability of our Laboralovy is limited to devoiced amount.

Test Report andorsed only the select and not the product conflicate.

. Lest Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C, Aastha, Road No. SA. Philiputch Colony, Palme - 600-013 (Palme)

Mob. 4918676886149 . 4919431047908

Sthoetaal unvehoo.co.in : info@shiwatest.com





VA TEST HOUSE

(Serving stace 1988)

TAL LABORATORY BY MINEFEC, GOVT, OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEFIT. ENT, GOVE OF BEHAR AND BHAR STATE POLLUTION CONTROL BOARD

	··: ·.	:	1 1111	:· .	: ' : :::::			
Ref. No:: STH/TR	/22-23/3573(A)) Dt: 16	11.2622 Your \	Work Order No. 400	0285067-037-1019 Dt : 31.07.2022			
::::		:::::			ura Super Thermal Power			
. :			. :	Project	— · · · · · · · · · · · · · · · · · · ·			
rate in market and		· .	:: :: : : : : : : : : : : : : : : : :	At: Tandwa				
[a] Name and	address of the (customer	`.:. ``					
.:	٠.	:::::::::::::::::::::::::::::::::::::::		Dist-Chatra				
·	•••			Jharkhand 8				
[b] Details of	Sample			Ambient Air Qua	lity Monitoring (As per NAAQS) 💛			
[c] Sample C	illected by::.	·		SHIVA TEST HO	USE on 02.11.22			
[d]: Sampling	Location	11:44:1	. ::::	Collected from New	at the top of Tojasavi Building (Township)			
[e] Method of	Sampling			IS 11255 (Part-1,2	3&7) .			
[1] Sampling	Environ ment al •	Condition	*******	Temp: (°C);	- 27 Humidity (%) :: 65			
[g] No. & Ty	e of Container	*:		One poly Jar				
h] Instrumen	im∵:	· :-: ·	•	RDS-1, FPM-1	· · · · · · · · · · · · · · · · · · ·			
(i) Sample Q	uantity.			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample C	ode i iii .	:	7.3 + 7.5	A-3573				
{k}: Sample G	ondition on Rec	eipt · ··· .		Fit for Analysis				
[l] Items requ	ired to be tested	l ::.		As per contract				
[m] Whether a	ny specific Met	hod of Tes	t has	·. ·	·: ·· ··			
	ested by the par	tv ·		No				
	eiving the sam			03,11,22				
	tart Date / Ana		letion Date	03.11.22/05.11.	22			
[e] Hadiyasa		:	Jenor Date	99,77,227,99,17,				
	::		Limit as per	Method of	Sampling Station / Result			
Paramet	eie	Unit	NAAQS 2009	Test	Near at the top of Tejusavi			
<u> </u>	::	::	144.40		Building (Township)			
1. Carbon Mono:	ide (CO) 🙄	mg / m³	· . 4·.	IS 5(82 (Part-10)	· · · · · · · · · · · · · · · · · · ·			
2. Benzene (C _o t	la) ····	μg / m³	5 :	(\$ 5162 (Part-1.1)				
3. Benzo(a) Pyro		ng / m²	1 ::.:	(\$ 5162 (Part-12)	< 1.0			
4. Arsenic (As)		ng / m ³	: .6 :	AAŞ Method				
4. Alberiic (As)								
5. Nickel as Ni		ng/m³	20	AAS: Method	5.68			



SHIBESHW

Digitally signed by SHIBESHWAR PRASAD AR PRASAD DME: 2022.11.16

· Verified by : Technical Manager



Shreyasee Prasad

Cate 2022 | 1.16 15-26-57 +05'30'

Authorized Signatury · Quality Manager ·

This report applies only to sample tested as above.

Total Liability of our Laboratory is fimited to invoiced areaugh.

Teel Report endorsed only the least and not the product certificate.

.Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

122°C, Alestra, Road No. SA, Patliputes Colony, Patra - 800 0 | 3 (Bihari

Nobi: +918676486249 : +919451047908

subnamal@vahoo.co.in . info@shiywest.c

Page I of I



EST HOUSE

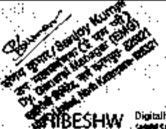




RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF HIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF HIDUSTRY, FORESTS & ENVIRONMENT, GOVT: OF BIHAR AND BHAR STATE POLLUTION CONTROL BOARD

<u>Test report</u>

Ref. No. STH/TR/22-23/382	5. Dr : 06.12.2022 Your	Work Order No. 4000285087-037-1019 Dt : 31.67.2022				
		North Karanpura Super Thermal Power				
	ovo in the comment of	Project and a second a second and a second a				
[a] Name and address of	the Customer	At: Tandwa				
esis "E M I "		Dist-Chatra				
		Jharkhand 825 321				
[b] Details of Sample	<u> </u>	Ambient Air Quality Montgoring (As per NAAQS)				
[c] Sample Collected by.	<u>eliqui quilligui.</u>	SHIVA TEST HOUSE on 08.11.22				
[d] Sampling Location	1., 1.	Collected from New at the top of Tejasati Bullillag (Township)				
[e] Method of Sampling		IS 11255 (Part-1,2,3 & 7)				
[f] Sampling Environmen		Temp: (%) 26 Humidity (%) 67				
g] No. & Type of Contain	ner i i i i i i i i i i i i i i i i i i i	One poly Jar				
[h] Instrument [D	···· ··· <u> </u>	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1				
[i] Sample Quantity	<u>in 4 filio di Santanti.</u>	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)				
. 4,4,4,5,5,5	التاكيب الأعام المنافرة	A-3825				
[k] Sample Condition on	Receipt	Fit for Analysis				
[1] Items required to be to	eșted , rimor in pa					
[m] Whether any specific		Till i terrin deleta				
been suggested by the	party	No				
[n] Date of receiving the		09.11.22				
[0] Analysis Start Date / 1	Analysis Completion Date	09.11.22/11.11.22				
200		Method of Sampling Station / Result:				
Paremeters	Unit Limit as per NAAQS 200	Mean of the ten of Poincomi				
	INAMOS ZON	Building (Township)				
1. Particulate Matter (PM ₁₀)	100 m ³	IS 5182 (Part-23) 72.2				
2. Particulate Matter.		Section CPCB to the last termination of the section				
(PM _{2,5})	μg / m³ 60	(GMAAP Vol. 0) 39.7				
3. Sulphur Dioxide as SO ₂	μg/rn³ 80 :	IS 5182 (Part-2)				
Nitrogen Dioxide as NO:		IS 5182 (Part-6) 34.7				
a: Lead (Pb)	μg / m³ 1	IS 5182 (Part-22): 0.18				
6. Ammonia as NH ₃	μg/m³ :400;···	IS 5182 (Part-5) 5.2				
7. Ozone (O ₁)	μg/m² 180	IS 5182 (Part-9) 21.3				
	-1 half 2 and 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	The second research is a second secon				



Digitally signed by SMINESHWAR PRASAD

AR PRASAD (300 2022.12.07

; Verified by :

· Technical Manager



Shreyasee

Prasad

Digitally signed by Shreyasee Prasad Date: 2022-12:07

15:36:58 +05'30'

Authorized Signatory Quality Manager.

Total Liability of our Laboratory is limited to involved amount,

Test Report endorsed only the tests and not the product conficulty.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C, Aestha, Roed No. 5A, Pollepuira Colony, Panta - 206 013 (Ribar).

Mob : 4918676186249 _+919432047908

stipere l'araboo com . Info@shratesi.com



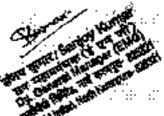
VA TEST HOUS

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MAEFOE; GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEP OF BIOLISTRY, FORESTS & SIMPROMISENT, GOVT, OF BIHAR AND BHAR STATE POLLUTION CONTROL BOARD

<u>test report</u>

Ref. No. STH/TR/22-23/3825(A): Dt : 06.12.2022 Your	Work Order No. 4000285087-037-4019 Dt : 31.07-2022				
	North Karanpura Super Thermal Fower				
	Project				
[a] Name and address of the Customer :::	At: Tandwa				
	Dist- Chatra				
	Jharkhand- 825 32 1				
[b] Details of Sample	Ambient Air Quality Monitoring (As per NAAQS)				
[c] Sample Collected by	SHIVA TEST HOUSE on 08.11.22				
[d] Sampling Location	Collected from Near at the tap of Tejasavi Building (Township)				
[e] Method of Sampling	18 11255 (Part-1;23 & 7)				
[f] Sampling Environmental Condition	Temp. (°C): 28 Humidity (%) 67				
g] No. & Type of Container	One poly Jar				
լլի] Instrument 1D	: -RDS-1, FPM-1 ::- :: :: :: ::				
[i] Sample Quantity	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₅)				
[i] Sample Code : : : : : : : : : : : : : : : : : : :	A-3825: .1:6				
[k] Sample Condition on Receipt	Fit for Analysis				
[[] Items required to be tested	As per contract				
[m] Whether any specific Method of Test has	l säleja – kona – sola l				
been suggested by the party	No				
[n] Date of receiving the sample	09.11.22				
[o] Analysis Start Date / Analysis Completion Date	09.11.22/11.11.22				
Limit as per	Method of Sampling Station / Result				
Parameters Unit NAAQS 2009	Test Near at the top of Tejasavi				
4.0-4444-(00)(-3) 4	Building (Towaship)				
1. Carbon Monoxide (CO) mg / m³ 4	IS 5182 (Part-10) 0.798				
2. Benzene (C ₂ H ₃) µg / m ² 5	IS 5182 (Part-11) 0:25				
3. Benzo(a) Pyrene ng / m ³ 1	: (\$ 5182 (Part-12) 0.15				
4. Arsenic (As) ng / m³ 6	AAS Method 0.43				
Nickel as Ni ng / m³ 20	AAS Method :: 8.53 ::				
6. Mercury (Hg) ng / m³ Not Specified	US EPA				
	(markets are 4)				



Digitally signed by SHOBESHAWAR PRASAD AR PRASAD Date: 2022.12.07

Verified by Technical Manager

Patria

Shreyasee Prasad

Digitally signed by: Shreymee Praspo Date: 2022.12.07 75:37:11 +05'30' Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is firmled to involced amount.

Test Report endorsed only the toels and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

Contact us:

172-C., Arsthe, Road No. 5A. Pathfeette Colony, Patris = 800 013 (Bilber).

Mob: 4918676886249 - 4919471047908

sabrama (@vahoo.co.m. . Info@slin/ares





RECOGNISED AS ENVIRONMENTAL EMBORATORY BY MOSPCC, GOVT. OF INDIA, LINCOL SENVIRONMENT (PROTECTION) ACT 1985, DEPTT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/3830	9 Dt : 96,	12,2822 Your Wo	rk Order No. 40002850	067-037-1019 Dt 31-07-2022
Time at the state of	:	·:		a Super Thermal Power
· ·· · · · · · · · · · · · · · · · · ·		· ˙ :.:··· ˙	Project	
[a] Name and address of the	e Customer		At: Tandwa	그 경우 살 하는 그는 것은 것이다.
			Dist- Chatra	
	<u> </u>		Jharkhand-825	-
[b] Details of Sample ::::	<u>::</u>	1.17 ::::		Monitoring (As per NAAQS)
[c] Sample Collected by			SHIVA TEST HOUS	
[d] Sampling Location	:::::::::::::::::::::::::::::::::::::::	94 99		the top of Tejasari Building (Township)
[e] Method of Sampling			IS 11253 (Part-1;2,3)	
[f]Sampling Environments		<u>h </u>	Temp: (⁰€)	29 Humidity (%) 66
[g] No. & Type of Contains	<u> </u>			Maria - 17 - 17 - 17 - 17 - 17 - 17 - 17 - 1
[h] Instrument ID			RDS-4 FPM-4	
[i] Sample Quantity	:::	1 11 11	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)
[j] Sample Code	:".	· · · · · · · · · · · · · · · · · · ·	A 3830	
: [k]. Sample Condition on Re	eceipti . ·	1	Fit for Analysis	
[i] Items required to be test			 As per contract 	
[m] ···· Whether any specific M		est has:	No	101.14
been suggested by the p		:	1 1 1 1 1 1	: '
[n] Date of receiving the sa		<u> ::- </u>	11.11.22	200
[o] Analysis Start Date / Ax	rallysis Con	npletion Date	11.11.22 / 13 11.22	
	11.1	Limit as per	Method of	Sampling Station / Result
Parameters 1	Unit	NAAGS 2009	Tesi	Near at the top of Tejasavi
	**		100	Building (Township)
Particulate Matter (PM ₁₀)	ug/m³	100	IS 5182 (Part-23)	71.4
2. Particulate Matter	μg / m³	60	CPCB	39.5
(PM ₂₅)	٠.	: "	(GMAAP Vol. ()	11 11 11 11 11 11
3. Sulphur Dioxide as SO ₂	μg / m²	80	IS 5182:(Part-2)	12.4
Nitrogen Dioxide as NO ₂	μ α / m³	80	IS 5182 (Part-6)	- Parti 34.7 - Count
Lead (Pb)	μg / m³	1 : .	IS 6182 (Part-22)	0.20
te. Ammonia as NH;	μg / m³	400	IS 5182 (Parl-5)	[[]]:3,9
o. Priminos and morning		180		20.7



Digitally agned by SHEEPSHWAR PRASAD AR PRASAD 0016: 2022:12:07 15:32:27 +05'30'

· Verified by : Technical Manager



Shreyasee Prasad

Shrayasee Prasad Date: 2022 12:07 15:e0:10 +05'30'. Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Tost Report endorsed only the tests end not the product certificate.

Test Report can not be reproduced partially or full for legislicount purpose without written permission of the Laboratory.

122-C: Assitto, Road No. 54. Pattiputat Colony, Patris = 800 013 (Ribar)

Mob.: +918676886249 ; +919431047908 · Finant stheolina (@rethoo.co.m. min@ethiyatesa.com

Website: www.shivated.com .prove.shivatesthous



VA TEST HOUSE

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOFFCC, GOVE OF MOM, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPT OF UNDUSTRY, FORESTS & ENVIRONMENT, GOVE, OF BEHAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/3830(A) Dt : 06	12.2022 Your V	Vork Order No. 4000	285067-0	37-1019 Dt: 31.0	7.2022	
. :	• •		North Karanpt	ıra Supe	r Thermal Powe	er e	
<u> </u>			Project		·		
(a) Name and address of the	: Customer	٠	At: Tandwa				
1.1.			Dist- Chatra	···. ·			
	<u>'.</u>	·	Jharkhand- 8:	25 321	<i>;</i>		
[b] Details of Sample		:	Ambient Air Qua	lity Monite	iring (As per NAA)	25)	
[c] Sample Collected by			SHIVA TEST HO	USE on 0:	9.11/22		
[d] Sampling Location		٠ .	Collected from Near	at the top of	Tejasad Bullding (To	ne <i>mskilp)</i> .	
[e] Method of Sampling		· ·	18 11255 (Part-1.2,	3 & 7) .			
[f] Sampling Environmenta	l Condition	:. ·.	Temp. (ºC)	29	Humidity (%)	66	
[g] No. & Type of Containe	т ·		One poly Jar	: : :	:	• .	
[h] Instrument ID		···	RDS-4, FPN-4	•	·: ::	:	
[i] Sample Quantity		: ::	30 ml x 6 for each	1 (NO ₂ , SC	D ₂ , NH ₂)	::	
[j] Sample Code		*	A-3830				
[k] Sample Condition on Re	ceipt	· ·	Fit for Analysis	· !-	:		
[1] Items required to be test			As per contract				
[m] Whether any specific M		st has			····.		
been suggested by the pa		٠.	No	: :	::		
[n] Date of receiving the sai		. "	11.11.22	·	· :		
[o] Analysis Start Date / An		pletion Date	11.11.22 / 13.11.	22	: :	: .	
				Sam	pling Station / Re	sult	
Parameters	Qivil	Limit as per	::: Method of		at the top of Teja		
:.		NAAQS 2009	Test		milding (Township		
1. Carbon Monoxide (CO)	mg/m³	· 4	(\$ 5182 (Part-10)		0.23		
2. Benzene (CtHs)	μg / m³	5	IS 5182 (Part-11)		0.10	•	
3. Benzo(a) Pyrene	ng / m ^a	1 1	(S.5182 (Part-12)	<u></u>	0.18		
Arsenic (As)	ng/m³	. 6	AAS Method	•	0.46		
* Nickel as Ni	ng / m³	20	AAS Method		1,43		
6. Mercury (Hg)	μ g 7 m ³	Not Specified	US EPA (Method 10-5)	. ::	0.39		



Digitally signed by SHIBESHIWAR PRASAD: ... AR PRASAD (0816-2022-12:07-

Verified by : Technical Manager



Shreyasee Prasad

Date: 3022.12.07 15:44:05 405:30.

Authorized Signatory Quality Manager

This report applies only to sample tested as above:

Total Liability of our Laboratory is limited to trivoced amount.

Test Report endorsed only the tests sind not the product certificate.

Test Report can not be approduced partially or full for legaticourt purpose without written permission of the Laboratory.

122-C, Austha, Road No. SA, Poligeons Colony, Penn, - 800,013 (Bilgo)

Mob.: 4918676586249 . 4919431047908 sthehme i @esthen co.in .. into@shikatest.com





VA TEST HOU



(Serving since 1988)

ENTAL LABORATORY BY MORFCC, GOVE OF MOM, UNDER ENVIRONMENT (PROTECTION) ACT 1985, DEPT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.: STH/TR/22-23/3883	Dr: 86.	2.2022 Your Wa	rk Order No. 4000286	5067-037-1019 Dt : 31.07.2022			
		<u> </u>	North Karanpu	a Super Thermal Power			
	-		Project	The American Company of the Company			
[a] Name and address of the	Customer		At: Tandwa				
	·· :-	v:.	Dist- Chatra	apin in the said in the			
	- :::::::	Ti	Jharkhand- 82	5 3 2 1			
[b] Details of Sample	:::::::::::::::::::::::::::::::::::::::		Amblem Air Quality	Monitoring (As per NAAQS)			
[c] Sample Collected by		4	SHIVA TEST HOU	SE on: 15.11.22			
d Sampling Location	::. ·::ˌ:	<u>.i</u>	Collected from Near a	the top of Tejasari Building (Township)			
[e] Method of Sampling	.:	· .	IS 11255 (Part-1,2,3	& 7)			
[f] Sampling Environmenta	i Condition	ı """, ", ", ", ", ", ", ", ", ", ", ", "	Temp. (PC)	26.0 Humidity (%) 0 62.00			
[g] No. & Type of Containe	ė	. 1. Per .	- One poly Jan	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
[h] Instrument ID	:;;; <u>;</u> ;;	• •	RDS-4, FPM-4	Title Annual Control			
[i] Sample Quantity	.::	** : 4. fa	30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₅)			
[j] Sample Code	:.: <u>:</u>		A-3883	111111			
[1k] Sample Condition on Re	cerpt	::-: ::	Fit for Analysis				
[1] Items required to be test			As per contract				
[m] Whether any specific M		st has	·/: · · :	:: 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 :			
heen suggested by the pr		. :. Ai .	No ::				
In Date of receiving the sai		T	16.11.22	<u> </u>			
[o] Analysis Start Date / An	alysis Com	pletion Date:	16.11,22,418.11.21	2			
3 1 1 1 1 1 1 1		ستأفذ مستفعدا	Method of	Sampling Station / Result.			
Parameters :-	Unit	Limit as per NAAQS 2009		Near at the top of Tejasavi			
. i sair — i a des is.	:	NAACIS 2009	Test	Building (Township)			
1. Particulate Malter (PMio):	μġ/m³	100::::	IS 5182 (Part-23)	72.0			
2. Particulate Matter	· · · · · · · · · · · · · · · · · · ·	25. 255 .	CPCB	atta da ser de la companya de la com			
(PM25)	hð / m³.	· 60 .:	(GMAAP Vol. I)	39.9			
3. Sulphur Dioxide as SO ₂ :	_μg / m³	80 ()	IS 5182 (Part-2)	TERROR 12.9 TERROR			
Nitrogen Dioxide as NO ₂ :	μġ/m³	# \$0 [4]	IS 5182 (Part-6)	35.3			
Lead (Pb)	μg / m³:	1	13:5182 (Part-22):	0.19			
8 Ammonia as NH ₃	μg / m³	400	IS 5182 (Part-5)	The same 4.2 mm.			
7. Ozone (Os)	μα/m³	180	IS 5182 (Part-9)	20.1			
	P-728 1 111 E						



AR PRASAD 15:48:37 +05:30

Verifled by : **Technical Manager**



Shreyasee Prasad

Strayasee Presed Date: 2022.12.07 Adihorized Signatory Quality Manager

Trie report applies only to sample tested as above

Total Limbits, of our Laboratory is limited to invoiced amount.

Test Report andorsed only the tests and not the product certificalle.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C; Assite, Road No. SA. Pathipura Colony, Paris - 800 013 (Balley)

Mobil. +918676886349 ; +91943104790\$... Email : ... setepame | @i-shron.com | enfoc@shivetes

hands all process come : manys



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOVT. OF INDIA, UNIDER SMARCHMENT (PROTECTION) ACT 1896, DEPT MENT, GOVE OF BEVAR AND ENVAR STATE POLLUTION CONTROL BOARD OF MOUSTRY, FORESTS & ENVIRON

TEST REPORT

<u> </u>	·::::	· · · · · · · · ·		· ··		:::	
Ref. No. STH/TR/22-23/3883	(A) Di: 84	4.12.2022 Your W					
			Project	ura supei	Thermal Powe	r	
[a] Name and address of th	Name and address of the Customer						
	Name and address of the Customer					:	
1:11		•	Dist-Chatra : Jharkhand-8	25 321			
(b) Details of Sample	;	• :.			ring (As per NAAQ	ISI ·	
[c] Sample Collected by	· .	··· ···::	SHIVA TEST HO			-,	
[d] Sampling Location			Collected from Near	at the top of	Tejasavi Byllding (Ta	vnsk(p)	
[e] Method of Sampling.		·:	::I\$.11255 (Part-J.2			- :	
[f] Sampling Environments	d Condition		Temp. (°C)	26	Humidity (%)	62	
[g] No. & Type of Contains	:i .		One poly Jan	.:· . · ·			
[h] Instrument [D]			RD\$-4, FPM-4		:· .		
[i] Sample Quantity	.:		30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code	:	•	A-3883				
[k] Sample Condition on Re	eceipt	i.,	Pit for Analysis				
[1] Items required to be test	teg · · · ·	:	No				
[m] Whether any specific M	lethod of Te	st has					
been suggested by the p		: ::					
∄n] : Date of receiving the sa			15.11.22		•		
[o] Analysis Start Date / An	aliysis Com	pletion Date	15.11.22 / 18.11.		<u>:::</u>		
		Limit as per	Method of:		ting Station / Re		
Parameters	Unit	NAAQS 2009	Test		at the top of Teja		
r :: r.			::	· Ba	alding (Township	<u> </u>	
1. Carbon Monoxide (CO)	mg/m³	. 4	85 5182 (Part-10)	";-	··· 0.34 :	<u>. : </u>	
2. Benzene (C ₆ H ₆)	μg/m³	. 5	(S 6182 (Part-11)	··. ·	0.09	• • • • • • • • • • • • • • • • • • • •	
3. Benzo(a) Pyrene	ng/m³	: 1	IS:5182 (Part-12)		0:18		
4. Arsenic (As)	ng/m³	: 6	AAS Method	·	0.45	::::	
<u>Ni</u> ckelias Ni : :::	ng/m³	20	AAS Method	:	2.86		
s. Mercury (Hg)	ng / m³	Not Specified	. :: US EPA ···. . (Method 10-5)		0:35.		



Digitally signed by SHIBESHIMAR PRASAU AR PRASAD 1546;50 +05/30* Date: 2022.12.07

Verified by : Technical Manager



 Shreyasëe Prasad.

Shrayasaa Prasad Date: 2022.02.07 15:51:04 +05:30 Authorized Signatory

Quality Manager

This report applies orly to sample tested as above.

Total LiebNy of our Laboratory is limited to invoced amount.

Total Report endorsed only the terits and not the product cartificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

132-C. Austina Road No. SA, Patinpura Colony, Panca — 800-013 (Biling)

Mob: 4918676886249 : +91943104790\$ stheuthe l@catego co.in info@shikatest com







RECOGNISED AS ENVIRONMENTAL LABORATORY BY MARPICE, GOVT, OF MOU, THOSE ENVIRONMENT (PROTECTION) ACT 1988, DEPTT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BINAR AND BRIAR STATE POLILITION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/3907	7Dt : .06.1.	2.2022 Your Wo	rk Order No. 40002850	067-037-1019 Dt	31.07.2022
	:			a Super Thermal	Power
	W. Comment		Project	an Talanga Awa	···
[a] Name and address of the	Cástomer		At: Tandwa	::: #	- Balkaas
	`` :		Dist- Chatra		
			Jharkhand- 825		<u>: . ii </u>
b Details of Sample		. 4 4.2		Monutoring (As per NA)	<u> 4QS) : : :</u>
[c] Sample Collected by	<u> </u>	<u> </u>	SHIVA TEST HOUS		-111-441-66
[d]: Sampling Location	5.45	: 4		the rop of Tejasovi Build	lng (Township)
[e] Method of Sampling	: * '	<u> </u>	IS 11255 (Part-1,2,3 a		:: <u>,,,,,,</u>
[f] Sampling Environmenta		1.77.1759	Temp%(⁴ C) ⁽²	26 : Humidity (%	98
 g] No. & Type of Containe 	π	· · · · · ·	One poly Jar	·	
[h] Instrument ID	7	4 97	"." RDS-1, FPM-1 "".	,	ĭ
ii Sample Quantity		4. :4.:	30 ml x 6 for each	(NQ ₂ , SO ₂ , NH ₃)	1 Mars
[i] Sample Code		: ': :	A-3907		1 2
(k) Sample Condition on Re	ceipt 1,20%	rigi jad	Fit for Analysis∞		i,
$ 1\rangle$. Items required to be test			As per contract		
[m] Whether any specific M		si bas 👙 👙	No	- 17 (a. 6 (a.	1 2
been suggested by the pa					
in Date of receiving the sar			77 11 22	ner nerve	13
o Analysis Start Date /: An	alysis Comp	oletion Date:	17:11:22 / 19:11:22		1
	:.:	Limit as per	Method of	Sampling Statio	
Parameters	Unif	NAAQS 2009	Test	Near at the top o	· · · •
	in the		**	Building (Ter	waship)
1. Particulate Matter (PM ₁₀) :	ر m³ (وبر	190	(S 5182 (Pert-23)	· 68.2	<u></u>
2, Particulaté Matter	μg / m³	60	CPCB	33.8	
(PM _{2,5})	1,:		(GMAAP Vol. I)		<u>::::</u>
3. Sulphur Dioxide as \$Q ₂	jig / m	80	IS 5182 (Part-2)	14.2	:
Nitrogen Dioxide as NO ₂	μg / m³	∴80	IS 5182:(Part-6)	32.2 34 32.2	
% Lead (Pb)	μg / m ³	1 1	(S 5182 (Part-22)	0.18	:::
		400		··· 4.3	···
6. Ammonia as NH ₃	μg / m³	4UU	IS 5182 (Part-5)	·· : :: : 4.3	



AR PRASAD

Verified by: Technical Manager



Authorized Signatory

Quality Manager

Tost Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory:

122-C: Addhe, Road No. SA, Pastiputry Colony, Pomo - 800 013 (Bilber)

<u>tibnámatkávebno so in : mbkár</u> Mob - +913676636249 , +419431647909

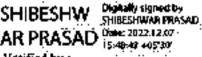




RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVY, OF UNDA, LINDER ENVIRONMENT (PROTECTION) ACT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVY, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

		<u> </u>	<u> </u>	<u> </u>
Ref. No.: STH/TR/22-23/3	907(A) - Dt : 46	12.2022 Your V		285047-037-1019 Dt : 31.07.2022
	:: •			ra Super Thermal Power
			Project	
[a] Name and address	of the Chatomer		At: Tandwa	
			Dist Chatra	
		· .	<u>Jharkhand- 82</u>	25 321
[b] Details of Sample	<u> : :</u>	· :		ity Monitoring (As per NAAQS)
[c] Sample Collected b	y. · . :	1	SHIVA TEST HO	USE on 16.11.22
:{d}:: Sampling Location	: :::	.:"	Collected from Near-	at the top of Tajosavi Bailding (Township)
[e] Method of Samplin	g.	·:	: - {S 11255 (Part-1,2,3	3 & 7) · · · · ·
[f] Sampling Environm	nental Condition		Temp. (°C)	26 : Humidity (%) 68
No. & Type of Con	lainer :::		One poly Jan	<u>,: ,</u>
h] Instrument 10	· · · · ·	··· .	RDS-1. FPM-1	
[i] Sample Quantity	···; :		30 ml x 6 for eac	ch (NO ₂ , \$O ₂ , NH ₃)
(j) Sample Code	. :	:	A-3907	11. 1
(k) Sample Condition (n Receipt		Fit for Analysis	
[1] Items required to b		·	As per contract	
[m] Whether any specif		st has	· · · · · ·	· · · · · · · · · · · · · · · · · · ·
been suggested by			, No	and the first section of
[n] : Date of receiving the		::	17.11.22	· · · · · · · · · · · · · · · · · · ·
[o] Analysis Start Date		pletion Date	17.11.22 / 19.11.2	22
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	· · ·	:		Sampling Station / Result
· Parameters	Unit	Limit as per	Method of	Near at the top of Tejasavi
		NAAQS 2009	Test	Building (Township)
1. Carbon Monoxide (CO) " mg/m³	- 4	IS 5182 (Part-10)	0.455
2. Benzene (CaHa)	μg/m³.	5	IS 5182 (Part-11)	0.18
3. Benzo(a) Pyrene	ng / m³	1	. I3 5182 (Part-12)	0.15
4. Arsenic (As)	∷ ng/m³	8	AAS Method	1.99
Nickel as Ni	ng/m³	20 .:	AAS Method	7.10
	ng / m²	Not Specified	US EPA	0.49
6. Mercury (Hg)				. 540





Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee:Prasad DISE: 2022.12.07 15:53:29 +05'30' Authorized Signstory

Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involved amount.

Test Report endossed only the tools and not the product certificate.

Test Report can not be reproduced particity or full for legal/court purpose without written permission of the Laboratory.

122-C. Aastha, Road No. SA. Patlipetra Colouv, Petra - 800 013 (Bilian)

Mob. +913676186249 ; +919431047908

<u>sthournal (Breakno.co-in</u> : <u>info@shrva.cst.com</u>



VA TEST HOUSE

(Serving since 1988)



SHTAL LABORATORY BY MORFOC, GOVT. OF INDIA, LINDER EMARCHMENT (PROTECTION) ACT 1905, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

	· · ·			- :: :: : : -	
Ref. No. STH/TR/22-23/4282	- Di : 06.1	2,2022 Your V	/ork Order No.: 40002850		Dt: 31.67.2022
		:: ::	North Karanpur	a Super Therr	nal Power
	-1.:	S 200	Project		
(a) Name and address of the	e Customer	.: 974	At: Tandwa		
il and in the same of the same	· · · · · · · · · · · ·	rigit of wi	Dist- Chatra		:
	· ····	<u> </u>	Jharkhand- 825		
[b] Details of \$ample	··· <u>·</u>	15	Ambient für Quality		NAAQS)
[c] Sample Collected by	. · . i		SHIVA TEST HOUS	SE on 26.11.22	** K
[d] : Sampling Location	;s	. : .:	Collected from Near 4	the top of Tajasani (Bullding (Township)
[e] Method of Sampling	: * .	· *	> 18 1,1255 (Par+1,2,3)	&7)	11 (AST) 1
[f] Sampling Environment			Temp. (º€)	25 Humidit	y (%) 70
No. & Type of Contain	ėr	1 × 21 4	Orier poly Nar	: :::	
[[n] Instrument ID			RDS-1, FPM-1	∹:	: .:.
(i) Sample Quantity		· : · · ·	30 ml x 6 for each (NO2, SO2, NH3)	
[j] Sample Code	11:11	- XI	A-4282	: . : .	
[k] Sample Condition on R	eceipt	::	े : Fit for Analysis.	# * *.	: *
[f] Items required to be tes		1 . ::	As per contract	i ::	i - i,-
[m] Whether any specific le	feihod of Te	sthas		*** ***	· : : : : : : : : : : : : : : : : : : :
been suggested by the p	party		No		
[n] Date of receiving the sa	mple	٠.	28.11.22	: .	::: ::::::::::::::::::::::::::::::::::
[o] Analysis Start Date // A	natysis Com	pletion Date:	28.11.22/30.11.22		1,35,33
7. 14. 3	Ţ:'		44-41-4-25	Sampling St	ation / Result
Parameters ···	Unit	Limit as per	Method of		op of Tejasavi
	1 .	NAAQS 2009	Test	-	(Township)
1. Particulate Matter (PM10)	μg / m³	- 100·	(8 5182 (Part-23)		2.3
2. Particulate Matter.	· ·		CPCB		
(PM _{2.6})	μg / m ² ੇ	60 `	(GMAAP Vol. I)	.: 3	6.3.00
3. Sulphur Dioxide as SO ₂	ng (m²	80	(S 5182 (Part-2)	11.	4.7
Nitrogen Dioxide as NO ₂	μg / m³	80	(S 5182 (Part-6)		4.1
ra. Lead (Pb)		31 1	IS 5182 (Part-22)		19
5. Ammonia as NH ₃	ug / m³	400	1S 5182 (Part-5)		5.1
7. Ozone (O ₂)	ug / m³	180	IS 5182 (Part-9)		7.4
320110 (00)	- · · · ·		1 .0 3 .02 (1		***



SHIBESHW. SHIPESHWAR PRASAD AR PRASAD 000 2071.12.07

Verified by . Technical Manager



Date: 2022 12:07 1600:32 -0530* Authorized Signatory Quality Manager

This report applies only to cample lested as above.

Total Liability of our Laboratory is imited to invoced amount.

Yest Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

123-C. Asisha, Road No. SA, Peligue's Colony, Petra - 100 011 (Billion)

MAN +918676886249 +919434047908

stepsmall@eghon.co.er : info@slavaicat.com



VA TEST HOUSE

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL L'ABORATORY BY MOEFCC, GOVT, OF MOIA, LINDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT OF INDUSTRY, FORESTS & ENARGHBRENT, GOVT. OF BHAR AND BOULD STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4282(A)	Dt : 06.1	2.2022 Your W	ork Order No. 400028	6067-037-1019 Dt :	31.07.2022
		: <u>;</u> .	North Karanju	ira Super Thermal	Power
		:	Project	er Tarrer a	::
[a] Name and address of the	e Customer	· :	At: Tandwa		
			Dist- Chatra		
			Jharkhand- 8	25 321	. **:
[b] Details of Sample		· : · · ·		lity Monitoring (As per	NANOS
[c] Sample Collected by		: :	SHIVA TEST HO	USE on 26.11.22	
[d] Sampling Location	: :	:	Collected from Near	as the cop of Telesari Bulla	iug (Township)
[e] Method of Sampling.			IS 11255 (Pact-1,2)		
[f] Sampling Environments	d Condition	•	Temp. (°C)	25 Humidity	(%): 70
[] No. & Type of Containe		. ' ·	One poly Jar		
[n] Instrument ID			RDS-1, FPM-1	·:: "·:::	
[i] Sample Quantity		:	30 ml x 6 for eacl	ı (NOz, ŞQz, NHJ)	
[j] Sample Code :	•	. :	A-4282	: :-	::
[k] Sample Condition on Re	есеірт		Fit for Analysis	.: :::	. <u>.</u> :
[1]Items required to be test			As per contract		
[m] Whether any specific M	ethod of Tes	st has	Mar:	·:: :	7:***
been suggested by the p			No'. '	. : "	
[n] Date of receiving the sa			28.11.22	11 9	:.
[o] Analysis Start Date / Ar		pletion: Date	28:11,22//30.11.	22 '::	: (:
· · · · · · · · · · · · · · · · · · ·	T :			Sampling Statio	n / Result
Parameters	Unit	Limit as per	Method of pro-	Near at the top o	
	::	NAAQS 2009	: Test	Bullding (Tov	. *
i. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	0.45	:::::::::::::::::::::::::::::::::::::::
z. Benzene (CeHe)	µg/m³	. 5 :	. IS 5182 (Part-11);	0:08	.:
3. Benzo(a) Pyrene :.	ng / m³	1	IS 5182 (Part-12)	0.17	:.
4. Arsenic (As)	ng/m³	.: -::16	AAS Method	.: e: ." 0.61	. : .
, Nickel as Ni	ng/m³	20	AAS Method	: 1,42	i. ·
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Method 10-6)	0.20	::
··· ·· · · · · · · · · · · · · · · · ·	. :	.:		.: *** *:	



AR PRASAD (500 2022 12.0)

Verified by : Technical Manager



Prasad

Date: 2022.12.07 16/00:45 +05/30

Authorized Signatory Quality Manager

Total Lighting of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or tall for legal/court purpose without written permission of the Laborator

122-C; Aestin, Roed No. SA. Padiguira Colony, Pares - 300 013 (Bahar).

MAR +91\$676\$\$6249 . +919431047908

व्यक्तिकार । स्वरूपकार हो हो हो है के स्वरूपकार है के उसके स्वरूपकार है के उसके स्वरूपकार है के उसके स्वरूपकार





ENTAL LABORATORY BY MOEFCC, GOVT. OF MINA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENAROMMENT, GOVE OF BRIAR AND BRIAR STATE POLILITION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4303 Dt : 06.12.2022 Your V	Vork Order No. 4000288067-037-1019 Dt : 31.87.2022			
#100 Election 1844 7	North Karanpura Super Thermal Power			
William Committee and Committee Committee	Project			
[a] Name and address of the Customer	At: Tandwa			
	Dist- Chatra			
	Jharkhand- 825 321			
[b] Details of Sample	Ambient Air Quality Mountaring (As per NAAQS)			
[c] Sample Collected by Edition 1995 Edition	SHIVA TEST HOUSE on 27.11.22			
[d] Sampling Location	Collected from New at the top of Tejasavi Building (Township)			
[e] Method of Sampling	IS 11255 (Part-1,3,3 & 7)			
[f] Sampling Environmental Condition	Temp. (°C) 26 ··· (Hulmidity (%) -63			
g) No. & Type of Container	One polý Jan			
(f) Instrument ID	RDS-1_FPM-1			
ii) Sample Quantity	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code Aut Highlight Art Highlight	A-4303: 1 H 11 H 12 H 12 H 12 H 12 H 12 H 12 H			
[K] Sample Condition on Receipt 3	Fit for Analysis			
[1] Items required to be tested.				
[m] Whether any specific Method of Test has	No. 2011 P. S. C.			
been suggested by the party	- 190			
n) Date of receiving the sample	28.11.22			
[o] Analysis Start Date / Analysis Completion Date	28.11.22/30.11.22 TE -			
Limit as per	Method of Sampling Station / Result			
Parameters Unit NAAQS 2009	Test Near at the top of Tejasavi			
	Building (Township)			
1. Particulate Matter (PMio) µig / m ³ 100	IS 5182 (Part-23) 73.5			
2. Particulate Matter: µg / m³ 60	CPCB 37.6			
111 (4 = 2.5)	(GMAAP VOLID Spring			
3. Sulphur Dioxide as SO ₂ + µg / m ³ = 80	IS 5182 (Part-2) 15.0			
Nitrogen Dioxide as NO ₂ µg / m ³ 80: ::	IS 5.182 (Part-6)			
Lead (Pb) µg/m³ 1	IS 5182 (Part-22) 0.20			
6 Ammonia as NH ₃ µg / m ³ 400	IS 5182 (Part-5)			
7. Ozone (O ₃) µg / m³ 180	IS 5182 (Part-9) 18.6			
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1				



SHIBESHW Digitally placed by SHIBESHWAR PRASAD AR PRASAD (1969: 2022.12.07

Verifled by : Technical Manager



Prasad

Shreyasee Digitally signed by Shreyasee Prasad Digitally signed by Date: 2022-12:07 16:04:52 **₹05′3**0′ Authorized Signatory

Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C, Westja, Road No. SA, Padiguan Colony, Page - \$00-013 (Billion)

Nech +018676886740 +91941101790\$ | Smail: subpatho | @eshop.co | militari | m

Marie Shimetesthologicon



TEST HOU

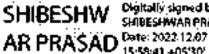
(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEPCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1945, DEPTT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BEHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/430)3(A) : (D) : 0 4	6.12.2022 Your V	Vork Order No. 400028	15067-037-5050 Di : 31.07.2022
			:: North Karanpa Project.	ara Super Thermal Power
(a) Name and address of	he Customer	• •	At. Tandwa	
	:::::::::::::::::::::::::::::::::::::::		Dist- Chatra Jharkhand- 8:	
[b] Details of Sample;	· :	. !	Ambient Air Qua	lity Monitoring (As per NAAQS) :
[c] Sample Collected by	:: · · · ·		SHIVA TEST HO	USE on 27.11,22
[d] Sampling Location	: '''		Collected from Near	at the top of Tejasari Building (Township)
(e) Method of Sampling			· IS 11235 (Part-1,2,	
[1] Sampling Environmen	tal Condition	· · : "	Temp. (°C)	25 Humidity (%) 63
gl No. & Type of Contain	ner	·	: One poly Jer	<u> </u>
[h] Instrument ID		• .: • . •	RDS-1, FPM-1	
[i] Sample Quantity	<u>` </u>		30 ml x 6 for ea	ch (NO ₂ , SO ₂ , NH ₆)
[i] Sample Code	<u>.:: ' . </u>		A-4303	
(k) Sample Condition on	Receipt ·		Fit for Analysis	
 Items required to be to 			 As per contract 	and the second of the second
[m] Whether any specific been suggested by the		st has: [: i]. · .]	No. 14 P. H.	
[n] Date of receiving the :	sample		28.11.22	
[o] Analysis Start Date / /	<mark>Analysis Com</mark>	oletion Date	28.11.22/30.11	
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi Building (Township)
Carbon Monoxide (CO)	∵ mg/m³	- 4-1	IS 5182 (Part-10)	:: 0.34 ::
z. Benzene (CsHs)	μg√m³	5	. IS 5182 (Part-11)	0.10
3. Bertzo(a) Pyrene	ng /·m*:	1 .	· (\$ 5182 (Part-12).	0.16
4. Arsenic (As)	. ng/m³	::6 .	AAS Method	·: 0.63
Nicket as Ni	ii ng/m³	. : : 2 0 :	AAS Method	: :: 2.84 : : : : :
8. Mercury (Hg)	ng /:m³:	Not Specified	US EPA (Method IO-5)	0.23





SHIBESHWAR PRASAD 15:58:41 +05'30'

Verified by : Technical Manager



END OF TEST REPORT

Shreyasee Prasad

Digitally signed by Shreyssee Presad Date: 2022.12.07 1605.12 -05'30' Authorized Signatory

Quality Monogor

: 13, 25 1.

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount:

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laborato

Contact us:

172-C, Assitha, Road No. SA, Padlipytya Colony, Patria – 100-013 (Bilipin

Mad. +912676826249 : +919431017908

ethnoreal@celeco.co.in . min@chivalest.com

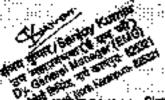
Page 1 of 1





ORATORY BY MOEFCC, GOVE OF MOIA, UNDER ENVIRON GOYT OF BHAR AND SHAR STATE POLLUTION CONTROL

Ref. No. STH/TR/22-23/3552 Dt : 16.11.2022 Your Work Order No. 40002	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ker. No 5 Phy Phy 22-23/3552 - DT: 16.77.2022 4-our Work Order No. 40002	185067-037-1010 Dt : 31. 07 .20)
North Karanpy	ira Super Thermal Power
Parkers and the Company of the Compa	ran in the state of the same of
[a] Name and address of the Customer At: Tandwa	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
Dist- Charge	ya mata a ya wa a fa fa fa
Jharkhand- 82	25[32]
[b] Details of Sample Aniblem Air Quality	Moniforing (As per NAAQS)
[c] Sample Collected by A. SHIVA: TEST HOU	USE on 0.1.13,22
[d] Sampling Location Collected from Near	at the top of Time Office (Main Plant)
[e]: Method of Sampling 2500 to 10 11 1255 (Pari41;2)	3.82:7) ::::::::::::::::::::::::::::::::
[f] Sampling Environmental Condition } Temp. (°C)	29 Humidity (%) 68
g. No. & Type of Container One poly Jar	9 (1 7 9 to 1 5) (1 9 to 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
h] Instrument ID PDS-2, FPM-2	147
[i] Sample Quantity Co 4	(NO ₂ ; SO ₂ NH ₃)
[j] Sample Code A-3552	1.31.1
[k] Sample Condition on Receipt Fit for Analysis	
[1] Items required to be tested As per contract	. a
[m] Whether any specific Method of Test has	176 dest
been suggested by the party	
[n] Date of receiving the sample 02.11.22	THE THE PARTY OF T
[o] Arialysis Start Date / Analysis Completion Date 02:11.22/04.11.2	2 2
	Sampling Station / Result
Parameters Unit: Limit as per Method of	Near at the top of Time Office
MAAOS 2009 Test	(Main Plant)
1. Particulate Matter (PM ₁₀) ug / m ³ 100 IS 5182 (Part-23)	66.3
2. Particulate Matter :: COCO	11112 1: 111111
(PM ₂₃) µg/m³ 60 (GMAAP Vol. I)	33.8
	13.7
3, Sulphur Dioxide às SO₂ kug / m³ 80. ‴ (S.5162 (Part-2)	
	33.1
). Nitrogen Dioxide as NO ₂ µg / m ³ 80 IS 5182 (Part-6)	33.1 0.22
3. Sulphur Dioxide as SO ₂ μg / m³ 80 (S.5182 (Part-2) 3. Nitrogen Dioxide as NO ₂ μg / m³ 80 (S.5182 (Part-6) 3. Lead (Pb) μg / m³ 1 (S.5182 (Part-22) 6. Ammonia as NH ₂ μg / m³ 400 (S.5182 (Part-5)	



SHIBESHWAR PRASAC Date: 2022.11.16

> Verified by : Technical Manager



Digitally signed by Shreyasee Prasad Shreyasee Prasad De(± 2022 I I.16 : 15:20:5\$ +05:30". Authorized Signatory Quality Manager

This report applies only to sample lested as above.

Total Liability of our Laboratory is impact to revolve amount,

Yest Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

132-C; Azidia, Road No. SA, Paitifults Colony, Paina - 800 013 (Ballay)

Mob' +918676886349 .+919431047908

subpaint i Ground on so in . m fo@shivinesi com



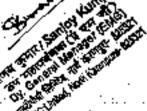
TEST HOUS

(Serving since 1988)

KENTAL LABORATORY BY MOËFCC, GOVT, OF HIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986. IT, GOVT, OF BHAIR AND BHAIR STATE POLLUTION CONTROL

TEST REPORT

		. ".": "	. **.*:::	. **:		.:
Ref. No. STH/TR/22-23/3552(A) Dt: 16	. <i>11.2022</i> - Your V				1.07.202
-:': -: -: -: -: -: -: -: -: -: -: -: -			North Karanpu	ra Super T	hermal Pow	/er
		1	Project			
[a] Name and address of the	Customer	·.":": · · ·	At: Taridwa		: :	: :::::::::::::::::::::::::::::::::::::
		11	Dist- Chatra			
		·. " "	Jharkhand- 82	5321		
[b] Details of Sample	. •	· · · · · · · · · · · · · · · · · · ·	Ambiem Air Qual		g (As per NAA	(05)
[c] : Sample Collected by .	` '	-:: ::	SHIVA TEST HOU			
[d] Sampling Location			Collected from Near	d the top of The	e Office (Main I	Pleast)
[e] Method of Sampling	· · · ·		IS 11255 (Part-1,2,3		•••	-
[f] Sampling Environments	d Condition	. :	Temp. (°C),	29	Humidily (%)	
g No. & Type of Contains		-	One poly Jar	•		
h] Instrument ID	- ::: -		RDS-2, FPM-2	÷.		
[i] Sample Quantity		:::,	30 ml x 6 for eac	sh (NO ₂ , SO	2, NH ₃ }	:
[i] : Sample Code	::	: :	A-3552	·		:
(k) Sample Condition on Re	eceipt	·····	Fit for Analysis	: -	·····	
Items required to be test			As per contract	:		
m) Whether any specific M		st has	: :	:.		·: .
been suggested by the pa			: No ::	:		
[n] Date of receiving the sar		· :	02.11.22	÷	· · · · ·	
[o] Analysis Start Date /:An		nistion Date	02.44.22 / 04.11.2	2		·
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					g Station / R	esuli
Parameters	Unit	Limit as per	Method of∷		e top of Time	
		NAAQS 2009	Test		Main Plant)	
1. Carbon Monoxide (CO)	mg / m³		IS 5182 (Part-10)		0.227	
2. Benzene (C ₆ H ₆)	μg/m³	5	1S 5182 (Part-1.1)	 · · · · · · · · · · · · · · · · · · 	< 5.0	•
3. Benzo(a) Pyrene	ng / m³		IS 5182 (Part-12)	. :	:<1.0°.	
4. Arsenic (As)	ng/m³	6	AAS Method	:: ·	0.79	
<u>, , , , , , , , , , , , , , , , , , , </u>	ng/m³	··· 20·	AAS Method			· · · :::
5. Nickel as Ni					-100	
5. Nickel as Ni B. Mercury (Hg)	μg/πρ	Not Specified	USEPA	· .	0.25	



SHIBESHIWAR PRASA AR PRASAD 15-16-55 4022.11.16

> Verifled by : Technical Manager



Shreyasee Prasad

Orgitally signed by-Shreyasee Prasad Date: 2022.11.16 15:21:06 +05'30"

Authorized Signatory Quality Manager

This report applies only to sample rested as above. :: Total Liability of our Laboratory is limited to invoiced amount;

Test Report endorsed only the tests and not the product certificate.:

Test Report can not be reproduced partially or full for legal/court purpose without written parmission of the L

122-C, Austha, Road No. SA, Pathipura Colony, Press - 300 013 (Bihar)

Mobi: +918676886240 ; +01943 (647988

athorites (Covahoo, co in ; in fo@shevalest, com-





PRAYORY BY MOBECC, GOVT, OF WORL UNDER BINT GOVE OF BHAR AND BRAK STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/3570 Dr.: 16.11.2022 Your !	Work Order No.: 4000285067-037-1019 Dt : 31.07.2022			
	North Karanpura Super Thermal Power			
The Article Control Whate	Project and an analysis of the second			
(a) Name and address of the Customer	At: Tandwa			
	Dist-Chatra			
(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	Jharkhand- 825 321			
[b] Details of Sample [c] Sample Collected by	Ambient Air Quality Monitoring (As per NAAQS). SHIVA TEST HOUSE on 02,11,22			
[c] Sample Collected by [a]	Collected from Near at the top of Time Office (Main Plant)			
[e] Method of Sampling	18 11255 (Part-1,2,3 & 7)			
[f] Sampling Environmental Condition	Temp: (°C) 27 (**) Humidity (%) 68			
g No. & Type of Container	One poly Jar			
[1h] Instrument [D]	ROS-2, FPM-2			
[i] Sample Quantity (1983)	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code	A-3570			
[k] Sample Condition on Receipt	Fit for Analysis			
[1] Items required to be tested	As per contract			
[m] Whether any specific Method of Test has	t Service and the service of the service of			
been suggested by the party	No. 4th Side State State Side Side Side Side Side Side Side Sid			
[n] Date of receiving the sample	03.11.22			
[o] Analysis Start Date / Analysis Completion Date	03.11.22/05.11.22			
Link as per	Method of Sampling Station / Result:			
Parameters Unit NAAQS 2009	Teet Near at the top of Time Office			
	(Main Plant)			
1. Particulate Matter (PM io) µg / m³ 100	IS 5182 (Part-23) 73.0			
2 Particulate Matter µg / m³ 60	The CPGB and a special limit			
	(GMAAP Vol. I)			
3. Sulphur Dioxide as SO ₂ µg / m ³ 80	IS 5182 (Part-2) 15.8 15.8 15.8			
t. Nitrogen Droxide as NO ₂ µg / m ³ 60 m	1001001001			
2 Lead (Pb) μg./ m ³ 1	IS 5182 (Part-22) 0.17			
6. Ammonia as NH ₃ gg / m ³ 400	1S 5182 (Part-5) 5.4			
7. Ozone (O ₂) µg / m ³ 180	IS 5182 (Part-9) 25,1			



500013

Shreyasee Prasad

Shreyasee Prasad Date: 2022.11.16 15:22:53"+05'30"

Authorized Signatory Quality Manager

This report applies only to eample lested as

Transcours

Technical Manager

Total Listing of our Laboratory is similed to invoced amount.

Teel Report endorsed only the tests and not the product contlices.

Teel Report can not be reproduced partially or full for legal/court playone without written permission of the

123-C; Aastha, Rood No. 1A, Pattipittis Colony, Patro - 800 Q13 (Biley)

Mob., +9186768\$6249 : +919436047908 1

syntagodnji : 💣 co.codujegi i oseculu

Page I of I



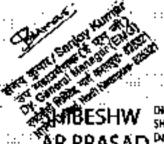
VA TEST HOU

(Serving since 1988)

ENTAL LABORATORY BY MIJEFOC, GOVE OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1906, DEPTT. OF INDUSTRY, FORESTO & ENAROMMENT, GOVT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/3570(A) Dt: <i>16.11</i>	. <i>2632</i> Your V	Vork Order No. 400	0285067-037-1019 Dt.: 31:07-2022
	:::::	::: :: .	North Karanp	ura Super Thermal Power
'''		. :	Project	
[a] Name and address of the	Customer	::	At: Tandwa	
111 "	: '''		Dist- Chatra	
F			Jharkhand 8	25 321
[b] Details of Sample	:	':	Ambient Air Qua	lity Monitoring (As per NAAQS)
[c] Sample Collected by::.	•	':·: ·:		USE on 02.11.22
[d] Sampling Location	:: ::	:	Collected from New	at the top of Time Office (Main Plant)
[e] . Method of Sampling	: .	:	IS 11255 (Part-1,2	
[f] Sampling Environmental	Condition :	: ::	Temp: (°C):	27 Humidity (%) 69
g No. & Type of Container			One poly Jar	
[h] Instrument ID	········		RDS-2, FPM-2	· · · · · · · · · · · · · · · · · · ·
[i] Sample Quantity		. 1 111.		ich (NO ₂ , SO ₂ , NH ₃)
[i] Sample Code . :::	:	74 7	A-3570	
[k] Sample Condition on Rec	eint · · ·	· · · ·	Fit for Analysis	<u>: </u>
			As per contract	- · · · · · · · · · · · · · · · · · · ·
[m] Whether any specific Mer		ge .		* *
been suggested by the par		•••· ·	No	
[n] Date of receiving the sam			.03.11.22	:
[o] Analysis Start Date / Ana		ian Data	03.11,22/05.11.	22
iii Alialysis Start Date / Alia	i yara Combiei	· · ·	.:	Sampling Station / Result
Parameters		Limit as per	Method of	Near at the top of Time Office
: Familians	N. N	IAAQS 2009.	Test :	(Main Plant)
1. Carbon Monoxide (CO)	mg / m³	:" A'	(S 6182 (Part-10)	0.179
		5		< 5.0
2. Benzene (C ₆ H ₆)	μg / m ³		IS 5182 (Part-11)	
3. Benzo(a) Pyrene	ng / m³	· ; ; ;	IS 5182 (Part-12)	
4. Arsenic (As)	ng / m³	··· 6:::	AAS Method	1.29
5, Nickel as Ni	ng/m³	··· 20·	.AAS: Method	9.79
6. Mercury (Hg)	μg (m² N	ot Specified	US EPA	0.91
			(Method JO-5)	· · · · · · · · · · · · · · · · · · ·



::::

SHUBESHWAR PRASA Date: 2022.11.16

Verified by :

· Technical Manager



Shreyasee Prasad

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the lests and not the product destriction.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

122-C. Aastha, Road No. 5A, Patliputta Colony, Patrin

Mob.: 4918676866249 - 401943 (047908

satigname (@composition jm ; esplos@shirtstees.com

www.shivalest.com : yever shivatesthouse







RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT, OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.: STH/TR/22-23/3822 Dt: 06.12.2022 Your				
[m. 1]2,2,2,6	North Karanpura Super Thermal Power			
	Project and the second of the second			
[a] Name and address of the Costomer	At: Tandwa			
	Dist Chatra			
-	Jharkhand- 825 321			
[b] Details of Sample	Ambient Air Quality Montioring (As per NAAQS)			
[c] Sample Collected by	SHIVA TEST HOUSE on 08:11.22			
[d] Sampling Espation	Collected from News as the top of Time Office (Main Haus)			
[e] Method of Sampling	IS 1.1255 (Part-1,2,3 & ₹)			
[f] Sampling Environmental Condition	Temp. (%) 26 Humidity (%) 67			
g] No. & Type of Container	One poly Jar			
(in Instrument ID	RDS-2, FPM-2			
[i] Sample Quantity	30 ml x 6 for each (NO ₂ , SO ₃ , NH ₃)			
[j] Sample Code	A-3822			
[k] Sample Condition on Receipt	Fit for Analysis			
[I] Items required to be tested	As per contract:			
[m] Whether any specific Method of Test has	No. 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
been suggested by the party				
[ri] Date of receiving the sample	09.11.22			
[o] Analysis Start Date / Analysis Completion Date	09.11.22/11.11.22			
Baramatara Limit as per	Method of Sampling Station / Result			
Parameters Unit NAAQS 200	Test : Test : : : : - Ayear at the top of time Office			
are the second of the second o	(Main Plant)			
1. Particulate Matter (PtMio) µg / m³ 190	IS 5182 (Part-23) - 1 1 1 1 71.0 1 1 1 1 1 1 1			
2. Particulate Matter µg /m³ 60	CPCB 37.1			
(PM25)	: (GMAAP VOI. I) ::			
3. Sulphur Dioxide as SQ ₂ µg / m ³ 80	IS 5[82 (Part-2) 15[.8			
Nitrogen Dioxide as NO ₂ µg / m ³ 80	IS 5182 (Part-8) :: 35,8			
v. Lead (Pb) μg #m³ 1	S 5182 (Part-8) 35,8 6,18 6			
· · · · · · · · · · · · · · · · · · ·	IS 5182 (Part-8) :: 35,8			

AR PRASAD (5:2925 +0530

Venified by: Technical Manager



Shreyasee Prasad

Date: 2022.12.07 1935:37 +05:30

Authorized Signatory Quality Manager ...

This report applies only to sample tested as above.

Total Lieblity of our Laboratory is limited to fluorized amount.

Test Report andorsed only the teste and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the 1

122-C; Aaciko, Road No. SA, Parlipper Colony, Pares - 800-013 (Bihari

Mob.: +918676816249 .. +919431047901

Equal: attiputtation phononics in an info@shinetest.com



ental Laboratory by Mobiece, Govt. Of Moia, Under Environment (Protection) act 1968, Dept OF INDUSTRY, FORESTE & ENVIRONMENT, GOVT: OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Name and address of the Customer Name and address of the Customer	:. `: `.			<u> </u>	<u> i</u>		
Project At; Taridwa Dist- Chatra Jharkhand- 825 321 Details of Sample Ambient Air Quality Monitoring (As per NAAQS)	Ref. No. STH/TR/22-23/3822	(A): Dt : #	6.12.2 0 22 Your	Work Order No. 400	0285087-037-1019 Dt: 31.07.2022		
At; Taridwa Dist - Chatra Uharkhand-825 321 Ambient air Quality Monitoring (As per NAAQS) Sample Collected by			:: .	···· North Karanp	ura Super Thermal Power		
Dist - Chatra			:	"Project			
Details of Sample Ambient Air Quality Monitoring (As per NAAQS)	(a) Name and address of the	e Qustomer		At: Taridwa			
Details of Sample Anibient Air Quality Monitoring (As per NAAQS)	sa : ""						
Sample Collected by: Sampling Location Collected from Near as the top of Time Office (Highs Plant)	· ····	:	<u>::</u>	Jharkhand- 8	25 321		
d] Sampling Location e] Method of Sampling f] Sampling Environmental Condition f] Sampling Environmental Condition g] No. & Type of Container h] Instrument ID f] Sample Quantity f] Sample Quantity f] Sample Quantity f] Sample Code k] Sample Condition on Receipt f] Items required to be tested ff of Analysis f] Items required to be tested ff of Analysis Start Date/ Analysis Completion Date find Date of receiving the sample find Analysis Start Date/ Analysis Completion Date find Carbon Monoxide (CO) find Carbon Monoxide (CO) find Monoxide (CO)			<u> </u>	Ambient Air Que	ility Monttoring (As per NAAOS)		
Method of Sampling IS 11255 (Part-1,2,3 & 7)		.::	· . : - · ·	SHIVA TEST HO	OUSE on 08.11.22		
Sampling Environmental Condition Temp. (*C) 26 Humidity (*%) 67 No. & Type of Container One poly Jar Instrument ID RDS-2, FPM-2 Sample Quantity 30 mt x 6 for each (NO ₂ , SQ ₃ , NH ₃) Sample Code A-3822 K. Sample Condition on Receipt Fit for Analysis Items required to be tested As per contract Whether any specific Method of Test has been suggested by the party No Date of receiving the sample 09.11.22 One poly Jar Fit for Analysis Items required to be tested As per contract Whether any specific Method of Test has been suggested by the party No Date of receiving the sample 09.11.22 One poly Jar Fit for Analysis As per contract No No				Collected from New	es the sop of Time Office (Main Plant)		
No. & Type of Container One poly Jar		:	·። <u>. </u>	IS 11253 (Part-1,2			
No. & Type of Container One poly Jar	[f] Sampling Environment	al Condition	: ::	Temp: (°C)	26 Humidity (%) 67		
Sample Quantity 30 mt x 6 for each (NO ₂ , SO ₂ , NH ₃) Sample Code A 3822 Kl. Sample Condition on Receipt Elt for Analysis Items required to be tested As per contract Myother any specific Method of Test has been suggested by the party No Date of receiving the sample 09.11.22 Ol Analysis Start Date/ Analysis Completion Date 09.11.22 / 11.11.22 Parameters Unit Limit as per Method of Sampling Station / Result Near at the top-of Time Office Nea				One poly Jar			
Sample Code A-3822			:::	RDS-2, FPM-2			
Sample Code	[i] Sample Quantity		:	30 mt x 6 for each (NO ₂ , SO ₂ , NH ₃)			
Items required to be tested As per contract			: ::				
Items required to be tested Mybother any specific Method of Test has been suggested by the party Date of receiving the sample Init Limit as per Method of Test Parameters Unit Limit as per Method of Test Parameters Unit Limit as per Method of Test Near at the top of Time Office (Main Plant) Carbon Monoxide (CO) mg / m³ 4 IS 5182 (Part-10) Benzola Pyrene ng / m³ 5 IS 5182 (Part-11) Benzola Pyrene ng / m³ 6 AAS Method 0.13 Nickel as Ni ng / m³ 20 AAS Method 6.99 Metrony (No)	(k) Sample Condition on R	есері		Fit for Analysis			
Date of receiving the sample 09.11.22 O	[I] Items required to be tes	ted ···		As per contract	<u> </u>		
Date of receiving the sample 09.11.22 O	[m] Whother any specific M	icthod of Te	st has . ::	9 1,111			
Date of receiving the sample 09.11.22			٠٠.	No			
Analysis Start Date							
Parameters Unit Limit as per NAAQS 2009 Method of Test Sampling Station / Result . Carbon Monoxide (CO) mg / m³ 4 IS 5182 (Part-10) 0.568 . Benzene (C _a H _a) μg / m³ 5 IS 5182 (Part-11) 0.35 . Benzo(a) Pyrene ng / m³ 1 IS 5182 (Part-12) 0.22 . Arsenic (As) ng / m³ 6 AAS Method 0.13 Nickel as Ni ng / m³ 20 AAS Method 6.99			pletion Date	09.11.22 / 11.11.	22		
Parameters Unit Limit as per NAAQS 2009 Internet need of Test Near at the top of Time Office (Main Plant) . Carbon Monoxide (CO) mg / m³ 4 IS 5182 (Part-10) 0,568 . Benzene (C _s H _s) μg / m³ 5 IS 5182 (Part-11) 0,35 . Benzo(a) Pyrene ng / m³ 1 IS 5182 (Part-12) 0,22 . Arsenic (As) ng / m³ 6 AAS Method 0,13 Nickel as Ni ng / m³ 20 AAS Method 6,99	a F F.	T		. :: '.:			
Carbon Monoxide (CO) mg / m³ 4 IS 5182 (Part-10) 0,568 Benzene (C ₆ H ₆) µg / m³ 5 IS 5182 (Part-11) 0,35 Benzo(a) Pyrene ng / m³ 1 IS 5182 (Part-12) 0,22 Arsenic (As) ng / m³ 6 AAS Method 0,13 Nickel as Ni ng / m³ 20 AAS Method 6,99 Mercury (Ho) Po / m³ Not Specified US EPA 0.00	Parameters :	Unit					
Carbon Monoxide (CO) mg / m³ 4 IS 5182 (Part-10) 0.568 Benzene (C ₆ H ₆) μg / m³ 5 IS 5182 (Part-11) 0.35 Benzo(a) Pyrene ng / m³ 1 IS 5182 (Part-12) 0.22 Arsenic (As) ng / m³ 6 AAS Method 0.13 Nickel as Ni ng / m³ 20 AAS Method 6.99 Mercury (Ho) Po / m³ Not Specified US EPA 0.00	<u> </u>	: :	WANCO ZOUS	:::: 1 es (
Benzo(a) Pyrene ng / m³ 1	Carbon Monoxide (CO)	. 'mg / m³	··· 4·	IS 5182 (Part-10)	0.568		
Arsenic (As) ng / m ³ 6 AAS Method 0.13 Nickel as Ni ng / m ³ 20 AAS Method 6.99 Mescure (Ho) ng / m ³ Not Specified US EPA 0.00	2. Benzene (C ₆ H ₆)	μg/m².	5	IS 5182 (Part-11)	0.35		
Arsenic (As) ng / m ³ 6 AAS Method 0.13 Nickel as Ni ng / m ³ 20 AAS Method 6.99 Mescure (Ho) ng / m ³ Not Specified US EPA 0.00	3. Benzo(a) Pyrene	ng/m³	1	: IS.5182 (Part-12)	0.22		
Nickel as Ni ng / m³ 20 AAS Method 6,99	4. Arsenic (As)		.:: 6 :	AAS Method	. 1 49 1 7 0,13 7.		
Mercury (Hot) po (m² No) Specifical US EPA 0.00	Nickel as Ni		20	AAS Method .	6.99		
The state of the s	8. Mercury (Hg)		.Not Specified		one.		
	(Section 1) (Section 1)	i.a	· inc. obecased	· · (Method IQ-5) ·	6.09		

AR PRASAD 15/29/36 +05/30

Verified by : **Technical Monager**



Shreyase e Prasad

Digitally signed by Shreyasee Prasad Qata: 2022.12.07 15:35:50 405/30/

Authorized Signatory Quality Manager

This report applies only to sample leated as above.

Total Lieblity of our Laboratory is firnked to invoked amount.

Test Report endersed only the lesis, and not the product carbidate.

Test Report can not be reproduced partially or full for legalicourt purpose without written permission of the Leborstory

122-C; Azethu. Road No. SA. Phelipulna Colony, Palna - 800 013 (Bihar).

Mob.: +918676866249 ; +919431047968

alipatra li@vation.co.ip : @@@stuverest.com



SHIVA TEST HOUSE



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1985, DEPTY, OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BURAR STATE POLLUTION CONTROL BOARD

TEST REPORT

<u> </u>	: '	'.!.		··';: ·:·
Ref. No. STH/TR/22-23/3827	Dt: 66.	<i>12.2022</i> Your W	Fork Order No.: 4000285067-037-1019 Dt.: 31.0	
nak wasan			North Karanpura Super Thermal Power	٢
	4		Project	
[a] Name and address of the	је Срвотог	r . :':' · · ·:::	At: Tandwa	
			Diet- Chatra::	
<u> </u>	<u> </u>	: . :	Jharkhand- 825 321	
	j	:: . ! !!	Ambiem Air Quality Mondoring (As per NAAQS)	::: <u>:</u>
[c] Sämple Collected by :	::!	::!!	SHAVA TEST HOUSE on 09:11,22	100
[d] Sampling Location	· . :	91	Collected from Near at the top of Time Office (Main Fla	M/)
e Method of Sampling			··· IS 11255 (Pan-1:2/3 & 7)	
[f] Sampling Environmen		n	Temp. (°C):: 29 Humidity (%)	86
g] Nö. & Type of Contain	rër	::: :::::::::::::::::::::::::::::::::::	ga g One poly Jan sagar grand in the con-	•
(b)::: Instrument 1D		: :	RDS-1, FPM-1	
[i] Sample Quantity	:: <u>:</u> ::	··. ::	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)	. ::::
[j] Sample Code	· '	:;	A-3827	·:::::
[k] Sample Condition on F	leceipt	∷: .	Fit for Analysis	
[1] Itoms required to be too	sted .	<u> </u>	As per contract	
[m] Whether any specific N	lethod of T	est has	4.1	
been suggested by the	party	::: '	Not what we want it was a safe.	
[n] Date of receiving the s	ample	:::	14.11.22	
[o] Anadysis Start Date /: A	лајуяіs Con	npletion Date	11.11.22713.11.22	
	1		Sampling Station / Re	SUIE :::
Parameters	Unit	Limit as per	Near or the mit of Time (
and the second of the second	1	NAAOS 2009	Test (Main Plant)	
1. Particulate Matter (PMio)	µg / m³	100	IS 5182 (Part-23) 11: 71.3 mg/	: .: .:
2. Particulate Matter::		:.::		
(PM _{2.5})	μg / m³	60 ···	(GMAAP Vol. I)	
3. Sulphur Dioxide as SQ ₂	jig / m³	80:::	IS 5182 (Part-2) 14.2	· :
Nitrogen Dioxide as NO₂	μg / m³	80:	IS 5182 (Part-6) 33.8	
Lead (Pb)	µg / m³	1 1	18 5182 (Part-22) 0.20	
6. Ammonia as NHo	μg / m³	::400	IS 5182 (Part-5) 4.9	
7. Ozone (O ₃)		180	. 1 6 1 1	
. Czere (C)	μ g / m³ '	1 . 190	IS 5182 (Part-9) 1 1 2 14 16.8 1 1	.:. ::

360 BESHW Display tigned by SHIBESHWAR PRASAD AR PRASAD 18:31:16 +05:30

: Verified by : Technical Manager



Shreyasea Prasad

Shreyssee Priced by Shreyssee Priced of Dece: 2022/12/07 15:3741 +05:30 Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample leafed as above.

Total Liability of our Luboratory is limited to invoiced amount.

Test Report endorsed only the lests and not the product certificate.

Tost Report can not be reproduced partially or full for legal/court pulipose without written permission of the Laboratory.

Ċ----

122-C, Assilia, Road No. SA, Pallipetra Colony, Patra – 400 013 (Burge).

Mob.: 1918676886249 .+919431047908 | Capal ... ahoanaliibis

Websec WWW showness com : Www.shownesshoese.com

: alignati@estuo en in . info@etrivacei com

THE PARTY

Page 1 of 1



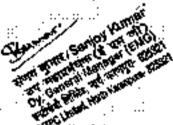
IVA TEST HOUSE

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPT OF INDUSTRY, FORESTS & ENVIRONMENTE, GOVT. OF BRIGHT AND BRIGHT STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/38274	(A) Da : 06.	12.2022 Your W	ork Order No. 40002	285067-037-1019 Dt : 32.07.2022		
	: ::	::: .:		ıra Super Thermal Power		
[a] Name and address of th	é Cüstomer	::	At: Tandwa			
Fig. 70 to 10	•		Dist- Chatra			
	<u>:</u> :	<u>.;.:</u>	Jharkhand- 82			
[b] Details of Sample				ity Monitoring (As per NAAOS)		
[c] Sample Collected by .::	: ::	·· <u>:</u> ··	SHIVA TEST HO			
[d] : Sampling Location	<u> </u>			of the top of Time Office (Main Plant)		
[e] Method of Sampling	• . •!"		IS 11255 (Part-1,2,			
[f] Sampling Environment	al Condition		Temp. (ºC)	29 Numidity (%): 66		
g] No. & Type of Contains	<u>èr</u>	<u> </u>	One poly Jar ::	·		
[m] Instrument ID	٠.		RDS-1, FPM-1			
[i] Sample Quantity	•	· · ·	30 ml x.6 for each (NO ₂ , SO ₄ , NH ₃)			
[j] Sämple Code			A-3827			
[k] Sample Condition on R	eceipt	·	Fit for Analysis			
[1] Items required to be test	ted . · · · ·		As per contract			
[m] Whether any specific M been suggested by the p		st bas	No The High			
[n] Date of receiving the sa	mple	. :	\$1.11.22	F"		
[o] Analysis Start Date / Analysis Start Date / Analysis	alysis Com	pletion Date	11.11.22 / 13.11.2	22		
	[aniai arii	Sampling Station / Result		
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at the top of Time Office (Main Plant)		
1. Carbon Monoxide (CO)	mg/m³	4 :	IS 5182 (Part-10)	0.341		
2. Benzene (C _e H _e)	μ α / τη ³	5	IS-6182 (Part-11)	0:07		
3. Benzo(a) Pyrene	ng/m²	· 1	IS:5182 (Part-12)	0.16		
4. Arsenic (As)	∷ng / m³	6	AAS Method	0.63		
Nickel as Ni	ng/m³	: : . :20 :::	AAS Method	2.64		
6. Mercury (Hg)	ng / m³	Not Specified	US EPA : (Method IO-5)	0.22		



AR PRASAD (0016-2022-1207

Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2022,12:07 15:37:58 +05:30 Authorized Signatory Quality Manager

This report applies only to sample lested as above.

Total Lieblity of our Laboratory is limited to invoiced emount.

Test Report endersed only the lesss and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

Contact as:

122-C, Advita. Road No. 5A, Pathipetra Colony, Pena - 400 0(3), Biling).

Mah-4918676286249 . 4919431047908 - silmathal-flyshon com : mfb-Øshivolesi com

Page I of I



SHIVA TEST HOUSE

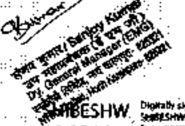


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOVT. OF BROLA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

		<u> </u>	'. v: :i:i	i. 14.7	
Ref. No. STH/TR/22-23/3880	Dt: 66.	12.2022 Your W	/ork, Order No. 40002	85087-037-1019	Dt: 31.07.2022
		::	: North Karangu	ra Super Them	nal Power
· · · · · · · · · · · · · · · · · · ·			Project	: ·· . •	
[a] Name and address of the	c Customer	r	At: Tandwa		
Tarin Time Advances	· · · · · · · · · · · · · · · · · · ·	:	Dist- Chatra	::	. : : ' ' '
: ::::::::::::::::::::::::::::::::::::			"Jharkhand- 82	25 321	
[b] Details of \$ample		: <u></u>		Monitoring (As per	NAAQSJ: . : . : :
[c] Sample Collected by:	: .::		SHIVA TEST HO		
[d] Sampling Location		<u>. n. </u>		d but sop of Time Off	ice (Main Plant)
[e] Method of Sampling.	. • ".		18 11255 (Part-1,2,)		7
[f] Sampling Environment		n ::::::::::::::::::::::::::::::::::::	Temp:(%C):	26 Humidit	y (%) 62:::
[g] No. & Type of Contains	\$1 ^{† ∵} :		One poly Jair	<u> </u>	: "
[h] Instrument ID	: ::::		:: RDS-1, FPM-1:		
[i] Sample Quantity	.: :		30 ml x 6-for each	(NO ₂ , SO ₂ , NH ₃)	
[j] Sample Code	:		A-3890		:_::
[k] · Sample Condition on R	eccipt		Fit for Analysia		.: :
 [f] Items required to be test 	ted :	7.3	As per contract	··.:: · · · · · · · · · · · · · · · · ·	: : : :
[m] Whether any specific ₩	ethod of T	est has	No	:::::::::::::::::::::::::::::::::::::::	*****.*
been suggested by the p	arty .			.: '	
[n] Date of receiving the sa	mple ::::::	<u> </u>	m : 16.11.22	::::::::::::::::::::::::::::::::::::::	·; ·· · :
[o] Analysis Start Date / An	<u>mlysis</u> Cot	npletion Date.	16.11.22 / 18.11.2	22	
	::.: :	Limit as per	Method of	Sampling S	tation / Result
Parameters	Unit	NAAQS 2009	Test	Near at the to	p of Time Office
. <u>Kali ji ji lika kasili ji</u>	: i.: ÷			(Mah	n Plant)
1. Particulate Matter (PM ₁₀)	μg / m³	100:	IS 6182 (Part-23)	7 7	1.9
2 Particulate Matter	μg/m³.:	i.: 60 -	CPCB	J	5.5:::
(PM ₂₅)		60	(GMAAP Vol.1)		3.3:
3. Sulphur Dioxide as SO ₂	μg/m³	:80	IS 5182 (Part-2)	"	3.6
Nitrogen Dioxide as NO ₂ :	μg/m³	.80	IS 5182 (Part-6)	3	3.0 1
Lead (Pb)	μg / m³.	<u>[i]</u> 1 :	IS 5182 (Part-22)		:19:::::
6. Ammonia es NH ₃	μg / m³	···: 400··· : :	" IS 5182 (Part-5)	: : : : : : : : : : : : : : : : : : : :	5:1:
7. Ozone (O ₃)	μg / m³	190	IS 5182 (Part-9)	1	7.1 1.111.
				 	



AR PRASAD Detail 2022.12.07

Verified by : Technical Manager



Shreyasee Prasad

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Labelty of our Laboratory is limited to invoices amount.

Tost Report endursed only the tests end not the product conflictable.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

Contact os

122-C: Assitu. Road No. 5A. Patliputra Colony. Pages = 200-013 (Bittage)

Shoathal @releas co.in : info@shiratest com

Wobsite www.shimmest.com : www.shimmesthouse.com

CONTRACTOR NO.

Page I of I



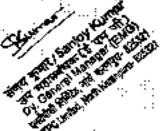
VA TEST HOUSE

(Serving sipçe 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF MOLA, LINDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BINAR AND SMAR STATE POLLUTION CONTROL BOARD

TEST REPORT

		:		: .:	
Ref. No. STH/TR/22-23/38800	A) Dt: 00	(12.2022 Your.)	Work Order No. 4000	285067-037-1019 Dt.: 31.07.202	
::::::::::::::::::::::::::::::::::::::	·	· :	North Karanpu Project	ira Super Thermal Power	
(a) Name and address of the	Customer		At: Taridwa	Line of the state	
(a) 1-igne into notices of this	·		Dist-Chatra		
	•:		Jharkhand- 82	25 321	
[b] Details of Sample	· ·			ity Monttoring (As per NAAQS)	
[c] Sample Collected by	··	::	SHIVA TEST HO		
[d] Sampling Location	: .			et the top of Time Office (Main Plant)	
[e] Method of Sampling.		·	··· [S 11255 (Part-1,2,		
[f] Sampling Environments	Condition	- : : · -	Temp. (°C)	26 Humidity (%) 62	
[8] No. & Type of Containe			: One poly Jan	· · · · · · · · · · · · · · · · · · ·	
[h] Instrument (D	. : .	:	RDS-1, FPM-1	···:	
[i] Sample Quantity		. : : :	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)		
[j] Sample Code :			A-3680		
[k] Sample Condition on Re	xelpt	: :: :: :: :: :: :: :: :: :: :: :: :: :	Fit for Analysis	·····	
[i] Items required to be test	ed ··	. : : : :	As per contract	·	
[m] Whether any specific M	ethod of Te	st has · : ''':	No	· ::-	
been suggested by the po	arty · · ·		NO	<u></u>	
[n] Date of receiving the sar		···	1.6.11.22		
[o] Analysis Start Date / An	alysis Com	pletion Date	16,11,22 / 18,11.2	22 E. J. C. C.	
í <u>.</u>		Limit as per	Method of	Sampling Station / Result	
Parameters	Unit	NAAQS 2009	Test	Near at the top of Time Office	
· :: .			::: 1 49 4	(Main Plant)	
1. Carbon Monoxide (CO)	mg / m³	** 4 **	IS 5182 (Part-10)	# 0.227 · ·	
2. Benzene (C₀H₀)	μg / m³	. 5	IS 5182 (Part-11)	0.08	
3. Benzo(a) Pyrene	ng / m²	.: 1	: IS 5182 (Part-12)	0.17	
4. Aršenic (As)	:ng / m³	6	AAS Method	: : - ::::: 0.60 - :: - :: - ::	
Nickel:as Ni	ng / m³	20 ::	AAS Method	1.42	
%. Mercury (Hg)	ng / m³	Not Specified	US EPA ··· ::(Method IQ-5)	0.18	



AR PRASAD [5:45:35+65:36]

SHRESHWAR PRASAD

Verified by :

Technical Manager



Prasad

Shreyasee Prisad Paint 2022.12.07 Digitally signed by 15:49:47 +05'30' Authorized Signatory

· Quality Manager

This report applies only to sample tested as above,

Total Liability of our Liaboratory is firmled to invoiced amount.

Test Report endorsed only the tests and not the product certificate

Test Report can not be reproduced partially or full for legal/bourt purpose without written permission of the Laboratory.

Contact us:

122-C: Aastha, Road No. 3A, Pattipytra Colony, Pane - 800 013 (Bihar)

Mob.: +918676866249 : +919451047908 allocates (இலங்கை கூற படுத்தில் works)

Page I of p



SHIVA TEST HOUSE

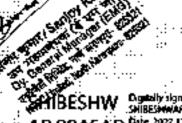


(Serving since 1988)

RECOGNSED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1988, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE, OF BHAR AND SHAR STATE POLLUTION CONTROL SCARD

TEST REPORT

<u> </u>	. 69 d
Ref. No. STH/TR/22-23/3904 Dt : 66.12.2022 Your W	
	North Karanpura Super Thermal Power
	Project
(a) Name and address of the Customer	At: Tandwa
Alignor and the first term of the property of the contract of	Dist-Chatra
The second secon	Jharkhand-825 321
[b] Details of Sample	Ambiens Ab Quality Managoring (As per NAAQS)
[c] Sample Collected by:	SHIVA TEST HOUSE on 16.11.22
[d] Sampling Location	Collected from Near at the top of Time Office (Main Plans)
Jel: Method of Sampling	: JS 11255 (Part-1:2,3 & 7)
[f] Sampling Environmental Condition	Temp. (°C) 25 Humidity (%) 68
[g] No. & Type of Container	One poly Jar
[fh]Instrument ID	RDS-2, FPM-2
[i] Sample Quantity	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)
Sample Code	A-3964
[k] Sample Condition on Receipt	Fit for Analysis
(I) Items required to be tested	Vin As per contract views
[m] Whether any specific Method of Test has	No Committee of the Com
been suggested by the party	47.44.60
[n] Date of receiving the sample	E: 17.11.22
[o] Analysis Start Date / Analysis Completion Date	17:11.22 / 18.11.22
Limit as per	Method of Sampling Station / Result
Parameters Unit NAAQS 2009	Test Near at the top of Time Office
	···· (Man Plant)
1. Particulate Matter (PM ₁₀) µg / m ³ 100	IS 5182 (Part-23) 71.2
2. Particulate Matter µg / m³ 60	CPCB 39.6
(FN126)	(GMAAP VOL.I)
3. Sulphur Dioxide as SO ₂ jig / m ² 80	IS 5182 (Part-2) migrate 15.9 migrate 15.9
Mitrogen Dioxide as NO ₂ jig / m ³ 80	3\$ 5182 (Part-6) 32.8
Lead (Pb)	(8.5182 (Part-22) 0.14 0.7
6. Ammonia as NH; μg / m³ ······ 400	IS 5182 (Parl-5) 4.0
7, Ozone (O ₃) µg / m ³ 180	IS 5162 (Pain-9) 26,4



Technical Manager

AR PRASAD (5:547:14 +05:30)
Verified by



Shreyaser Prasad Digitally signed by Sheeyases Praced Date: 2022.12.07 15:51 32 +05*30*

Authorized Signatory

Quality Manager

This report applies only to sample tested as above

Total Lightity of our Laboratory is impled to invoiced amount.

Test Report andersed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

"aniaci us

122-C: Abstha, Road No. 5A, Patlippina Colomy, Patria - \$00.013 (Bihar)

Mich., +913676836249 ; +919431047908 ; Feeal / Sthomps160valoo.co

Website www.shippicst.com : www.shipmesthease.com

albertal Sivatico co in , mili Silavatesi com

er . ≯03 ±

Poge I of I



TEST HOUSE

(Serving since 1988)

MINTAL LABORATORY BY MOEPCC, GOVT. OF MINA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DIEFT ... OR BIDUSTRY, FORESTS & ENVIRONS IENT, GOVT. OF BIHAR AND BHIAR STATE POLLUTION CONTROL BOARD

B 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4				 .			
Ref. No. STH/TR/22-23/3904(A) Dt 06	12.2022 Your Y					
·		•	North Karanpura Super Thermal Power				
Literatura de la material de la constanta de l	.·:".	::. i.: .::	Project : At: Tandwa	• :	.;∵	. ::.:	
[a] Name and address of the	Name and address of the Customer						
· · . · . · . · . · . · . · . · . ·	: .	∷	Dist- Chatra:	.::"	:. ·:·.		
· · · · · ·			Jharkhand- 82	<u> 25 321 </u>	· · · · · · · · · · · · · · · · · · ·		
[b] Details of Sample	·::.	: :::	Ambient Air Ouat	lity Monite	ring (As per NAA)	28)	
(c) Sample Collected by			SHIVA TEST HO	USE on 10	5.11.22	.·:	
[fd] Sampling Location	ii - i	i :	Collected from New	of the top of	Time Office (Main Pl	em)	
[e] Method of Sampling			IS 11255 (Part-4,2)	3·&-7)	!:		
[f] Sampling Environmenta	il Condition		Temp. (℃)	26.	Humidity (%)	68	
[g] No. & Type of Containe	iτ .		One poly Jan		· · · · · · · · · · · · · · · · · · ·		
[h] Instrument ID					: : :.		
[i] Sample Quantity	. •		36 ml x 6 for each (NO2, SO2, NH3)				
(j) Sample Code		· : . :	A-3904				
[k] : Sample Condition on Re	cerpt:		Fit for Analysis				
[1] ltems required to be test	ed :.		····As per contract				
(m) Whether any specific M		st hais					
been suggested by the pa			,No			:	
[n] Date of receiving the sar			17.11.22				
[o] Analysis Start Date / An		oletion Date	17.11.22719.11.22				
			Na sala sala sa	Sam	pling Station / Re	sult:	
Parameters	Unit	Limit as per	Method of		t the top of Time		
	:	NAAQS 2009	Test	:	(Main Plant)	O'IIICC '	
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	 .	0.455		
2. Benzehe (C ₆ H ₆)	ng/m³	6	IS 5182 (Part-11)		0.16	<u> </u>	
3. Benzo(a) Pyrene	ng / m³	1	IS 5182 (Part-12)		0.17		
Arsenic (As)	ng/m³	: 6	AAS Method	: .	1.15		
Nickel as Ni	ng/m³	20 .	AAS Method		5.59		
			US EPA	· #			
6. Mercury (Hg)	1π 27 τ μμ _α	Not Specified	· · · (Method IO-5)		0.33		

SHIBESHW AR PRASAD 1547-7622 12/07 15:47:25 +05'00"

. Verified by : **Technical Manager**



Shreyasee

.Oute: 2022.12.07

Prasad 15:51:49 +05301 Authorized Signatory

··· Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced enround.

Test Report endorsed only the tests and not the product certificate

Test Report can not be reproduced partially or full for logal/count purpose without written permission of the Laboratory:

122-C: Assilia, Rood No. 5A, Padiputra Colony, Paula - 800 013 (Billiar)

Mrb.: #918676886249 : #919431047908 ... Email -:

stingshation co in . அடுகில் west com

Page I of



TEST HOUS



(Serving since 1988)

ENTAL LABORATORY BY MASEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTE MINT GOAT. OF BREAK AND BREAK STATE POLLUTION CONTROL BOARD

TEST REPORT

	<u> Martinia and angli di naw ma</u>		
Ref. No. STH/TR/22-23/4279 Dt 66.11,2022 Your Wo			
	North Karanpura Super Thermal Power		
the second of the spanning of the second	Project		
[a] Name and address of the Customer	At: Tandwa		
oleway in this earlies on the exemplate the self-	Dist- Chatra		
<u> </u>	Jharkhand- 825 321		
[6] Details of Sample of S	Ambiens Att Quality Monitoring (As per NAAQS)		
[c] Sample Collected by:	SHIVA TEST HOUSE on 26/11/22 THE REST		
[d] Sampling Location	Collected from Neat at the top of Time Office (Main Plant)		
[e] Method of Sampling	(3 A IS 11255 (Part-12.3 & す) おおおりは		
[f] Sampling Environmental Condition	Temp: (°C) 25 Humksky (%) 70		
No. & Type of Container	One polyndár a sa diddiá asa ti s sa did a satti		
[[m] Instrument [D	RDS-1, FPM-1.		
[i] :::Sample Quantity ::	30 ml x 6 for each (NO ₂ , 6O ₂ , NH ₂)		
[J] Sample Code	A-4279		
[k] Sample Condition on Receipt			
[l] Items required to be tested	As per contract and a second an		
(m) Whether any specific Method of Test has	and the second s		
been suggested by the party	No. 30 . But the late of the l		
[n] Date of receiving the sample	28 11 22		
[0] Analysis Start Date / Analysis Completion Date	28.11-22/30 11 22		
.;	Method of Sampling Station / Result		
Parameters Unit Limit as per NAAQS 2009	Test Near at the top of Time Office		
WANGS 2008	(Main Plant)		
1. Particulaté Matter (PM _{IB}):: µg / m² 100	(S 5162 (Part-23) 74.3		
2. Particulate Matter ug / m³ 60	CPCB 1 March 40 Access to the con-		
(PM _{2.6}) µg / m ² 60	(SMAAP Vol. ()		
3. Sulphur Dioxide as SO ₂ µg / m ³ 80 cm	IS 5182 (Part-2) Without 14.7		
Nitrogen Dioxide as NO ₂ µg / m ³ 80	(S 5182 (Part-6) 37.6		
Lead (Pb) μg / m³: : 1	IS 5182 (Part-22) 0.09		
6. Ammonia as NH ₂ µg / m ³ 400	IS 5182 (Part-5) 5.8		
7. Ozone (Q ₂) µg / m ³ 180	IS 5182 (Part-9) 20.0		
2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 10 0 10 10 10 10 10 10 10 10 10 10 10		



Verified by: Technical Manager



Shreyasee Prasad

.Dálé: 2022.12:07 15:59:10 +0530

Authorized Signatory Quality Manager

Test Report endorsed only the tests and not the product certificate

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C. Aapiha, Road No. SA, Pattipetra Colony, Petoa = 600-013 (Bihar)

Mo5:+918676386249;+919431047908 ः शक्तिसम्बद्धाः विश्वयोग्यः १००,०० का ः विशेष्येश्वरः



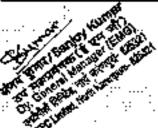
HIVA TEST HOUSE

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF MINA, UNDER ENVIRONMENT (PROTECTION) ACT 1888, DEPTT. OF INDUSTRY, PORESTS & ENVIRONMENT, GOVT, OF BRIME AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

: : ::::::::::::::::::::::::::::::	<u> </u>	<u>:</u>	<u></u>	1:111 i + 11 4	
Ref. No. STH/TR/22-23/4279	(A) Dt : 96.	<i>12.2022</i> Your W	ork Order No. 40002	85067-037-1019 De: 31.07.2022 "	
·			North Karanp	ura Super Thermal Power	
			Project		
(a) Name and address of the	e Customer		At: Tandwa		
·	·	' '' ;'	Dist-Chatra	·	
<u>: ':</u>			<u>Jharkh</u> and- 8		
[b] Details of Sample	· <u>·</u>	.:`:;		lity Monitoring (As per NAAQS):	
[c] Sample Collected by			SHIVA TEST HO	NUSE on 26.11.22	
[d] Sampling Location			Collected from New	at the top of Time Office (Main Plant)	
[e]:Method of Sampling			IS 11255 (Part-1,2	,3 & 7)	
[f] Sampling Environments	al Condition	·: · .	Temp((°C)	25 Humidity (%) 70	
[8] No. & Type of Containe	ят :		One poly Jan		
[fi] Instrument ID	<u> </u>		RDS-2, FPM-2		
[i] Sample Quantity		i · :	30 mLx 6 for each (NO ₂ , SO ₂ , NH ₃)		
[i] Sample Code			A-4279		
[k]. Sample Condition on Re	eceipt .		Fit for Analysis As per contract		
[i] Items required to be test	ied .				
[m] Whether any specific M	ethod of Te	st bas			
been suggested by the p	arty				
In : Date of receiving the sai	mple		28.11.22	··· · · · · · · · · · · · · · · · · ·	
[0] Analysis Start Date // Ar	nalysis Com	oletion Date:	28.11.22/30.11.	22 1 1 1 1	
: :. ·	:	1:-*	Mathedat	Sampling Station / Result	
Paramétérs ·	Unit ∴	Limit as per NAAQS 2009	Method of	Near at the top of Time Office	
<u> </u>	l.	19AAQS 2003	Test	(Main Plant)	
1. Carbon Monoxide (CO)	mg/m³	·· ' · 4·::	IS 5182 (Part-10)	0.341	
2. Beńzene (C _c H _d)	μg / m³	. 5	IS 6182 (Part-11)	0.13 :	
3. Benzo(a) Pyrene	ng/m³	1	18 5182 (Part-12)	0.18	
4. Arsenic (As)	ng / m³	6	AAS Method	0.63	
Nickel as Ni	ng/m³	-20	AAS Method	2.80	
LAICVOI 99-141	1				
6. Mercury (Hg)	ng /·m³	Not Specified	U\$ EPA	0.50	



SHIBESHW Outsily signed by SHIBESHWAR PRASAD AR PRASAD Date: 2022 12:07

Verified by : Technical Manager



Shreyasee Prasad

·Date: 2027.12:07 1559.24 105'30'

Authorized Signatory Quality Manager

This report applies only to asmple leated as above.

Total Liability of our Laboratory is limited to invoced amount: Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legalicourt purpose without written permission of the Laboratory

122-C, Aastha, Road No. SA, Padiputra Colony, Pales - \$00 013 (Bihar)

Mob.; +918676866249; +919431047908

sthootes (@vahoc.co.m : info@shivuest.com

Website: www.shivntescom : news.shivsustbouse.com

Page I of I





(Serving slace (988)

AS ENVIRONMENTAL LABORATORY BY MOSPICE, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1965, DEPTT. OF INDIGTRY, FORESTS & ENVIRONMENT, GOVE OF SHAR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

0 . 0 N s CTITATO DO 40 4045	Put of sevenes		A40 4444	
Ref. No. STH/TR/22-23/4300	Lt. 66.32.2022 Your'y	Vork Order No. 4000285047		
			a Super Thermal Po	wet
[a] Name and address of the	CONT.	Project At: Tandwa		da 25 v
[a] Name and address of the	Customer	Dist- Chatra		
		Jharkhand- 82	5.321	
[b] Details of Sample	## 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Monitoring (As per HAAQS	g: sa:1 .
[c] Sample Collected by		SHIVA TEST HOU		· · · · ·
d] Sampling Location	3:::::::		the top of Time Office (Main	Plant)
e Method of Sampling	The state of	IS 11255 (Part-1,2,3		
f] Sampling Environmental	Condition	Temp, (°C)	26 Humidity (%)	63
g] No. & Type of Container		One poly Jar		
n) Instrument ID		RDS-2, FPM-2	77	
i) Sample Quantity		30 ml x 6 for each	(NO ₂₁ ,SO ₂ , NH ₃)	
[j] Sample Code	gle grant	A-4300 ::	7. f. p.	1 1
[k] Sample Condition on Re	ceipt :: ::	Fit for Analysis	Walio Barania	
[8] Items required to be teste	ed	As per contract	# N. N.	
[m] Whether any specific Me		No	4,800.00	7,77
been suggested by the pa			μ	· ·
[n] Date of receiving the san		28 11.22		
O Analysis Start Date / An	alysis Completion: Date,	28.71.22/30.11.22		·! :::":
	Limit as per	Method of	Sampling Station /	
Parameters	NAAQS 200		Near at the top of Th	
** *** *** *** *** *** *** *** *** ***			(Main Plant)	<u> </u>
	μg / m³ (100 💠	IS 5182 (Part-23)	4 (%) - 73.0	********
Particulate Matter	μg / m ² 60 .	CPCB	40.9	
(PM _{2.5})	F-F	(GMAAP Vol. I)	' ': '	
3. Sulphur Dioxide as SO ₂	μg / m³ ::80	IS 5182 (Part-2)	14.4	<u> </u>
, Nitrogen Dioxide as NO ₂ ,	μg / m³ 60 ···	IS 5182 (Part-6)	37.0	<u></u>
5. Lead (Pb)		IS:5182 (Part-22),	0/10	
8. Ammonia as NHs	μg/m³ 400	1S 5182 (Part-5)	1 ger / 5.5 ··· ·	
7. Ozone (O ₃)	μg / m³ 180	IS 5182 (Part-9)	21.6	

AR PRASAD

Verified by : Technical Manager



Prasad

Shreyasee Project by Shreyasee Prosad Date: 2022.12.07 16:01:34+05:301 Authorized Signatory Quality Manager

Test Report endorsed only the jests and not the product partitions.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laborator

123-C, Adstria, Road No. SA, Pallipurta Coloury, Panna - 100 013 (Bahar)

3/106.: 4912676886249 : +91941104790\$ Streams Of value on in the first shipment con



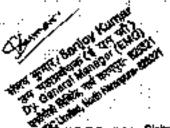
VA TEST HOUSE

(Serving since 1588)

ED AS ENVIRONMENTAL LABORATORY BY MOEPCC, GOVT. OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPT ... OF INDUSTRY, PORESTS & ENVIRONMENT, GOVT. OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4300(A)	D: #6.1	2.2022 Your W	ork Order No. 4000281	5067-097-10	и я Dt: 32.0	7. 26 22
	·:· ·.	: ::	North Karanpy Project	ra Supe	Thermal Powe	ır
[a] Name and address of th	e Customer		At: Tandwa Dist- Chatra Jharkhand- 82	.: 15 20 1		
[b] Details of Sample					ring (As per NAAC	¥75
[c] Sample Collected by	:		SHIVA TEST HO			· · ·
[d] Sampling Location		.:'			Time Office (Main Pl	uno)
[e] Method of Sampling		·	IS 1.1255 (Part-1.2.)			
[f] Sampling Environment	al Condition		Temp. (°C)	26	Humidity (%)	63
g] No. & Type of Contain			Oné polý Jar :			•
h]: Instrument ID			RDS-2, FPM-2			
[i] "Sample Quantity "]"		:	30 ml x 6 for each (NO ₂ , SO ₂ ; NH ₃)			
(j) Sample Code : :		·. : <u></u>	A-4300.			
[k] Sample Condition on R	eceipt	. : :	Fit for Analysis As per contract			
 ltems required to be tes 		· ·				
[m] Whether any specific heen suggested by the p	xartiy .:	st bas	No			٠.
[n] Date of receiving the sa	mple		28.11.22			
[o] Analysis Start Date / A	nalysis Com	oletion Date	28:71:22/30.11.2	22	٠.	
Parameters:	Unit	Limit as per NAAQS 2009	Method of Test		oling Station / Re the top of Time ((Main Plant)	
1. Carbon Monoxide (CO)	mg/m³	.: .4	IS 5182 (Part-10)	• :	0.46	
2. Benzene (C _e H _e)	μ g / m²	. · · 5 ·	./IS 5182 (Part-1/1).		0.09	•
3. Benzo(a) Pyrene	ng / m³	1 "	IS 5182 (Part-12)		0.17	
4. Arsenic (As)	ng / m³	6	AAS Method	: -	. 0.46	::
Nickel as Ni	ng/m³	20	AAS Method		1.40	
6. Mercury (Hg)	hð / Wa	Not Specified	US EPA (Method IC-5)	· · · · ·	0.54	



SHIBESHW AR PRASAD 1557-26-40530

Verifiéd by : Technical Manager



Shreyasee Shreyasee Prasad Prasad

Digitally signed by Date: 2022, 12:07 16:01:50 + 05:30

Authorized Signatory Quality Manager

This report applies only to cample tested as above.

Total Liability of our Laboratory is limited to invoiced amount

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced parkely or full for legal/court purpose without written permission of the Laborator

122-C, Astriu, Road No. SA, Philippines Colony, Paner - 200 013 (Rijes).

Mish: +918616886249 ; +91943104790\$

silepatra legivalece on in : info@skivetest com



SHIVA TEST HOUSE

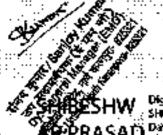


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MARFOC, GOVE OF INDIA, UNDER EINTROHNENT (PROTECTION) ACT 1888, DEPT.
OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BRIAR SYATE POLLUTION CONTROL BOARD

TEST REPORT

	<u>Marking and Marking Department of the Marking and Mar</u>
Ref. No. STH/TR/22-23/3554 Dt: 16.11.2022	Your Work Order No.: 4000285067-037-1019 Dt : 31.07.2022
	North Karanpura Super Thermal Power
	Project
[a] Name and address of the Customer	At: Tandwa
erice in the control of the control	Dist-Chars
	Jharkhand- 825 321
[b] Details of Sample	The state of the s
[c] Sample Collected by	SHIVA TEST HOUSE on 01.11.22
[d] Sampling Location	Collected from Near as the top of Switch Yard Office Building
[e] Method of Sampling	: :: S 11255 (Part-1;2;3 &:7)
[f] :: Sampling Environmental Condition ::	Temp. (°C) 29 Humidity (%) 68
g] No: & Type of Container	in the poly serious .
ih Instrument ID.	RDS-4 FPM-4
[i] Sample Quantity	30 ml x 6 for each (NO ₂ : SO ₂ , NH ₃)
[i] Sample Code	A-3554
[k] Sample Condition on Receipt	Fit for Analysis
[I] Items required to be tested	As per contract
[m] ::: Whether any specific Method of Test has	ONE NOTE AND THE SECOND
been suggested by the party	
[n] Date of receiving the sample	02.11.22
[o] Analysis Start Date / Analysis Completion	
Limit	t as per Method of Sampling Station / Result
	OS 2000 Test Near at the top of Switch Yard
A PROCESSION AND A STATE OF A STA	Office Building
,	109 IS 5182 (Part-23) 68.5
2. Particulate Matter µg t m³ 6	60 CPCB 34.6
(FW25)	(GMAAP VOL.I)
1.03	80 18 5182 (Part-2) 13.0
	80::: IS 5182 (Part-6)
Tax manus to my	1 S 5182 (Pert-22) 0 241
	400 IS 5182 (Part-5) 3.0 3.0
7. Ozone (O ₃) jig / m ³ 1	180 (Part-9) 4. 11 12.7 Houris



Digitally signed by SHIBESHWAR PRASAD Date: 2022 11.16 15:17:40 - 05:30

Verified by : Technical Manager



Shreyasee

Prasad

Digitally signed by ShreyaseePrasad Date: 2022 11.16 FS-21:47 +05'30'

Authorized Signatory
Quality Manager

. This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to improve amount

Test Report endorsed only the tests and not the product cartificate.

4. Total Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Caminas no

1,15

122-C: Aastha, Road No. SA, Padjpojus Colony, Patra - 8(0)013 (Bhear)

Mob. +918676886249 :+919431047908**

, **Çasal** .

sthereta li@caboo.co in ; info@shivetest.com

Website: www.shrvinbil.com . www.shlvsteidwuse com

Page 1.911



LABORATORY BY MIJERCO, GOYT, OF INDIA. UNDER EMPRONMENT (PROTECTION) ACT 1986, DEPT. OF HOUSTRY, FORESTS & ENVIRONMENT, GOV'L OF SHAR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

					<u></u>	. :
	Ref. No. STH/TR/22-23/3554(Af = Dt : B	<i>6.11.2822</i> Your V	Vork Order No. 4000.	285087-037-1019	Dt: 37.07.2022
•	i -:	·		North Karanpu	ara Super Thern	nal Power
				Project	: <u>.</u>	
	[a] Name and address of the	: Customer		At: Tandwa	· · · ·	-::
				Dist- Chatra		
٠]			·	Jharkhand82		···
	[b] Details of Sample	·	::. <u>.</u>		lity Mönitoring (As	per NAAQS)
l	[c] : Sample Collected by	:		SHIVA TEST HO		.: .:.
	[d] Sampling Location				at the top of Switch Ya	rd Office Building
	e Method of Sampling	<u> </u>	::	" IS 1.1255 (Part-1,2,		· ::
	[f] Sampling Environmenta		1. 1991 (1)	Temp: (PC)	29 Humic	56(y(%) 68
	[g] No. & Type of Containe	r	:	One poly Jan		
۱.	(h) Instrument ID		· :.'	RDS-4, FPM-4	· · · · ·	
	[i] Sample Quantity		::: <u>; </u>		ch (NO _{z.} ,SO _{z.} NH	lg) :::
٠. ا	(j) Sample Code		1. 1	A-3554	. :	··· :
.::	[k] Sample Condition on Re	-		Fit for Analysis	· . : ::	
	[f] Items required to be test			As per contract	·	
	[m] Whether any specific Me		sı has	No:	···· ·	·:.··· ·:
:]	been suggested by the pa			. :	<u> </u>	
::	[n]: Date of receiving the sar			.02.11.22	<u>: : : : : : : : : : : : : : : : : : : </u>	` ": :
	[o] Analysis Start Date / An	alysis Com	pletion Date	02.11.22 / 04.11.		<u> </u>
.	i i na a <u>r</u> ati i ji i i inta a	!::: , ,	Limit as per	Method of		ation / Result
: 1	Parameters	Unit	NAAQS 2009	Tesl		of Switch Yard
::						Building
	1. Carbon Monoxide (CO)	mg/m³	- 1 - 4 - 1	IS 6182 (Part-10)	- 11 HH-11 0.3	
:::	2. Benzene (CeHe)	μg / m³	5	IS 6182 (Part-11)		5.0.
::'	3. Benzo(a) Pyrene	ng / m³ .	1	IS 5182 (Part-12)		1,0: :
	4. Arsenic (As)	ng/m³	€ .	AAS:Method	0.0	
	Nickel as Ni :::	ng / ന ^ദ	20	AAS Method	5.8	37 ::: ::.
١٠.	6. Mercury (Hg)	μg / m³	Not Specified	····· US EPA	1.6.6	89 ¹¹
∺	Commence to the second	Mat Ville	. soc operation	(Method IO-5)		~ ::



::

Verified by: Technical Manager



Shreyasee Prasad

Shreyasee Prasad Date: 2022.11.16 15-22:00-405/30/ Authorized Signatory

Quality Manager

- - Total Liability of our Laboratory is limited to invoiced amount.

 Test Report endorsed only this tests and not the product certificate.

 - . Test Rieport can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C; Aastha, Road No. 5A, Pathigutta Colony, Patra - 600 015 (Bihar)

Mob. +91\$6768\$6249 :+91943104790\$ who the light shoot on in in log light light to the the things of the log light lig



SHIVA TEST HOUSE



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MISERGO, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1906, DEPTT.
OF INDIBITRY, FORESTS & ENVIRONMENT, GOVT. OF SMAR AND ENVIRON STATE POLICITION CONTROL STARD.

TEST REPORT

<u> </u>	" . :	<u> </u>	<u> </u>			
Ref. No. STH/TR/22-23/357.	2 Dt : 16.	<i>11.2622</i>				
11.47.1	11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	1. 1.1.1.1	North Karampun	na Super Therm	al Power	
	·		Project	" · · · ·		
[a] Name and address of d	ne Customer	r ::!!.	At: Tandwa	*** :**	1111111	
		::::::::::::::::::::::::::::::::::::	Dist- Chatra		. , : .::: .:::	
of the state of		. :.	Jharkhand-82	5 321		
[b] Details of Sample	• • • • • • • • • • • • • • • • • • • •			Monitoring (As per h	VA AOSE CONTRACTOR	
[c] Sample Collected by:::			SHIVA TEST HOU			
d Sampling Location	. : .		Collected from Near a		Office Building	
e) Method of Sampling			IS 11255 (Part-1,2/3		·	
f) Sampling Environment			Temp. (°C)	27 Humidity	(%) 69	
g] No. & Type of Contain			: : : Oñe poly Jargent:		·	
[h] Instrument ID	· · · · · · · · · · · · · · · · · · ·		RD\$-4, FPM-4		:	
[i] Sample Quantity			30 ml x 6 for each	(NOz, SOz, NH ₈)		
j] Sample Code :			A-3572	11: 11:		
[k] Sample Condition on F			Fit for Analysia	· · · · · · · · · · · · · · · · · · ·		
 Items required to be re- 	areq		As per contract			
[m] Whether any specific b	Acthod of T	est hals	No			
been suggested by the	party /		T. 1755		: =::::	
[n] Date of receiving the s			03.11.22		·	
o Analysis Start Date / A		npletion Date	03/11/22/05/11/2	2 (4.31.1.78)	.277 1 : : :	
	T	'. '		Sampling Sta	hon / Result	
Parameters	Unit	Limit as per:	: Method of	Near at the top		
	Quin.	NAAQS 2009	Test	I		
i. Particulate Matter (PM ₁₀):	μg/m ³	1.00	IS 5182 (Part-23)		alleing	
Particulate Matter	- μα / ιιι	1,1,1,00	CPCB			
	μg/m³	60		:36	.1:	
(PM _{2.6})		:. " .::	. :(GMAAP Vol. I)	"	: :	
S. Sulphur Dioxide as \$Q ₂	, μg/m³	80	IS 6182 (Part-2)	13.	.2	
Nitrogen Dioxide as NO ₂ :	: јід / m³	.:::::80:::	IS 5182 (Part-6)	31.	. 8	
Lead (Pb)	μg / m³	1	IS 5182 (Part-22)	0.1	[1' -]	
s. Ammonia as NHo	μg / m ³	400	1\$ 5182 (Part-5)		î	
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	1B	.2	





Digitally signed by Shreyasee Prasad Date: 2022,11.16
15:25:53 +05'30' Authorized Signatory Quality Manager

END OF TEST REPORT.

This record applies only to sample tested as above.

Total Linibility of our Laboratory is innited to invoiced amount.

Test Report endorsed only the tests and not the product continued.

Test Report can not be reproduced partially or full for legal/court purpose without written parmission of the Laboratory.

Concept me :

12242, Wishle, Road No. SA, Paltipolis Colony, Perns — 100 013 (Billing)

Mob #918676386249 #9194310#790# Finalit: #864894129

Website . www.sliggalest.com . www.shipacitfainte origin

Finality stie and Toyahoo co in sinfo@strented com .

3171 **217**13

Page (ef.)



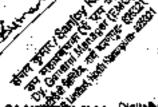
VA TEST HOUSE

(Serving since 1988)

INTAL LABORATORY BY MOEFCC, GOVT, OF MICH, UNDER ENVIRONMENT (PROTECTIONS ACT 1986, DEPT ENT. GOVT. OF BIKAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

· .: .: · :: .:	: ::	:::			
Ref. No:: STH/TR/22-23/3572	(A) D(: I)	6. <i>11.2822</i> . Your V	Vork Order No. 4006	285067-037-1019	Dt: 31.07.2022
			North Karang	ura Super Their	nal Power
		:::	Project		
[a] Name and address of th	e Customer	:	At: Tandwa	***	
H			Dist- Chatra		'
			Jharkhand- 8	25 321 ····	::
[b] Dctails of Sample				lity Monitoring (As	per NAAQS) .
[c] Sample Collected by	<u> </u>	::::		USE on 02.11.22	:
[d]. Sampling Location	:::.		Collected from New	at the top of Switch Yo	rd Office Building
[e] Method of Sampling.	::	:':"	· IS:11255 (Part-1,2	,3 & 27) ·	
[f] "Sampling Environment	al Condition		Temp. (°C)	27 [:] ··· Humi	O≣ty (%) : 69
ig No. & Type of Contains			::: One poly Jar		· · · · · · ·
h] Instrument ID			RDS-4, FPM-4	··	
[i] Sample Quantity.	:	: : ;;.	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)		
[j] Sample Code ::::	:		A-3572		
[k] Sample Condition on R	eceipt	. :.	Fit for Analysis As per contract		
 Items required to be res 	t <u>ed</u>	;			
[m] Whether any specific M	lethod of Te	st fras	hia.		
been suggested by the p	arty . : :	<u>. </u>	No	···	
[n] Date of receiving the sa			03.11.22		··· · · · · · · · · · · · · · · · · ·
[o] Analysis Start Date ∫ Ar	iálysis Com	pletion Date	03,11,22 / 05,11.	22: '	
. :		Limit on our	Method of	Sampling Sta	ation / Result
∴ Parameters ∵	Unit	Limit as per NAAQS 2009	l :	Near at the top	of Switch Yard
	:::	MAAQ3 2008	Test		Beilding
1. Carbon Monoxide (CO)	img / m³	· _4:-:	IS 5182 (Part-10)	0.2	27
2. Benzene (C ₆ H ₆)	μ ο / m ⁰	5	IS 5182 (Part-11)	< {	5.0
3. Benzo(a) Pyrene	ng/m³	1 :.	IS 5182 (Part-12)		í.o :
4. Arsenic (As)	ng / m³	: · · · '6''	AAS Method	'.''' 0.:	29 ::
5. Nickel as Ni	ng/m³	:::: 20:	AAS Method	::: 23	
		:.	USEPA	· ·	
6. Mercury (Hg)	hid / wa	Not Specified	(Method IO-5)		41



SHIBESHIWAR PRASAD Dane: 3022-11-16 ... AR PRASAD

> Verified by : Technical Manager



Shreyasee

Prasad

 Digitally signed by Shreyasee Prasad Date: 202211.16 15:26:12 +05'30' Authorized Signatory

Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount;

Test Report endorsed only the tests and not the product certificate...

Test Report can not be reproduced partially or full for legislocourt purpose without written permission of the Laboratory.

122-C. Aastha, Road No. SA, Patkineurs Colony, Panne - 800 013 (Bullace

Mob., +918676186249 , +919431047908

Websiter hands shingtest com: throw through thouse com

stigated @coders in the Walter according to



VA TEST HOU:



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF INDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND SINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

4	<u>· .· · </u>	:.^!^.!^.;.;			
Ref. No: STH/TR/22-23/3824	1 Dt : 06.1	2.2022 Your W	ock Order No. 400028	5067-037-1019	Dt: 31.07.2022
UNAT			North Karanpu	a Super Them	nal Power
		En vieto d	Project		araan
[a] Name and address of it	ie Customer		At Tandwa	14. · iii	
	; ; ;	;;;	Dist Chatra	1921	14 Hill
fed provide comment	<u> </u>		Jharkhand 82		· :
[b] Details of Sample :		<u> </u>	Ambjert Air Quality		MAAQS)
[c] Sample Collected by		<u> </u>	SHIVA TEST HOU		na etectus municipalis
[d] Sampling Location	995.4	10.0	Collected from Near a		ne rilice busent
[6] Method of Sampling	د د کمان سام (ماران)		1S 11255 (Part-1;2,3		oner of attach
 Sampling Environment No. & Type of Contain 		1 27.5 (1.3)	Temp. (%C)	26 Humidity	<u>/ (%) ~ 67</u>
g) No. & Type of Contain in] Instrument (D	<u>खः :</u>	 	RDS-4 FPM-4		1.: -1 :: 11.:
[i] Sample Quantity		·····	30 ml x 6 for eac		LA ::
[j] Sample Code		- 111 2 1 3 3	4-3824	I (IVO); SO); NIT	197
[k] :: Sample Condition on R	Panaduri.		Fit for Analysis	1,	1,500,000 1,500,000
[1] Items required to be 1es		<u> </u>	As per contract	70 M	11
[m] Whether any specific N		act has	Ha par continuor	11111111	4.14.3
been suggested by the		COA 11400	a No		A. A.: 15
[n] Date of receiving the sa			09.11.22	".	****
[o] Analysis Start Date / A		nletion Date	09:11:22/11:11:22	, ,	· · · · · · · · · · · · · · · · · · ·
C CHIMIYSIS DAMIC DAMAS 14		:	1.11 #1.5		ation / Result
Parameters	Unit	Limit as per	Method of		of Switch Yard
		NAAQS 2009	Test		Bailding
1. Particulate Matter (PMio)	μg/m³	100	IS 5182 (Part-23)		1.8
2. Particulate Matter	† -—		CPCB	7.00	
(PM _{2,6})	µд / m²	1. 60 T	(GMAAP Vol.1)	· · · · 3	7:41
3. Sulphur Dioxide as SO ₂ ;	μg / m³	::: .80 ::::	IS 5182 (Part-2)	200 to 0.0 14	4.0 (1.15)
Nitrogen Dioxide as NO ₂	μg / m³	- 80	IS 5182 (Part-6)		4.Q
3. Lead (Pb)		W 1 :::	1S 5182 (Part-22)		14° ·
s. Ammonia as NHs	μg / m³	400	(S 5182 (Part-5)	4	6
7. Ozone (O ₃)	μg/m³ l	180	(S 5182 (Part-9)		5.5
				<u> </u>	11.0



Shreyasee Prasad

Authorized Signatory Quality Manager.

This report applies only to sample rested as above.

Total Liability of our Laboratory is limited to invoced amount.

Test Report and order only the tests and not the product confidence.

Test Report can not be reproduced partially or full for legislicount purpose without winten permission of the Laboratory

122-C, Austha, Road No. SA, Parlippin Colony, Pana - 200 (1)3 (Bilier)

Mob : #9186768862#9 ; #91943104790# : . . . Empil : stitustral@yaboo.co.inj.injio@altivoresi



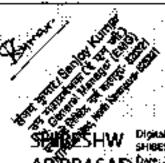
TEST HOUS

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF UIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SIMAN AND SIMAR STATE POLLUTION CONTROL BOARD

<u>test report</u>

Ref. No. STH/TR/22-23/8824(A	Dr: J	6.11.2022 Your V	Vork Order No. 4000	286067-037-1019 Dt : 31.07.2022	
ra Series and	:: E	.4:	Project	ura Super Thermal Power	
[a] Name and address of the	Customer	: • •	At: Tandwa Dist- Chatra		
<u>' ' </u>			:Jharkhand-8	25 321	
[b] Details of Sample			Ambient Air Qua	lity Monitoring (As per NAAQS):	
[c] Sample Collected by. :: .	•••	÷ '		USE on 08.11.22	
[d] Sampling Location			Collected from Nea	arthe top of Switch Yord Office Building	
[[e] : Method of Sampling	. ::		IS 11255 (Part-1,2	,3 & 7).	
[f] Sampling Environmental		: : .	Temp: (2C)	28	
g] No. & Type of Container	:		One poly Jan		
[i]h] [instrument [D]			ROS-4, FPM-4	·	
[i] Sample Quantity		:	30 ml x 6 for ea	ich (NO ₂ , SO ₂ , NH ₃)	
[i] Sample Code	1.		A-3824		
[k] Sample Condition on Rec	zeipt		Fit for Analysis		
[I] Items required to be teste					
[m] Whether any specific Me been suggested by the pa	thọc of Te	șt hais: ::.'';;;	No No		
[n] Date of receiving the sam	ple		09.11.22		
[o] Analysis Start Date / Ana	lysis Com	pletion Date	09.11.22 / 11.11.	22	
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Building	
1. Carbon Monoxide (CO)	mg/m³	.A	(\$ 6182 (Part-10)	: : Q.46	
2. Benzene (C ₆ H ₆)	μ g / m³	5	(5.5182 (Part-11)	0.08	
3. Benzo(a) Pyrene	ng/m³	1 1	: (\$ 5182 (Part-12)	.0.15	
4. Arsenic (As)	ng / m³	6.	AAS Method	: 0.36	
Nickel:as Ni	ng/m³	20	AAS Method .	, a - Hi - 1 5,73 , a - Hi	
8. Mercury (Hg)	ng / m³	Not Specified	US EPA (Molhod IO-5):	0.58	



Digitally signed by SHIBESHWARPRASAD Daig: 2022.12.07 15:30:24 +05'90'

Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2022, t2,07 15.36.42 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample lested as above ...
Total Leability of our Laboratory is writed to weeked amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legalicourt purpose without written permission of the Laboratory.

172-C, Asspira, Road No. SA, Pattiputra Colony, Patria = 800 011 (Riban)

Mcb. +912676826249 +919431047988

sthrama)@vahoo.go.eq i jufb@shrva.est.com

Website www.thivetett.com; www.shivetesshowse.com





÷:::

(Serving since (988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MAERCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1966, DEPTT OF BIOUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BINAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No: STH/TR/22-23/3829	De.: 06.12.2022 Your W		5067-037-1019 Dt.: 32.97.2022			
			a Super Thermal Power			
TO analogic to the formation	rge i militar kalenda	Project				
[a] Name and address of the	Customer	At: Tandwa				
4,55-		Dist- Chatra				
F1		Jharkhand-825				
[b] Details of Sample			Monitoring (As per NAAQS)			
[c] Sample Collected by	···· · · · · · · · · · · · · · · · · ·	SHIVA TEST HOU				
[d] Sampling Location	:-:::: !		the top of Switch Yard Office Building			
[e] Method of Sampling		IS 11255 (Part-1,2,3)				
[f] Sampling Environmenta		Temp: (°C)	29: Humidity (%) 66			
[g] No. & Type of Containe	1	: One poly Jar				
[h]: Instrument ID.:	<u> </u>	RDS-3, FPM-3	_i			
[J] Sample Quantity	<u></u>	30 ml x 6 for each (NO2; SO2; NH3)			
[i] Sample Code	<u> </u>	A-3829.				
[k] Sample Condition on Re		Fit for Analysis				
[f] Items required to be test	<u></u>	As per contract				
(m) Whether any specific Me		No				
been suggested by the pa						
[n] Date of receiving the sar	nple:	11.11.22	# 0 17.1 P.B			
[o] Analysis Start Date / An	alysis Completion Date	11.11.22 / 13.11.22				
1	Limit as per	Method of	Sampling Station / Result:			
Parameters	Unit NAAOS 2009	Test	Near at the top of Switch Yard Office Building			
1. Particulate Matter (PM ₁₀)	μg / m³ 100:	1S 5182 (Part-23)	69.0			
2. Particulate Matter (PM ₂₃)	μg / m ^y 60	CPCB (GMAAP Vol. I)	35.9			
3. Sulphur Dioxide as SO ₂	;μg / m³;80 ° :	IS 5182 (Part-2)	12.1			
Nitrogen Dioxide as NO₂	μg / m³ 80 :::	IS 5182 (Part-6)	33.4			
Lead (Pb)	μg / m ³ 1	IS 5182 (Part-22)	0.22			
6. Ammonia as NHs	μg / m³ 400····	IS 5182 (Part-5)	3.8			
	μg / m³ 180	IS 5182 (Part-9)	1.17.1 13.3			
	. MOG 7 171	1 10 0 (102 (1 041-0)				



Technical Manager

9atna 200013

Shreyasee Prasad

Shreyesee Presad Date: 2022 12:07 ... 15:39:33 •05:30':: Authorized Signatory

Quality Manager

This report applies only to sample realed as above.

Total Liability of our Laboratory at firmled to invoiced emocat.

Test Réport endorsed only the tests and not the product cartilicate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory:

102-C. Azetha, Road No. SA, Philipton, Colony, Page - 200 013 (Riber)

Mrsh :+91\$6768\$62\$9; +919431047908

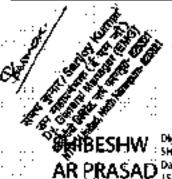
Empil ... stepaine (இveloor on in pierfor@slevnets com



RECOGNIZED AS ENVIRONMENTAL LABORATORY BY MAEFCC, COVY. OF MIDIA; UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEP OF MOUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SHAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/T	R/22-23/3829(,	A) Dt : 00	5.12.2022 Your V	Vark Order No.: 4000	285067-037-1019	Dt: 31.07.2022		
	· :·		in til	North Karanp Project At: Tandwa	ura Super Therm	al Power		
	}		·- ·."··					
[b] Details of	Sample	· ·:.	· · · · · · · · · · · · · · · · · · ·			er NAAOS)		
		·.	1					
[d] Sampling	Location	: ::::::				d Office Building		
	f Sampling	1.	•					
[f] Sampling	Environmenta	l Condition		Temp. (°C)	29 Humid	Nry (%) 66		
[g] No. & Ty	pe of Containe	ı		One poly Jar				
[h] Instrume	n ID	÷ . · '.		RDS-3, FPM-3	:. ·			
(i) "Samijle (oantity			30 ml x 6 for eac	h (NO ₂ , S(O ₂ , NH ₂)	٠.		
Sample C	ode	. •		A-3829	• :.	* . •		
			Fit for Analysis					
(l) ltems req	uired to be test	ed ··	· · ·	No				
			at has					
[n] Date of N	ceiving the sar	mple		11.11.22	: '	٠.		
[o] Analysis	Start Date / Au	alysis Com	oletjon Datė	11.11,22 / 13.11.	22 :			
Parame	lere	Ųńīl	Limit as per NAAQS 2009	Method of Test	Sampling St <u>al</u> Near at the top of Office Bu	i Switch Yard		
 Carbon Mono 	xide (CO)	mg/m³	: 4	IS 5182 (Part-10)	0.45			
		μ g / m 3::	· ·5····	:::IS:5182 (Part-11)	: : 0. <u>1</u>	2		
3. Benzo(a) Pyr	ene		1	IS 5182 (Part-12)	0.14	5		
4. Arsenic (As)	:.		6	AAS Melhod	∷ ··· 0.5	0 ::		
5. Nickel as Ni		ng / m³	20	AAS Melhod	4.4	O		
6. Mercury (Hg)	· .	ng 7 m ³		USEPA	2.6	. :		
	[a] Name and [b] Defails of [c] Sample C [d] Sampling [e] Method of [f] Sampling [g] No. & Ty [h] Instrumer [ii] Sample C [ii] Sample C [ii] Sample C [iii] Sample C [iii] Sample C [iii] Sample C [iiii] Sample C [iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	[a] Name and address of the [b] Details of Sample [c] Sample Collected by [d] Sampling Location [e] Method of Sampling [f] Sampling Environmento [g] No. & Type of Contains [h] Instrument ID [ii] Sample Quantity [ii] Sample Code [k] Sample Condition on Re [k] Sample Condition on Re [l] Items required to be test [m] Whether any specific M been suggested by the point [in] Date of receiving the sample of the point [in] Parameters 1. Carbon Monoxide (CO) 2. Benzene (CoHe) 3. Benzo(a) Pyrene 4. Arsenic (As) 5. Nickel as Ni	[a] Name and address of the Customer [b] Details of Sample [c] Sample Collected by [d] Sampling Location [e] Method of Sampling [f] Sampling Environmental Condition [g] No. & Type of Comminer [h] Instrument ID [i] Sample Quantity [ii] Sample Code [k] Sample Condition on Receipt [li] Items required to be tested [m] Whether any specific Method of Testeen suggested by the party [in] Date of receiving the sample [o] Analysis Start Date / Analysis Comparameters Unit 1. Carbon Monoxide (CO) mg / m ³ 2. Benzene (CeHs) µg / m ³ 3. Benzo(a) Pyrene ng / m ³ 4. Arsenic (As) ng / m ³ 5. Nickel as Ni ng / m ³	[a] Name and address of the Customer [b] Details of Sample [c] Sample Collected by [d] Sampling Location [e] Method of Sampling [f] Sampling Environmental Condition [g] No. & Type of Comainer [h] Instrument ID [i] Sample Quantity [ii] Sample Code [k] Sample Condition on Receipt [li] Items required to be tested [m] Whether any specific Method of Test has been suggested by the party [n] Date of receiving the sample [o] Analysis Start Date / Analysis Completion Date Parameters Unit Limit as per. NAAQS 2009 1. Carbon Monoxide (CO) mg / m³ 4 2. Benzene (CoHe) µg / m³ 5 3. Benzo(a) Pyrene ng / m³ 1 4. Arsenic (As) ng / m³ 2 5. Nickel as Ni ng / m³ 2	North Karanp Project At: Tandwa Dist- Chatra Jharkhand- 8 Jharkhand- 8 Ambient Air Qua Sample Collected by SHIVA TEST HO Sampling Location Is 11255 (Part-1,3 If Sampling Environmental Condition Is 11255 (Part-1,3 If Sampling Environmental Condition Is 11255 (Part-1,3 If Sampling Environmental Condition Is 11255 (Part-1,3 If Sample Quantity 30 ml x 6 for each A-3829 Is 1 Sample Code A-3829 Is 1 Sample Condition As per contract As per contract Is 1 Items required to be tested As per contract As per contract Is 1 Items required to be tested As per contract Is 1 Items required to be tested As per contract In Items required to be tested As per contract In Items required to be tested As per contract In Items required to be tested Items required to be tested Items required to be tested As per contract In Items required to be tested Items required to	At: Tandwa Dist- Chatra Dist-		



Verified by : Technical Manager

Digitally signed by SHIBESHMAR PRASAD: Date: 2022.12.07 15:32:15 +05'30'

800013

Shreyasee Prasad

Shreya; ne Prasad Oste: 2022-17:07 193**9.52 +05 30**1 Authorized Signatury Quality, Manager

This report applies only to sample tested as above:

Total Leiblity of our Leborarchy is finited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially, or full for legal/court purpose without written permission of the Laborarchy.

122-C. Aastha, Road No. SA. Partheutra Colony, Parm - 800 013 (Bahan)

Mob.: +918676386249 : +919431047908

prove shinglest conti: ye

stroma i <u>Zyston</u> co, m., info@shiveteu



HIVA TEST HOUS



(Serving since 1988)

RECOGNSED AS ENVIRONMENTAL LABORATORY BY MOSPCC, GOVE OF MONA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND SWAR STATE POLLUTION CONTROL

TEST REPORT

<u> </u>	::::::	•••	4 . 4 5 15	: 10 f 1			
Ref. No.: STH/TR/22-23/38	82 Dt 46	. <i>12.2022</i> Your Wo	ork Order No. 4000286	067-037-1019 D	: 31.07.2022		
	7: 1	· · · · · · · · · · · · · · · · · · ·	North Karangu	ra Super Therm	al Power		
1 / 21			Project		9.53		
[a] Name and address of the	be Customer	r i va ili i	At: Tandwa				
ada i maalada i			Dist- Chatra	2003			
		<u> </u>	Jharkhand- \$2	5 321	A. A		
[b] Details of Sample	<u> </u>			Monijoring (As.per h	IAAQS)"		
[c] Sample Collected by:	year.	<u>":</u>	SHÍVÁ TEST HOL	ISE on: 15.11,22			
(d) Sampling Location		n na Hara		the top of Switch Ture	Office Building		
[e] · · . Method of Sampling		ė.	IS 11255 (Part-1,2,3	& 7).			
[f] Sampling Environment	al Conditio	n	Temp?(°©)∷	26 Humidity	%) 62		
[2] No. & Type of Contain	iei -		One poly Jar				
[h] Instrument ID	an entry	98 P.	RDS-3, FPM-3) .		
[i] Sample Quantity			30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₃)	:· .:		
	, (A	17713 3	A-3882:	1:1411	:: i		
[k] Sample Condition on F	Receipt 🚟 🧓	Area	Fit for Analysis		₹:		
[i] Items required to be tes	sted ·		As per contract				
[m] Whether any specific ?	dethod of T	est bas(Ygg)	No. 2 A S	1.100	8. 18. 18.		
been suggested by the	party	1		_::			
Int Date of receiving the s		4.0	.t.: 16 11.22 19.10	Jirdi i i i i i i i i i i i i i i i i i i	:		
[o] Analysis Start Date / A	inallysis Con	apletion Date	16.11.227.18.11.2		<u> </u>		
	4 1	Limit as per	Method of	Sampling Sta	tion / Result		
Parameters	Unit	NAAQS 2009	Tesi	Near at the top	of Switch Yard		
to shotsaat	3	1000 2000	1:	Office B	uilding		
1. Particulate Matter (PM ₁₀)	_ μg / m³_	.100	IS 5182 (Part-23)	::::::::::::::::::::::::69.	6 . :		
2, Particulate Matter	μg / m²	60	CPCB	36.	• 1		
(PM _{2.5})	µg / iii	<u> </u>	(GMAAP Vol.4)	,	·		
3. Sulphur Dioxide as SQ ₂	μg/m³	80	(8 5182 (Part-2)	12.	6 " ';' '		
Nitrogen Dioxide as NO ₂	μg/m³	: :::80 :::::	(\$ 5182:(Part-6)		8 : ::: 1:::		
Lead (Pb)	μg / m ^g :	· · · · 1	18 5182 (Part-22)	0.20)2.::		
6. Ammonia as NH ₈	μ g / m 3 ³	400. · · · ·	IS 5182 (Parl-5)	10 Sec. 1917	j: . ,		
7. Ozone (O₃) ≼	μg/m³	180	IS 5182 (Part-9)	13.	9 ::::		
	4 144 14		1	· · · · · · · · · · · · · · · · · · ·			



Verified by : Technical Manager



Shreyasee Prasad

Dere: 2022.1297 athorized Signatory Quality Manager

- Total Lighting of our Laboratory is timed to involced amount.

 Test Report entersed only the tests and not the product certificate.

 Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C. Aasrid. Road No. SA. Pattipptita Colony, Patna - 800 013 (Bilipm)

Mob.: +911676256249; +919471047908 Email : athorita Liftvehoo.co.in info@strones



VA TEST HOU

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTE. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVY, OF BRIAR AND BRIAR STATE POLILITION CONTROL BOARD

	:		1 7 17,11			. ::.:.		
Ref. No. STH/TR/22-23/3882	(A) Dt: 60	12.2022 Your	Work Order No. 400	0285087-037-10	19. Dt: 31	.07.202		
11. · · · · · · · · · · · · · · · · · ·				ura Super The				
		·· .	Project			/ -		
[a] Name and address of th	e Customer	: .	At: Tandwa			.: :		
121			Dist- Chatra	:		·:·. :		
Ę I		•	: Jharkhand- 8	25 321	:.			
[b] Details of Sample	i	·		dity Monitoring (As per NAA(O\$1 : :		
[c] Sample Collected by	•			USE on 15.11.2		1. :		
[d] Sampling Location	.:	•		e at the top of Switch		nilding		
[e] Method of Sampling	.:-	.:	" IS 11255 (Part-1,2					
[f] Sampling Environment	at Condition	· · · · · · · · · · · · · · · · · · ·	Temp. (°C)		midity (%)	62		
[8] No. & Type of Contain	er		One poly Jar					
[h] Instrument (D	·· ·	: .	:_ RDS-3, FPM-3		· . · · ·			
[i] Sample Quantity	٠.	. :	30 ml,x 6 for eac	ti (NO _{2, SO_{2, NH}}	;) ·	:::::		
[j] Sample Code 🗀 🗄				A-3882				
[k]: Sample Condition on R	eceipt	'1	Fit for Analysis					
 Items required to be tes 	1ed		As per contract					
(m) Whether any specific M		st has	No					
been suggested by the p		<u>: · · · · · · · · · · · · · · · · · · ·</u>	:	.: '' '''				
[n] Date of receiving the sa		·: ·	16.11.22	•••	<u>: </u>			
[o] Analyşis Start Datë / Ar	nalysis Com	pletion Dale	16.11.22 / 18.11	.22				
``. ::	:.	Limit as per	Method of	Sampling :	Station / Re	ault		
Parameters	Unit			Near at the t	up of Switch	Yard		
<u> </u>	1 :	NAAQS 2009	Test	Offic	e Building			
1. Carbon Monoxide (CQ)	ring / m³	.:4::	IS 5182 (Part-10)	: ' ' 1	0.341	· · · · · · · · · · · · · · · · · · ·		
2. Benzene (C ₆ H ₆)	μg/m³	. 5 :	(S 5182 (Part-11)	.ei	0.11			
3. Benzo(a) Pyrene	ng/m³	1 1	(\$:5182 (Part-12)	Γ'	0:14			
4. Arsenic (As)	∷ing / m³	6 :	AAS Method	·::	0.43			
Nickel as Ni	ng / m³	20 .	AAS Method		1.47	:		
o. Mercury (Hg)	ng/m³	Not Specified	.:: US EPA	····-	ŏ.55 ^{::.}			



· Verified by : Technical Manager



Shreyasee: Prasad

Cogitally signed by Shreyased Fyasad Date: 2022.12.07 1**5:50:37 +**05'30' Authorized Signatory Quality Manager

This report applies only to sample lested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

.::

122-C, Azsika, Rozd No. SA, Palleguets Colony, Page - 300 013 (Biltar)

Mc6 +918676186249 . +919431047908

www.shoonest.ores : wwo

sthouted lightwhool.com in info@shinatest.com

Page I of I



A TEST HOU

(Serving slace [988)



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOVT, OF INDIA, UNDER SHVIROHMENT (PROTECTION) ACT 1968, DEPTE WENT, GOVT. OF BRIAR AND BHOAR STATE POLLUTION CONTROL

TEST REPORT

	·.:.;	, \$111.					
Ref. No. STH/TR/22-23/3900			ork Order No. 40002	5067-037-1019 Dt.: 31-07-2022			
	,## <i>6</i> 	60 0 50 ()	North Karanpui Project	a Super Thermal Power			
[a] Name and address of th	e Customer		At: Tandwa	i kumbim Kalika			
ed Laie 1.1	· .:··	' n 135 Y 136	Dist-Chaira	and the state of t			
NA DAME OF		4	Jharkhand- 82	5 3 2 1			
[b] Details of Sample	:: :	** :- i.:		Monttoring (As per NAAQS)			
[c] Sample Collected by:	1.4	1 20 1 1 1 1	SHIVA TEST HOU				
[d]: Sampling Location		·		the top of Switch Yard Office Building			
e] Method of Sampling		58 p	:: IS 11255 (Part-1:2,3				
f] Sampling Environment		n	Temp (%C)	26 Humidity (%) 68			
No. & Type of Contains	<u> </u>	<u> </u>	One poly Jar	alle and the second			
h Instrument ID			RDS-4, FPM-4				
il Sample Quantity	.903	2017/12/14/2		h (NO2, SO2, NH3)			
i] Sample Code		<u></u>	A-3906	10 50			
k] Sample Condition on R		· · · · · · · · · · · · · · · · · · ·	Fit for Analysis As per contract				
ltems required to be test		** pro-					
m) Whether any specific M			No ::				
been suggested by the p Date of receiving the sa		· · · · · · · · · · · · · · · · · · ·	17.11.22 17.11.22 / 19.11.22				
o] Analysis Start Date / An		anletion Doto:					
Ol Missississis State Pare 1 (4)	igiyata Con	· · · · · · · · · · · · · · · · · · ·	········	Sampling Station / Result			
Parameters	Unit	Limit as per	: ::::::: Method of ::::::::	Near at the top of Switch Yan			
		NAAQS 2009	Test ::	Office Building			
. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	1000 Table 71.2			
. Particulate Matter:			CPCB				
(PM _{2.5})	μg / m³	·· 60	(GMAAP Vol. I)	38.2			
Sulphur Dioxide as SO ₂	∴μg / m³	:80:::	IS 5182 (Part-2)	" jjij 14.2 j ;			
Nitrogen Dioxide as NO ₂	. μg / m³	. 80	IS 5182 (Part-6)	32.4			
Lead (Pb)	μg / m³	1	15:5182 (Part-22)				
Ammonia as NH ₃	μ ο / m ³	400	IS 5182 (Part-5)	3.5			
Ozone (Os)	μg/m³	180	IS 5182 (Part-9)	18.5			
				1 11			

AR PRASAD 154802-05

Verified by : Technical Manager



Shreyasee Prasad

Shreyasee Prasad Date: 2022-12:07 Authorized Signatory

Quality Manager

This report applies only to sample rested as above.

Total Liability of our Laboratory is limited to invoiced amount

Text Report endorsed only the tests and hat the product certificate.

Test Report can not be reproduced partially or full for legaticourt purpose without written permission of the t

122-C/ Addis, Boat No. 5A. Palipolis Colody, Patro - 102 (13 (Bilder)

Mob. +918676186249 : +919431017908



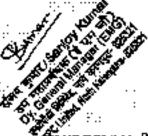
VA TEST HOUSE

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1988, DISPI RENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

· ·	::.::		i : .:i			
Ref. No. STH/TR/22-23/3906	(A) Dι: θ	6.12.2022 Your V	Vork Order No. 4000	0285067-037-1019 Dt: 31.07:2022		
: ::::::::::::::::::::::::::::::::::::	٠.			ura Super Thermal Power		
		···!	Project			
[a] Name and address of th	e Customer		At: Tandwa	自 电 。		
	···		Dist-Chatra:			
		:	" "Jharkhand- 8	25 921		
[b] Details of Sample	•	:	Ambient Air Quo	thry Monitoring (As per NAAQS)		
[c] Sample Cultected by	·:	· .:	SHÌVA TEST HO	0USE on 16.11/22		
[d] Sampling Location		·· <u>·</u> ···	Collected from New	is the top of Switch Yard Office Building		
[e] Method of Sampling		: <u>.</u>	1S 11255 (Part-1.2	,3 & 7)		
[f] Sampling Environment	al Condition	.: :::	Temp: (*C)	26 Humidity (%) 68		
t) No. & Type of Contain	eii .	:	Qne poly Jar			
n) Instrument ID		.: .:	RDS-4, FPM-4			
[i] Sample Quantity :		. ::	30 ml x 6 for ea	sch (NO ₂ , SO ₂ , NH ₃)		
[j] Sample Code :	<u>.</u> :		A-3906			
[k] Sample Condition on R	eccapt :	:: ::	Fit for Analysis As per contract No			
 Items required to be test 	ted	·				
[m] Whether any specific M	lethod of Te	st has				
been suggested by the p	arty	: "				
n Date of receiving the sa	mple · ·		17.11.22			
[o] Analysis Start Date / Ar	nalysis Com	pletion Date	17.11.22 / 19.11.	22		
	:	Lovii as per	Method of	Sampling Station / Result		
::::: Parameters	Unit	NAAQS 2009	Test	Near at the top of Switch Yard		
			: ICM :	···· Office Building		
 Carbón Monoxide (CO) 	mg/m³	[141]	(\$ 5182 (Pert-10)	0.34		
2. Benzene (C ₆ H ₆)	μg / m³	5	(\$ 5182 (Pert-11)	0.06		
3. Benzo(a) Pyrene	ng / m³	1	. (S.5182 (Part-12)	0,19 ".:		
4. Arsenic (As)	ng / m³	6	AAS Method	0.36		
Nickel as Ni	ng/m³	. 20::	AAS Method	4.30		
6. Mercury (Hg)	pg/ma.	Not Specified	US EPA	0.33		
	*******		· (Method (0-5)	::		



÷ .:-

> Digitally signed by SHUBESHWAR PRASAE : AR PRASAD Date: 2022.12.07

Verified by Technical Manager



Shreyasee

Prasad

Digitally signed by Shreyasee Prasad Date: 2022-12-07 13:52:55 +05'30'

Adthorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Lumbing of our Laboratory is invited to invoked amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially, or full for legal/court purpose without written permission of the Laboratory,

Comfact us :

122-C: Arisika, Road No. SA, Patliputes Colony, Patna - 800 013 (Bilian)

Mobi. +918676886249 : +919431047908 sabpano (@yahoo eo en o indo@shovates) com

::i

Page 1 of 1



VA TEST HOUS

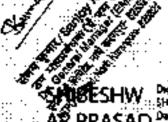
(Serving since 1988)



ENTAL LABORATORY BY MOEFOC, GOVE OF HIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1995, DEPT OF INDUSTRY, FORESTS & ENVIRONMENT, GONT, OF BHAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref No. STH/TR/22-23/428	1 Dt: 96.12.2022 Your	Work Order No. 40002850	47-037-1010 Dt ; 31.07.2022
9.489	:		Super Thermal Power
rat www.date.		Project	
[a] Name and address of th	e Castomer	At: Tandwa	
v um mann um	i de de la companya d La companya de la co	Dist-Chatra	ene e de la companya
		Jharkhand- 825	321
[b] Details of Sample ::	: 1		Aonitoring (As per NAAQS)
[c] Sample Collected by :		SHIVA TEST HOUS	
:[d]:: Sampling.Location	. 111- 1	Collected from Near &	the top of Switch Yord Office Building
[e] Method of Sampling	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	IS 1,1255 (Part-1,2,3-6	\$* 7)
[f] Sampling Environment		Temp: (°C):	25 Humilatty (%) 70
 No. & Type of Contains 	èr : :	One poly Jar	<u>. a - i - i - i - i - i - i - i - i - i -</u>
an lostroment (D	er in the second of the second	RDS-4, FPM-4	
[i] Sample Quantity :::	<u>en di Miller (</u> tti man di	30 mt x 6 for each (I	NO2, SO2, NH3)
[j] Sample Code	erin e e e e e e e e e e e e e e e e e e e	A-4281	
[k]: Sample Condition on Re	eceipt :::;;***::	Fk for Analysis ::	. 1:1
[1] Items required to be test		As per contract	第一日 14 44 年 11 /
[m] Whether any specific M	lethod of Test has		That is the second of the second
been suggested by the p	arty	Nonana ag	in the second with the
n] Date of receiving the sa	mple ::::::::::	28.11.22	·
[o] Analysis Start Date / Ar	nalysis Completion; Date:	28.11.22/30.11.22	
は計算 (A) 1943	Limit as per	Method of	Sampling Station / Result
: Parameters :	Unit NAAQS 2009	Test	Near at the top of Switch Yard
n e <u>jeden i naktuur j</u>		1586	Office Building
1. Particulate Matter (PM ₁₀)	<u>ng / m³ 100 </u>	IS 5182 (Part-23)	73.7
2. Particulate Matter	ua / m² 60	CPCB	40:3-7-6
(PM _{2.6})	pg / m ³ 60	(GMAAP Vol. I)	40.9
3. Sulphur Dioxide as SO ₂ .	jug / m²80	(S 5182 (Part-2)	12.9
Nitrogen Dioxide as NO ₂	μg / m³ 80	IS 5182 (Part-6)	35.6
s. Lead (Pb)	pg/m² 1	(S 5182 (Part-22)	0.119
a. Leau (FD)		103 0 102 (Fai(-22) 1)	
6. Ammonia as NH ₃ 7. Ozone (O ₂)	μg / m ³ 400	IS 5182 (Part-5)	4.3



Verified by : Technical Manager



Shreyasee Prasad

9rreyasee Plasad (00) £: 2072.12.07 -16:00:01 +05:30; Authorized Signatory Quality Manager

This report applies only to sample leated as above.

Total Lipbility of our Laboratory is limited to invoiced amount,

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permit

1229C. Attithe. Road No. SA, Polladydra Colony, Paria - 100 011 (Balan)

Mnb : +918676886249; +919431047908

- Emerity : selectional @pselection.co.or...in/h@

Shivetesthouse user



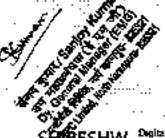
IVA TEST HOUSE

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT, OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT (988, DEP) OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BINAR AND BINAR STATE POLICITION CONTROL BOARD

TEST REPORT

Ref. No.: STR/TR/22-23/4281(A	Dr - 06	.12.2022 Your	Work Order No. 406	M985047_097	rara De 31	.07.2022
	·····				Thermial For	
			Project	Para.oap		
[a] Name and address of the	Customer	•	At: Tandwa			:.
ini er reggi er		:	Dist-Chatra			:
<u> </u>			Jharkhand-	825 321	· 41 · 1	
[b] Details of Sample		<u></u> .			ring (As per NA.	4 <u>0</u> S)
[c] Sample Collected by			SHIVA TEST H			
[d] Sampling Location					Switch Yard Office	Building
[e] Method of Sampling.		··	· · · IS 1.1255 (Part-I.			
[f] Sampling Environmenta			Temp. (°C)		Humidity (%)	70
No. & Type of Containe	<u> </u>		One poly Jar	·	<u> </u>	
h] Instrument ID	1:1		RD\$-4, FPM-4		4	
[i] Sample Quantity	•	··· ·	30 ml x 6 for ea	ch (NO₂, SO	2, NH3)	<u>.</u>
[j] Šantple Code			A-4281	<u> </u>		<u> </u>
[k] Sample Condition on Re			. Fit for Analysis			
[1] Items required to be test			As per contract			
[m] Whether any specific Me			No	÷.:	:	.:
been suggested by the pe			::	·	<u> </u>	
[n] Date of receiving the sar			28.11.22			
[0] Analysis Start Date // An	physis Comp	letion: Date:	28:11:22/30.11			<u>;;</u>
·		Limit as per	Method of ::-		oling Station / F	
·· Parameters ··	Unit	NAAQS 2009	Tesi	Near at	the top of Swit	
- D-4-2-15224-10-022	222 - 4 9		10.00.00.00.00.00	 	Office Building	·
Carbon Monoxide (CO)	mg/m³	4 .	IS 5182 (Part-10)		0.34	- : -
2. Benzene (C ₆ H ₆)	μg / m³	. 5	IS 6182 (Part-11)		0.11	-
3. Benzo(a) Pyrene	ng/m³	1 .	IS 5182 (Part-12)	· · · · · ·	0.20	
4. Arsenic (As)	; eg / m³	.: -: 6:	AAS Method	+ :	···· 0.44	··: <u>·</u>
Nickel as Ni	ng/m³	20	AAS Method	. 	2.86	<u></u>
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Method 10-5)	:	0.36	



AR PRASAD (0Ma: 2022.12.07 15:55:49 +05'30'

Verified by : Technical Manager



Prasad

Shreyasee Shreyasee Prasad Digitally signed by Diag: 2022.12.07 16:00:16 +05'30'

> Authorized Signatory Quality Manager

- This report applies only to sample tessed as above.

 Total Liability of our Laboratory is limited to invoiced amount.

 Test Report entiremed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purposa without written purmission of the Laboratory

122-C, Asiaha, Read No. 5A, Paglipuora Colony, Paise - 800 013 (Bihari

M6b.: +918676886349 : +919431047908

athpatoal @yelloo.co.in info@shiveess.com

Page 1 of 1



TEST HOU

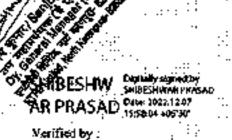


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFICE, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1905, DEPTY. OF INDUSTRY, FORESTS & ENVINORMENT, GOVT, OF BHAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

		`` :	i	4449		- wi .	
Ref. No. STH/TR/22-23/4302	"[Di: #6.12.20	222 - Your \	Vort Order No. 400028	8047-037-1019	Dt : 31,07	2622	
			North Karanpu	ra Super Ther	mal Powe	ı	
VV II			Project				
[a] Name and address of the	e Customer		At: Tandwa	*: .		7.	
The state of the s			Dist- Chatra				
<u> 1864 - 1864 - 1864 - 1864 - 1864 - 1864 - 1864 - 1864 - 1864 - 1864 - 1864 - 1864 - 1864 - 1864 - 1864 - 1864</u>	<u> </u>		Jharkhand- 82		<u>_ , </u>		
[b] Details of Sample		., :	Ambieni Air Quality		r NAAQS)		
[c] Sample Collected by		<u> </u>	SHIVA TEST HOU	ISE on 27:11.22			
d Sampling Location		: 1:	Collected from Near i		and Office Bi	dialog.	
[e] : Method of Sampling	-,'- :-, :'-:		IS 11255 (Part-1:2:3	<u>ወን</u>	`:::::::::::::::::::::::::::::::::::::		
[1] Sampling Environments		* ". :""	Temp. (*C)	26 Humidi	(y (%)	83	
81 No. & Type of Contains	erinin		One poly Jan				
[h] Instrument ID	:: :::· ::		RDS-4, FPM-4	:			
[i] Sample Quantity :	• • • • • • • • • • • • • • • • • • • •	• • : . *	30 ml x 6 for eac	$h(NO_2, SO_2, N)$	H ₃)		
[j] :Sample Code	::::: .	. : : : : : : : : : : : : : : : : : : :	A-4302	1,10,1,114			
[k] Sample Condition on Re	eceipt		Fit for Analysis	. :	£340.		
[l] Items required to be test	ted		As per contract				
[m] Whether any specific M	ethod of Test ha	as '- : ; - ; '	No :				
been suggested by the p	arty	. : · ··.			. :::::		
Date of receiving the sa	mple		28.11.22				
o] Analysis Start Date / Ar	alysis Completi	ion Date	28.11.22 / 30.11.2	2		;; · ·.	
	1.		Method of	Sampling 8	Station / Re	suit	
Parameters		mil as per IAQS 2009	Test	Near at the to	p of Swite	b Yar	
·		MG3 2008	1691	Office	Building	٠	
ı. Particulate Matter (PM ₁₀)	ug / m³	100	IS 5182 (Part-23)		73.7		
2 _e Particulaté Matter		60	:: CPCB : ··		42.0		
(* (PM _{3,5})	μg / m³	60	(GMAAP Vol. 1)	1:::	42.0		
3. Sulphur Dioxide as SO ₂	μg / m³	- 60	IS 5182 (Part-2)	.4 1 (1957)	14.5		
Nitrogen Dioxide as NO ₂	յալ / m³	80 .	IS 5182 (Part-6)		36.4		
Lead (Pb)	μg / m³	1 .:	IS 5182 (Part-22)		0.20		
s. Ammonia as NH ₃	μg / m³	.400	IS 5182 (Parl+5)		4.7		
7. Ozone (Os)	gg / m ³	180	IS 5182 (Part-9)	10.00	22.5	1	



Patina \$00013

Shreyase Prasad

H5:04:18 +05:30 Authorized Signatory Quality Monoger

Technical Manager

Yotal Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced peritally or full for legaticoust purpose without written permission of the Laboratory

122-P. Assibe, Road No. 5 A. Pathippina Colony, Pouns 100 013 (Bahan)

2566. +918676886249 - +919431047908

sthustate (@wahoo on in im/o@staivates) com



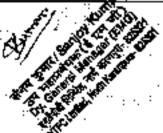
A TEST HOU

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY NIVEFCC, GOVT, OF MIDUL UNDER ENVIRONMENT (PROTECTION) ACT 1986, OF BIOUSTRY, FORESTS & EINTROHMENT, GOVT, OF SHAR AND BRIAR STATE POLLUTIO

TEST REPORT

	: ' : :: : : : : : : : : : : : : : : :	·::	· · · · · · · · · · · · · · · · · · ·					
Ref. No.	STH/TF/22-23/4302(A)	Dt: .96.7	72.2023 Your Y			019Di : 31.07.2022 -		
[a]	Name and address of the	Customer		North Karanp Project At: Tandwa Dist- Chatra	ura Super	Thermal Power		
:	13:11:43	· • ;	· <u></u>	. Jharkhand- 8	325 321	:: .::::		
[b]	Details of Sample					ng (As per NAAQS)		
[0]	Sample Collected by	•		SHIVÀ TEST HO	-			
[4]	Sampling Location		···			viich Vard Öffice Building		
'[e] ''	Method of Sampling			· · · I\$ 11255.(Pan-1,2				
[f]	Sampling Environmenta		<u> </u>	Temp. (°C)	26	Humidity (%) :: 63		
<u>g] </u>	No. & Type of Containe	<u>r ' ' </u>		. :. Ohè poly Jar:	:	· ··· :. ·· · · ·		
<u>. (14) : </u>	Instrument ID			RDS-4, FPM-4	:: '			
(i)	Sample Quantity	<u>:</u>	<u> </u>	30 ml x 8 for ea	ach (NO ₂ , St	D ₂ , NH ₃)		
<u> </u>	Sample Code	· :	:·	A-4302		<u>.: .: .: .: !</u>		
(k):	Sample Condition on Re			Fit for Analysis As per contract				
[1] :-	Items required to be teste							
[m]	Whether any specific Me been suggested by the pa	irty	st has	No .				
.[n] .	Date of receiving the sar			28.11.22	<u> </u>	<u> </u>		
[o] <u> </u>	Analysis Start Date / An	alysis Com	pletion Date	28.11.22 / 30.11.22				
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at t	ing Station / Result. :: he top of Switch Yard Office Building		
1. Carb	on:Monoxide (CO)	mg/m³	· :4·	IS 5182 (Part-10)	1::	0.48		
2. Ben	zëne (C₀H₅)	μg/m³	5	.: IS 5182 (Part-14):	. :. :	0.14:		
.e. Ben	zo(a) Pyrene	ng / m³	1	: (8 5182 (Part-12)		0.22		
	nic (As)	ng / m ³	: :6:	AAS Method	:	0,44		
Nick	el as Ni ···	ng / m³	20	AAS Méthod	5.00	5. 4.30		
8. Merc	cury (Hg)	π8 (:μ/ ₃ ::	Not Specified	US EPA (Method IC-5)		0.40		



AR PRASAD (13 50x16 +05 30)

 Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2072.12.07 16:04:35 +06'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is imited to invoiced amount.

Test Report emdorsed only the tests and not the product certains.

Test Report can not be reproduced partially or full for logal/court purpose without written permission of the Leborato

122-C, Asialia, Road No. SA, Politipijus Colony, Pates - 600-015 (Bihpr)

Mob · +9186768862#9 : +91945164790#

athoritation on the confidential and and



ENTAL LABORATORY BY MOEFCC, GOVE, OF MOIA, UNDER ENVIRONMENT (PROTECTION ACT 1888, DEPT BYT, GOVE OF BHIAR AND BRIAN STATE POLLUTION CONTROL

F1			a Super Thermal Power
[a] Name and address of the C	Oustomer : ::::::	Project At: Tandwa	
		Dist- Chatra	
	<u> </u>	Jharkhand- 825	
[b] Details of Sample	<u> </u>		Monitoring (As per NAAQS)
[c] Sample Collected by	· · · · · · · · · · · · · · · · · · ·	SHIVA TEST HOUS	
[d] Sampling Location	11.11.11.11		the top of DM Plant
(e) Method of Sampling		IS 11251 (Pan-1-2,3)	
[f] Sampling Environmental (Condition : :	Temp: (°C)	29. Humidity (%) 68
g). No. & Type of Container		One poly Jar	<u> </u>
h Instrument ID		RDS-3, FPM-3	HOLOG AND TO THE TOTAL OF
[i] Sample Quantity		30 ml x 6 for each (NO2, SO2, NH3)
[j] Sample Code		A-3553 ::	* . '
[k] Sample Condition on Reco		Fit for Analysis	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
[l] Items required to be tested [m] Whether any specific Med		As per contract	· · · · · · · · · · · · · · · · · · ·
[m] Whether any specific Med been suggested by the part		Note Time!	, was a composition
[n] Date of receiving the same		02.11.22	
[ö] Analysis Start Date / Anal	ysis Completion Date	02 11.22/04.11.22	for the property of the contract of the contra
Parameters	Unit Limit as po NAAQS 20		Sampling Station / Result
1.: Particulate Matter (PM ₁₀)	μg / m ³ 100	IS 5182 (Part-23)	Near at the top of DM Plant 71.5
		CPCB	
2. Particulate Matter (PM ₂₈)	μg/m³ 60.	(GMAAP Vol. I)	77.1 maile 14 37.1 maile
3. Sulphur Dioxide as SO ₂	μg/m ³ 80	IS 5182 (Pert-2)	14.7
	μg/m³ :::80	IS 5182 (Part-6)	34.7 8 - 10.1
^{-/} 5. Léad (Pb)	μg / m ³ 1	IS.5182 (Part-22)	· 0.088 . ·
3.: Ammonia as NH ₃	μg/m ³ : 400 :	::: '::!S 5182 (Párí-5) ::	4.4
7. Ozone (Q ₃)	μg / m ^{3. 11} 180.	S 5182 (Part-9)	



Verified by: Technical Manager



Shreyasee Prasad

1921:19 +05'30'

Cothorized Signatory Quality Manager

This report applies only to symple les

Test Report endorsed only the tests and not the product contricate; Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboral

122-C, Aastha, Road No. SA, Patlipetrs Colony, Pana - 100 Q13 (Bihar)

Mobin 4918676486249 (49)947 (047908:

- Emgi): __steautale@valco.co.jp _enfo@shivecates



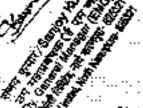
TEST HO

(Serving since 1988)

AS ENVIRONMENTAL LABORATORY BY MAEFCC, GOVT, OF MOIA, UNDER ENVIRONMENT (PROTECTION OF MOUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BINAR AND BRIAR STATE POLLUTION CONTROL BO

TEST REPORT

<u></u>	··.		.*:: .		. '.'.::'.
Ref. No. STH/TR/22-23/3553(A) Dt : 10	6.11.2022 Ye			
	·: · · ·	·.	North Kayang	ura Super Therms	J Power
	. : :	:	Project		T# 1
[a] Name and address of thi	e Customer		At: Tandwa		*******
			Dist-Chatra	: .	"
	. :		Jharkhand-	25.321	
b) Details of Sample	·. ··			olity Monitoring (As pe	r NAAOS)
c Sample Collected by	: •			OUSE on:01.11.22	
d) Sampling Location	: ;			r of the rop of DM Flant	
e Method of Sampling			·· IS 11235 (Part-),		• • • • • • • • • • • • • • • • • • • •
f] Sampling Environments	d Condition		Temp: (°C):	29 : Humidif	v (%)
g] No. & Type of Contains			One poly Jan:		
h] Instrument ID	• :	·	RDS-3, FPM-3		···:
t] Sample Quantity		<u>:</u>		ach (NO ₂ , SO ₂ , NH ₃)	
Sample Code	·	·	A-3553	i : :	
k] Sample Condition on Re	sceipt		. Fit for Analysis	i	<u>;</u> .
Items required to be test		• . •	As per contrac		· .
m) Whether any specific M		st has · · :	<u>'</u>		:
been suggested by the p			No::. ::		:::
n]: Date of receiving the sa		: :	02.11.22	·	:::
o] Analysis Start Date / An		pletion Date	02.11.22 / 04.11	.22	:: .
· · · ·		Limit as per	Method of	Sampling Stati	on / Result: .
Parameters	Unit	NAAGS 200		Near at the top	of DM Plant
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)		
Benzene (CeHe)	μg / m ⁸	: 5	IS 5182 (Part-11)		
Benzo(a) Pyrene	ng/m³	1 "	IS 5182 (Part-12).		}
Arsenic (As)	ng / m³	6	:: AAS Method :	:0:72	::.
		∵: 20∴	AAS: Method	. ::: 2.80	
5. Nickelas Ni	ing / m ^a	40.	WWW. WARRING		



Nigitally signed by SHIBESHWAR PRASAD AR PRASAD Date 2022,11.16

> Verified by : Technical Manager



Shreyasee Prasad

Sheeyesee Prasad Date: 2022.11.16 15:21:32 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above

Total Liability of our Laboratory is limited to invoiced amount;

Test Report endorsed only the leaf sixti not the product confliction.

Test Report can not be reproduced partially or full for legalicouri purpose without written permission of the Laboratory.

Page I of I

•

.::

(22-C; Wastka, Road No. SA, Pathjetta Colony, Patra = 800 0 j.J (Bijiar)

Mob : +918676\$86249 (+919431047908)

strokus (@kahoo co in : enfo@shik





BY MOEPCC, GOVT, OF INDIA, UNDER ENVI GOVT. OF BRIAR AND BIHAR STATE POLLUTION CONTROL

TEST REPORT

The A 61 Community and A 6 Community		AA				
Ref. No. STH/TR/22-23/3571		22 Your Wor				
	:::i:. ·~i:	-::		a Super Thermal Power		
TOLANIS IN IL WOL	eg i e	altin est in in	Project	Section 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
[a] Name and address of the	Customer	THE LET	At: Tandwa			
Maria and Santa	Mg. 1. 14		Dist-Chatra			
<u> </u>	<u> </u>	.::.*	Jharkhand- 825			
[b] Details of Sample				donnoring (As per NAAQS)		
[c] Sample Collected by:::		:::::	SHIVA TEST HOUS			
[d] Sampling Location	14(1, 1, 1, 1	-: '		the top of DM Plant		
[e] Method of Sampling	··		:: IS 11255 (Part-1,2,3 8			
[f] Sampling Environmenta		13.4 (4)	Temp; (ºC)	27 Humidity (%) 89		
g] No. & Type of Contains	<u> </u>	111	··· One poly Jar	<u> </u>		
[h] Instrument ID		71,11.1	RDS-3, FPM-3.			
[i] Sample Quantity			30 ml x 5 for each (NO ₃ , SO ₂ , NH ₃)			
[j] Sample Code	<u>:: </u>		A-3571	Website a Walata		
[k]: Sample Condition on Re			Fit for Analysis 🧀			
IF ltems required to be test			No.			
[m] Whether any specific Me		is				
: :: .: been suggested by the pa			10 (10)	<u>a la la</u>		
[n] Date of receiving the sar		11,141	03.11.22			
[6] Analysis Start Date / An			03:11.22/05.11.22			
Parameters	Unit 2	mil as per	Method of	Sampling Station / Result		
',;, : : : : : : : : : : : : : : : : : :	Pill N	AAQS 2009	Test	Near at the top of DM Plant		
1. Particulate Matter (PM ₁₀)	μg / m ³	100	fS 5182 (Part-23)			
a Dagleylete kitatras (Dhi)	a ::	60.	CPCB	era teri		
2. Particulate Matter (PM ₂₆)	μg/m³	. 172 00 .	(GMAAP Vol. II)	35.4 Jan 1		
3. Sulphur Dioxide as 50;	μg / m³	80 💮	IS 5182 (Part-2)	15.3		
4. Nitrogen Dioxide as NO ₂	μg/m³	:: :80::	S.5182 (Part-6)	1993334 32.4 1903.47		
3. Lead (Pb)	μg/m³	-1044444	(\$ 5182 (Part-22)	0.035		
6. Ammonia as NH ₃	μ <u>α</u> / m³	400	IS 5182 (Part-5)	3:4		
7. Ozone (O.3)	μgi/m³	180	1S 5182 (Part-9)	17.3 gewege		
11 3 4 A A A A A A A A A A A A A A A A A A	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		. Color is decoy	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

Verified by Technical Manager



Shreyasee Prasad

Date: 2022.11.16 15:23:26 +05'30' Authorized Signstory

Quality Manager

This report applies only to sample tested as above.

Total Lubbity of our Laboratory is limited to invoiced amount:

Test Report endorsed only the libits and not the product certificate.

Test Report can not be reproduced partially or full for legalicount purpose without written perm

122-C, Assilia, Road No. SA, Patliptyth Colony, Potes - 600-013 (Alban)

Mab: 4988676336249 ; +01943 (na7908)

Ministra i Gvenpo on in a infragistativaces

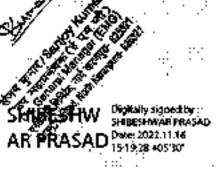




ental Laboratory by Moefcc, gove of India, Under Eigh MENT, GOVT, OF BOMR AND BOMAR STATE POLLUTION CONTROL BOARD

TEST REPORT

<u>:::</u>	::: ·.	::: .'' !		:::::	· : :	
Ref. No:: STH/TR/22-2	23/3571(A) Det 1	6.11.2022 Your				
:	: :		North Karanp	ura Super Thern	nal Power ::	
	:::	•	Project			
[a] Name and addr	ess of the Customer	:::: :::	At: Tandwa	***************************************	' i. ii	
:			··· Dist- Chatra	•	:	
:··			Jharkhand8	25'321	· :	
[b] Details of Samp	ole' · ' · · · · · ·	!.!		dity Monitoring (As	ver NAAOS)	
[c] Sample Collect	ed by	· · ::		USE on 02.11.22		
[d]: Sampling Local	ion		Collected from Near	at the top of DM Plant	1 1 1 1 11	
[c] Method of Sam	pling		IS.11255 (Part-1,2		·	
[f] Sampling Envir	ontiental Condition		Temp. (⁰ C)		dity (%)::::::::::::::::::::::::::::::::::::	
[g] No. & Type of	Container .		··· One poly Jar	· · · · · · · · · · · · · · · · · · ·	:::	
[h] Instrument ID	: ";		RDS-3, FPM-3	·:	:	
[i] Sample Quantit	y ***	·: ·:	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code	·.:: - ; ·	:	A-3571			
	on on Receipt		Fit for Analysis		::	
[1] Items required:		<u> </u>	As per contract		·	
[m] Whether any sp	ecific Method of Te	sa has ····	, :::::	:::::· ··· ;··	:: :::	
· · · · been suggested	by the party		No	::: · .	:::	
[n] Date of receiving			03.11.22		• • • • • • • • • • • • • • • • • • • •	
	Date / Analysis Com	pletion Date	03,11,227,05.11.	22	:. ***	
		Limit as per	Method of	Sampling Sta	stion / Result	
Parameters :	Unit	NAAQS 2009	Test ::::	· · · Near at the to	of DM Plant :::	
1. Carbon Monoxide (CO) mg/m³	4	IS 5182 (Part-10)		68	
2. Benzena (C _e H ₆)	μg / m³	5	IS 5182 (Part-11)	······································	5.0	
3. Benzo(a) Pyrene :		1: :.	IS 6182 (Part-12)	·:· .*:	I:O ·	
4. Arsenic (As) :	ng / m³	6	AAS Method		78 :	
5. Nickel as Ni	:::: ::: :: :: :: :: :: :: :: :: :: ::	20	AAS Method	:::::· · . 2.9	93	
			US EPA			



Verified by: Technical Manager ...



Shreyase Prasad

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total trability of our Laboratory is limited to invoced amount.

Test Risport endorsed only the lests and not the product certifies

. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

:::

122-C, Aastka, Road No. SA, Pattiputra Colony, Patna

Mob. +918676816249 : +919431047908 **Stiputes ខ្មែលចំណ**ល in ; indo@simotest.com





MENTAL LABORATORY BY MOSPCC, GOVT, OF INDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1888, DEPT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

64.896 4.1 - 4.1 - 4.1 - 4.1 - 4.1 - 4.1 - 4.1 - 4.1 - 4.1 - 4.1 - 4.1 - 4.1 - 4.1 - 4.1 - 4.1 - 4.1 - 4.1	and the state of t
Ref. No. STH/TR/22-23/3823 Dt: 06.12.2022 Your Wo	rk Order No. 4000285067-037-1019 Dt.: 31.07.2022
496 Bit 16 10 10 10 10 10 10 10 10 10 10 10 10 10	North Karanpura Super Thermal Power
	Project
[a] Name and address of the Customer	At: Tendwa
	Dist- Chatra
	Jharkhand-825:321
[b] Details of Sample	Ambient Air Quality Monttoring (As per NAAQS)
[c] Sample Collected by	SHIVA TEST HOUSE on 08.11:22
[d] Sampling Location	Collected from Near at the top of DM Plens
[e] Method of Sampling	IS 11255 (Part-1;2,3 & 7)
[1] Sampling Environmental Condition	Temp. (°C): 28: (1) Hismidity (%) 4: 67:
g] No. & Type of Container	One poly Jar
[h]: Instrument ID	RDS-3, FPM-3
(i) Saniple Quantity	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)
[i] Sample Code	A-3823
the description of the second	Fit for Analysis
III Items reguired to be tested	As per contract
	As per contract
(m) Whether any specific Method of Test has	I gyareki kalabida, Zikhelika
been suggested by the party	, No
[n] Date of receiving the sample	1:09.11.22 (Che) No. 19 /
[o] Analysis Start Date / Analysis Completion Date	09,11,22 / 11,11,22
Parameters Unit Limit as per	Method of Sampling Station ∕ Result:
NAAGS 2009	Test Near at the top of DM Plant
1. Particulate Matter (PM ₁₀) pg / m² 100 .	IS 5182 (Part-23) 66.4
a Dominitari Maran zoka ki ina 138 - Gold	CPCB 35.9
2. Particulate Matter (PM _{2.6}) µg / m ³ 60	(GMAAP Vol. I) 35.9
3. Sulphur Dioxide: as SO ₂ µg / m ² 80	IS 5182 (Part-2) 16.5
	IS 5182 (Part-2) 16.5 IS 5182 (Part-6) 34.4
4. Nitrogen Dioxide as NO ₂ : pg / m ³ 80	IS 5182 (Part-6) 34.4
4. Nitrogen Dioxide as NO ₂ : pg / m ³ 80	IS 5182 (Part-6) 34.4



Prasad

Dule: 2022.12.07 Authorized Signatory Quality Manager

Total Liability of our Laboratory is similed to invoiced amount.

Test Report endersed only the bests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory: 122-C, Assita, Road No. SA, Pallipute Colony, Pates = 800 013 (Bibar)

. Mob : +918676486249 _+919431047908

streams i direction co. pp. . into distressessionen



VA TEST HOUSE

(Serving stace 1988)

ENTAL LABORATORY BY MORFOC, GOVE OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACK 1966, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BUILD STATE POLLUTION CONTROL BOARD

TEST REPORT

	-:		::':: .			: : -
Ref. No. STH/TR/22-23/3823(A): Dr: 6	6.12.2022 · Your	Work Order No. 400	0285067-0	37-1019 Dt 31	.07.2022
:	i	• = = = = = = = = = = = = = = = = = = =	North Karanp	ura Supe	r Thermal Pow	ner :
1	Project			~-		
[a] Name and address of the	Customer		At: Tandwa		•	. : '- : .::
			Dist- Chatra	::		:.:
E 444		:	Jharkhand- 8	25 321	1.1 4,1	
[b] Details of Sample	.:	:	Ambient Air Qua		ring (As per NAA	Q5
[c] Sample Collected by			SHIVA:TEST HO			
[d] Sampling Location	: .··		Collected from No			
[e] Method of Sampling			TS 11255 (Part-1,2			
[f] Sampling Environments	Condition		Temp. (*C)	26	Humidity (%)	67
g] No. & Type of Contains			One poly Jan		:	
instrument ID	RDS-3, FPM-3	:				
[i] Sample Quantity	30 ml x 6 for each (NO ₂₁ SO ₂ , NH ₃)					
[j] Sample Code :: :::		-:	A-3823:			
[k] Sample Condition on Re	ceipt		Fit for Analysis			
[1] Items required to be test	ed : :	···: 	As per contract			
[m] Whether any specific M	ethod of Te	st has	-;::	·:· i.	· ·	·.' · ·
been suggested by the p		. : :: ::	No			٠.
[n] Date of receiving the sar	mple	:.	09.11.22		: ::	
[o] Analysis Start Date / An	alysis Com	pletion Date	09/11/22 / 41.11.	22	· : ·	:
		Limit as per	Method of	Samij	oling Station / Ro	esult.
Parameters	Unit	NAAQS 2009	Test:	. ··· .Near a	if the top of DM	Plant
1. Carbon Monoxide (CO)	mg / m³	4	IS 5182 (Part-10)	•	0.455	. :.
2. Benzene (C ₆ H ₆)	μα/m³	5	IS 5182 (Part-11)	. • :	0.35	·
3. Benzo(a) Pyrene	ng / m ³	1	IS 5182 (Part-12)		0.21	
. Arsenic (As)	ng / m³	:: В	AAS Method	:-	0.21	
5. Nickel as Ni	ng / m³	20 .	AAS Method		4.40	.: .:
Mercury (Hg)	ng / m³	Not Specified	(Mathod IO-5)	:	0.26	:
;; == <u>-</u>				: '.		





Shreyasee Prasad

Shreyssee Prased Date: 2022.12.07 153646 +05301 Authorized Signatory

Quality Manager

This report applies only to sample tested at above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report andorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for legislicourt purpose without written permission of the Laboratory.

122-C; Austha, Road No. SA, Pathyritis Colony, Pains - 800 013 (Bibar)

Mob. 4918676886249: 4919431047998

stituetta (a) vehoo co.in : info@shivatest com

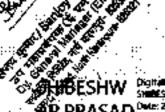




ENVIRONMENTAL LABORATORY BY MOSFCC, GOVE OF MOLE, UNDER ENVIRONMENT (PROSECTION) ACT 1988; DEPTE OF BIDARTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND BREAR STATE POLLUTION CONTROL BOARD

TEST REPORT

	:		: '	
Ref. No. STH/TR/22-23/3828	Di : <i>66.12,2022</i> Your Wor	k Order No. 400028506)	7-037-1019 Dt : :	31.07.2022
반으 - 변화하는	9.1. 79.	North Karanpura	Super Thermal	Power
eti i da sana artista da sana		Project	' ⁻	
[a] Name and address of the (ustomer	At: Tandwa	E147.44	
er er i grande er		Dist Chatra		, idi. 191.,
!** ! ! !		Jharkhand- 825	321	<u>.</u> .
b] Details of Sample	. , , , , , , , ,	Ambient Air Quality Me		4Q\$) :: ::
c] Sample Collected by	: ::	SHIVA TEST HOUSE		- 11
d Sampling Location	agiliana (gg	Collected from Near at the	c top of DM Plant :	.;
el : Method of Sampling		"IS 11255 (Part-1;2,3 &"		
f] Sampling Environmental	Condition ::: ::: :::	Temp; (°C)	29 Humidity (9	() ∰ 66
g] No. & Type of Container	·	One poly Jar		
h]; Instrument ID;		RDS-2, FPM-2		::
il Sample Quantity	<u> </u>	30 m(x 6 for each (N	O2, SO2, NHs)	744 (1)
j] Sample Code	i	A-3828	i	
k] Sample Condition on Reco	tipt :: ". : : : : :	Fit for Analysia	.71.17.1	.:
l) ltems required to be tested	<u> Daniel Pharamateria</u>	As per contract		:
m) Whether any specific Met	hod of Test has	No.	. ';:	.::'::::
been suggested by the part		No d'antique	er i Maria de la composición de la comp	
n] Date of receiving the same		11.11.22	", !	:
o] Analysis Start Date / Anal		11.11.22./ 13.11.22	11 Hadi	The state of
<u> </u>	I imit oo oo	Method of	Sampling Stati	on / Résult
Parameters	Unit NAAGS 2009	Test	Near at the top	***
Particulate Matter (PM ₁₀).		IS 5182 (Part-28)	72.0	
14.77 (14.5) (14.6) (14.6)		CPCB	· '!!': '.	1 ::: 1::::
. Particulate Matter (PM _{2.5})	μ g / m³ 60	(GMAAP Vol. I)	38.3	
Sulphur Dioxide as SO ₂	μg / m³ 80	(S 5182 (Part-2)	13.0	0.
	μg / m³ :::::80 :	JS 5182 (Part-6)	35.2	
	μ g / m³	(\$ 5182 (Part-22)	0.070	
	μ g / m ³ 400	IS 5182 (Part-5)	5.0	
	μg / m³ 180	IS 5182 (Part-9)	18.7	
3		10 0 (bz (carea)		



Verified by: Technical Manager



Shreyasee Prasad

: Cané: 2022, 12,07 453843'+0530"

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory at Amiliod to invoked amount

Test Report endorsed only the tests and not the product conficule.

Test Report can not be reproduced partially or full for legislicourt purpose without written permission of the Labora

122-C Azzilio, Road No. SA, Padigura Colony, Pana - 800-013 (Bilmy)

.blcb..+918676886249:+919411047903 Email: . sthpmus lightshoo.co.jp; <u>pelisistsis sees</u>



TEST HOUS

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MAERCE, GOVT. OF MOVA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEV OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/18280	Ali: Di A	6 52 2022 Vous	Work Order No. 400	0285067-037-1019 Dt : 31.87.2022		
	:	··		ura Super Thermal Power		
	* .	•	Project	and a section of the		
[a] Name and address of the	Customer	··. ·	At: Tandwa			
[2]			Dist-Chatra	the state of the s		
	٠٠		Jharkhand- 8	25 321		
[b] Details of Sample	<u>;: </u>			dity Monitoring (As per NAAQS)		
[c] Sample Collected by		·		OUSE on 09.11.22		
[d] Sampling Location	**.			at the top of DM Plant		
[e] Method of Sampling .	· · · ·	 · -	·· · IS 11255 (Part-1,2			
[f] Sampling Environmenta	l Condition		Temp. (%C)	29 Humidity (%) 68		
u[g] No. & Type of Containe			One poly Jar			
[h] Instrument ID		:	RDS-2 FPM-2			
[i] Sample Quantity	:.:::	·:.	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)			
[j] Sample Code				A-3828		
[k]: Sample Condition on Re	ceipt	:	- Fit for Analysis;-	The state in		
[1] Items required to be test	ed		As per contract			
[m] Whether any specific Me	ethod of Te	st has	·			
been suggested by the pe		٠	No			
[n] Date of receiving the sar		:;	· · 11.11.22			
[o] Analysis Start Date / An	alysis Com	pletion Date	11,11,22,713,11.	22		
		Limit as per	Method of	Sampling Station / Result.		
Parameters	Uniț	NAAQS 2009	··· Test :	··· Near at the top of DM Plant		
1. Carbon Monoxide (CO)	.mg/m³	.4.	" IS 5162 (Pert-10)	· · · · · 0:227··· ·		
2. Benzene (C ₆ H ₆)	μg / m³	5	IS 6182 (Part-11)	gi 17, 0,11		
·3.· Benzo(a) Pyrene	ng / m³	1 1	15 5182 (Part-12)	0:18 :		
4. Arsenic (As)	ng/m³	. 6	AAS Method	0.64.1		
5. Nickel as Ni	ng / m³	20	AAS Method	1.40		
Mercury (Hg)s	ng / m³	Not Specified	US EPA (Method IO-5)	0.53		

SHIBESHW AR PRASAD

Verified by : Technical Manager



Shreyasee Shreyasee Pracad Prasad

Date: 2022.12.07

15:38:31 +05:30 Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoced amount;

Tetal Report endorsed only the tests and not the product certificate

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C. Adatha, Road No. SA, Pactipures Colony, Paus - 800 013 (Bihar)

Mob. +918676486249 .+919431047908 stimetes transporter in conductivities to contract com

shivatébhouse com





CHINENITAL LABORATORY BY MOSFCC, GOVE OF MICHA, UNIOR ENVIRONMENT (PROTECTION) ACT 1900, DEPYT OF MOUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/3881 Dt. 66.12.2022 Your Wo	ork Order No. 4000285067-037-1019 Dt : 31.07:2022			
	North Karanpura Super Thermal Power			
	Project			
(a) Name and address of the Customer	At: Tandwa			
	Dist-Chatra			
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Jharkhand 825 321			
[b] Details of Sample	Ambient Air Quality Monisoring (As per NAAQ\$)			
[c] Sample Collected by Sa	SHIVA TEST HOUSE on 15 11 22			
[d] Sampling Location	Collected from New of the top of DM Plant			
[e] Method of Sampling	IS 11255 (Part-1,2.3 & 7)			
[f] Sampling Environmental Condition	Temp. (°C) 26 ° Humidity (%) 62			
[g] No. & Type of Container	One poly Jar			
[h] Instrument LD	RDS-2, FPM-2			
[i] Sample Quantity	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[] Sample Code	A-3881			
[k] Sample Condition on Receipt	As per contract			
(i) Items required to be tested				
[m] Whether any specific Method of Test has	No and a second			
been suggested by the party	3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
[n] Date of receiving the sample [o] Analysis Start Date / Analysis Completion Date	16.11.22			
	16.11.22 / 18.11.22			
Parameters Unit Limit as per NAAQS 2009	Method of Sampling Station / Result Test Near at the top of DM Plant			
1. Particulate Mafter (PM ₁₀), µg / m ³ 100	IS 5182 (Part-23) 72.6			
10 10 10 10 10 10 10 10 10 10 10 10 10 1	CPCB 12.0			
2 Particulate Matter (PM _{2.6}) µg / m ³ 60	(GMAAP Vol. I)			
3. Sulphur Dioxide as SO ₂ µg / m ³ 80	(S 5182 (Part-2) 13.8			
	1 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1			
	IS 5182 (Part-6)			
	1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1			
7. Ozone (O ₃)	IS 5182 (Rart-9) 19.7			

AR PRASAD 15:45:47:405'30 Date: 2022.12.07

Verified by : Techincal Manager



Shreyase Prasad

Dark 2022 12:07 155000 40530 Authorized Signatory

Quality Manager

Total Lability of our Laboratory is limited to invoiced amount

Test Report endorsed only the tests evid not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Leboratory.

122-C, Ascato, Road No. SA. Parlipnus Colony, Paras - \$00.013 (Bibas)

Mnh: #918676886349 : +91943Y047908 -

sthowne)@vellor.co.in .info@shivaest.com



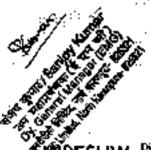
VA TEST HOU

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MICEFCC, GOVT. OF MICH. LINDER EMARCHMENT (PROTECTION) ACT 1886, DEPT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BRIAR STATE POLILITION CONTROL BOARD

TEST REPORT

					:	. ":":::::
Ref. No	. STH/TR/22-23/3881(A) Dt: 0	6.12.2022 Your	Work Order No. 400	0285087-037-1019 I	x : 31.07.202
: :	·	::	٠٠. ٠٠	North Karang	ura Super Therma	Power
::		:		Project	-	
(a)	Name and address of the	Customer	;;;;	At: Taridwa	· . ·: ··· :	'
:	· .		. ''	Dist- Chatra	:	
: ::			· . :: :	Jharkhand- 8	25 321	···
[b]	Details of Sample			Aniblent Air Qua	litv Monitoring:(As pe	r NAAQS)
[0]	Sample Collected by	•		SHÍVA TEST HO	USE on 15:11,22	
[d] :	Sampling Location	: :		::: Collected from Near	at the top of DM Plant 🦿	:
[e] ·:	Method of Sampling			··· IS.11255 (Part-1,2)	,3 & 7)	
	Sampling Environmenta	l Condition	:: : .	Temp. (°C)	26 Humidit	y (%) 62
[g]	No. & Type of Contains	f		.: One poly Jer		
[h]	Instrument ID		.: ::	RDS-2, FPM-2	: "	
(i)	Sample Quantity	٠.	· · · · ·	30 ml x 6 for eac	h (NO _{2,} SQ _{2,} NH ₂)	
(i)	Sample Code		··· .	A-3881	•••	
[k] :	Sample Condition on Re	ecipt	. <u>.</u> .	Fit for Analysis	: # 1. 1. 1.	:
	ltems required to be test			··· As per contract	· ::	
(m)	Whether any specific M	ethod of Te	st bas	No	:	
	been suggested by the po	arty	:	.:	<u></u>	
[n] :	Date of receiving the sar	npk: '':	5. 5.	16.11.22	: : :	
이	Analysis Start Date / An	<u>alysis Com</u>	pletion Date	16.11.22 / 18.11.	22	
	6	Unit	Limit as per	Method of	Sampling Static	n / Result
·	Parameters	Unik	NAAQS 2009	:: Test ::	Near at the top o	CDM Plant
ı. Çarb	on Monoxidé-(CO)	mg / m ³ ;	··· 4, ·	IS 5182 (Part-10)	0.341	
	zene (C _c H _c)	μg/m³	5	18 5182 (Part-11)	0.096	· · · · · · · · · · · · · · · · · · ·
	ro(a) Pyrene	ng / m³	1 "	IS 5182 (Part-12)	0.17	
	nic (As)	ng / m³.	: 6 ':	AAS Method	0.50	
	el as Ni	ng / m³	., 20	AAS Method	2.80	-:. ·:· ::::
	ury (Hg)	ng / m³	Not Specified	US EPA	:	
		A 7 1 1 1 1	NA SAAAAA	(Method IO-5)	0.50	



Digitally signed by ... SHIBESHWAR PRASAD **S**PNBESHW AR PRASAD Date: 2022.12.07 15:46:00 +05'30'

Verified by : Technical Manager



Shreyasee :Prasad

Shreyasee Passed Date: 2022,12:07

15.50k12 - 69'36 Authorized Signatory Quality Manager

This report applies only to sample tested as above,
Total Liability of our Laboratory is finited to invoiced amount.
Test Report andorsed only the tests and not the product certificate.
Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

172-C. Aastha, Roed No. SA. Pathipetra Colony, Patna - 800 013 (Billian)

Mcb.: +918676886249 : +919431047908

<u>allmanail@vahoo.co.m</u> : <u>info@shm</u>atest.com

Website - www.springest.com : www.springessbowe.com

Page 1 of 1



FEST HOU



(Serving since 1988)

MENTAL LABORATORY BY MOSPCC, GOVT, OF HIDM, UNIDER EMARCHE IDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/3905 Dt: 06.	12.2822 Your Work	Order No. 400028506	7-037-1019 Dt.: 31.07.2022-		
	(m. 1/2)	North Karanpura	Super Thermal Power		
		Project			
[a] Name and address of the Custom	er i i i i i i i i	At: Tändwa			
		😅 Dist- Chatra 👑	an in the contract of the cont		
		Jharkhand- 825	321		
[b] Details of Sample	j: 4.1148/4	Ambient Air Quality I	Soultoring (As per NAAQS)		
[c] Sample Collected by	w.	SHIVA TEST HOUS	E on 16:11,22		
[d] Sampling Location	.X	Collected from New as	he top of DM Plant		
[e] Method of Sampling		*1S 11255 (Part-1,23) 8	£ 7)		
[1] "Sampling Environmental Conditi	on va i iii	Temp: (°C)	26 m. Humidity (%) [23] 68:		
[g] No & Type of Container	100 100 100	One poly Jar			
[h] Instrument [D		RDS-3, FPM-3			
[i] Saniple Quantity		30 ml x 6 for each (f	VO ₂ , \$O ₂ , NH ₃)		
[j] Sample Code		A-3905			
[k] Sample Condition on Receipt	*	Fit for Analysis	d 1.7 m (fr. 1.7)		
[1] Items required to be tested		As per contract			
[m] Whether any specific Method of	Test has	#1	50 T 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
been suggested by the party		Notation in			
[n] Date of receiving the sample	. 11	47.11.22	n vara		
[o] Analysis Start Date / Analysis Co	mpletion Date	17.11.22 / 19.11 22			
	Limit as per	Method of	Sampling Station /: Result		
Parameters Unit	NAAQS 2009	ners Test unerse	Near at the top of DM Plant		
1: Particulate Matter (PM ₁₀) pg / m	3.1	·· IS 5182 (Part-23)···	···· 68.2· · · ·		
		CPCB			
2 Particulate Matter (PM ₂₈): pg / m	³ [60 :	(GMAAP Vol. I)	36.3		
3. Sulphur Dioxide as SO ₂ µg / m	80	IS 5182 (Part-2)	:: ::13.0 :		
4. Nitrogen Dioxide as NO ₂ µg / m		(8 5182 (Part-6)	32.0		
Lead (Pb) pg/m	•	IS 5182 (Part-22)	0.14		
Ammonia as NH₃ µg / m		IS 5182 (Part-5)	2.9		
· · · · · · · · · · · · · · · · · · ·		IS-5182 (Part-9)			
7. Ozone (O₂) : : : µg / m		10.0 (657/C#169)	·		



R PRASAD Date: 2022.12.07 Date: 2022.12.07

Verified by:

Technical Manager



Shreyasee

Date: 2022.12.07

***************** Authorized Signatory · · · Quality Manager

This report applies only to sample tested as above.

Total Listelity of our Laboratory is imited to invoiced amount.

Test Report endorsed only the tests and not the product cartificate...

Test Report can not be reproduced partially or full for legal/court purpose without written permiss.

122-C. Astriba, Read No. SA. Perlipuera Colony, Panna — 800-013 (Bilitar)



IVA TEST HOUSE

(Serving since 1988)

AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF NOM, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTH OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAIR AND BHAIR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/3905(A) Dt : 86.12.2822 Your	Work Order No. 4000285067-037-1019 Dt : 31.67.2022		
name of the second of the seco	North Karanpura Super Thermal Power		
	Project		
[a] Name and address of the Customer	At: Tandwa		
je vera i i illi oto ver	Dist- Chatra		
i	Jharkhand- 825 321		
(b) Details of Sample	Ambient Air Quality Monitoring (As per NAAQS)		
[c] Sample Collected by	SHIVA TEST HOUSE on 18 11:22		
[d] Sampling Location	Collected from New at the top of DM Plant		
[c] Method of Sampling	IS 11255 (Part-1,2,3 & 7)		
[f] Sampling Environmental Condition	Temp: (°C) 26: Humidity (%) 68		
[g] No. & Type of Contamer	One poly Jar		
[h] Instrument ID	RDS-3, FPM-3		
[i] Sample Quantity	30 ml/x 6 for each (NO ₂ , SO ₂ , NH ₃)		
[j] Sample Code	A-3905		
[k] Sample Conditton on Receipt	Fit for Analysis		
[1] Items required to be tested	As per contract		
[m] Whether any specific Method of Test has	11: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1:		
been suggested by the party	No set a firmation in the		
[n] Date of receiving the sample	17.11.22		
[0] Analysis Start Date / Analysis Completion Date	17.11.22719.11.22		
Limit as par	Method of Sampling Station / Result		
Parameters Unit HAAQS 2009	Test Near at the top of DM Plant		
1: Carbon Monoxide (CQ) rng / m³	1S 5182 (Part-10)		
2. Benzene (C _s H _s) gg / m ³ 5	IS 5182 (Part-11) 0.18		
3. Benzo(a) Pyrene : ng / m³ : 1 :	. \$8.5182 (Part-12)		
4. Arsenic (As) ng / m ³ 6	AAS Method 0.50		
5. Nickel aš Ni ; ing / m³ ; 20 :::	AAS Method		
1. 1 1.:			
Mercury (Hg) ng / m ³ Not Specified	(Method (0-5) 0.89		
			



SHIBESHWAR PRASAC AR PRASAD DIVE 2022 12:07

. Verified by : Technical Manager : Patna 800014

Shreyasee Prasad

Date: 2022.12:07

15,52:23 +06'30' Authorized Signatory Quality Manager

This report applies only to sample resided as above.

Total Liability of our Laboratory is limited to invoced emount.

Teel Report sindersed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legislooust purpose without written permission of the Laboratory.

122-C; Ascaro, Road No. SA, Pastiguith/Colony, Pales - 800 013 (Pilher)

Mob., +918676886249 : +919431047908 sthpstmil@vshoo.co in a imfo@shivatest.com

... ... ::





CENTAL LABORATORY BY MoEFCC, GOVT, OF MOIA, UNDER ENVIRONM OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLETION CONTROL BOARD

Ref. No: STH/TR/22-23/4280	Dt: 06.12.	2022. Vone Wo	rk Order No. 40002850	27.027.	toto Te	32,07,2822
	1.2	2022	North Karanpui Project At: Tandwa			
			Dist- Chatra Jharkhand- 82		1. s.e. - 1. 111 e - 1. 111 e	. 4: 4
[b] Details of Sample			Amblem Air Quality			XS)'''
[c] Sample Collected by	<u>.: : </u>	<u> </u>	SHIVA TEST HOU			<u> </u>
[d] Sampling Location	<u> </u>		Collected from Near a		f DM Plant	
[e] Method of Sampling	**** ***	 	IS.11255 (Part-1,2.3		·····	
[f] Sampling Environments	- "		Temp. (^Q C)	25	Humidity (%)	70
No. & Type of Contains	it		One poly Jac RDS-3, FPM-3	:		
[1] Sample Quantity		***** · * * * * * * * * * * * * * *	30 ml ± 6 for each	(NO ₂ , S	Oz; NHs)	=::.::::::::::::::::::::::::::::::::::
[i] Sample Code	: ::	·	A 4280	::	, :: <u></u> _	<u>. : .: .: .</u>
[k] Sample Condition on Re	[k] Sample Condition on Receipt			-	: :	
[I] Items required to be test	ed. · ·	· · : :	As per contract			
[m] Whether any specific M been suggested by the p		st has	No	: : : : : : : : : : : : : : : : : : : :	.i	
[n] Date of receiving the sar	mple	1: . : . :	28.11.22			:
[o] Analysis Start Date // An	alysis Com	plotion: Date	28:11.22/30:11.2	2 ::::	·-::: • · · · · · · · · · · · · · · · · ·	
Parameters:::	Unit	Limit as per NAAQS 2009	Method of Test		impling Station or at the top of	
1. Particulate Matter (PM ₁₀).	.μg / m³	100	IS 5182 (Part-23)		71.2	
2. Particulate Matter (PM _{2.5})	μ g / m³	60	CPCB (GNIAAP Vol. I)	::::	36.7	
3. Sulphur Dioxide as SO ₂	μg /ˈm³	80	IS 5182 (Part-2)		13.8	
4. Nitrogen Dioxide as NO2:::	∵μg/m³	∴: 80	IS 6182 (Part-6)	:'::	::: 34.6	51.11
Leed (Pb)	μg (.m³	: 1	IS 5182 (Part-22)	1::::		1.27. 1.12
o. Ammonia as NHs	μg /ˈm³·	400	18 5182 (Parf-5)	1.	4.1	
7. Ozone (Os)	μg/m³.	180	(S 5182 (Part-9)	·	14.6	······································
.::			10010271 2001	٠.,	1.	





Prasad

Shreyasee Prasadi Date: 2022/12:07 15:59:37 +05'30' Authorized Signatory Quality Manager

This report applies only to sample rested as above.

Total Liability of our Laboratory is imited to invoiced amount Test Report endorsed only the tests and not the product pertilicate

Test Report can not be reproduced pertielly or full for legationart purpose without written permission of the Laboratory.

1229C, Astalha, Road No. SA, Pathywara College, Persa - 100 013 (Billion)

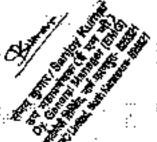


(Serving stace 1988)

MERCAL LABORATORY BY MORPCO, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF UNDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SHARLAND SHARL STATE POLLUTION CONTROL BOARD

TEST REPORT

<u> </u>				. :::::::::::::::::::::::::::::::::::::	
Ref. No. STH/TR/22-23/42800	<u>A) D1</u> : θι	6.12.2022 Your	Work Order No. 400	0285067-037-1019 Dt : 31.07.2022	
			North Karano	ura Super Thermal Power	
			Project		
[a] Name and address of the	Customer		At: Tandwa		
		· · · · · · · · · · · · · · · · · · ·	Dist-Chatra	:	
: ··	.: :: .	•	Jharkhand- 8	95 321	
[b] Details of Sample		:		hity Monitoring (As per NAAQS)	
c) Sample Collected by	•	· · · · ·		USE on 26.11.22	
d Sampling Location				at the top of DM Plant	
[e]Method of Sampling			4\$ 11255 (Part-1,2		
[f] Sampling Environmenta	l Condition	****	Temp. (%C)		
No. & Type of Containe		 	One poly Jar		
[h] Instrument [D	· ·	: .	RDS-3, FPM-3	· · · · · · · · · · · · · · · · · · ·	
 	 			E /NO.TROMM.	
				h (NO2, SO2, NH3)	
[j] Sample Code	-		A-4280		
[k] Sample Condition on Re		.	Fit for Analysis		
[1] Items required to be test			As per contract		
[m] Whether any specific M		st has	No		
been suggested by the present of	arty :::			i aja – maari	
[n] Date of receiving the sar	mple		28.11.22		
[o] Analysis Start Date // An	alysis Com	pletion Date:	28,71,227,30,11,	22	
· · · · · · · · · · · · · · · · · · ·		Limit as per	Method of	Sampling Station / Result	
Parameters	Onli	NAAQS 2009	Test	Near at the top of DM Plant	
ı. Carbon Monoxide (CQ)	.mg/m³	4	IS 5182 (Part-10)	0:341	
2. Benzene (C ₆ H ₆)	μg/m³	5	(\$ 5182 (Part-11)	0.10	
3. Benzo(a) Pyrene : ::	ng (m³.	. 1 .:	IS.5182 (Part-12)	··. 0.18 ·	
Arsento (As)	ng/m³	6	AAS Method	0:48	
5. Nickel as Ni	ng/m³	20	AAS Method	2.93	
Mercury (Hg)	ng/m³	Not Specified	US EPA (Method (O-5) : ::	0.58	



- AR PRASAD 153521 +0530

Venified by : Technical Manager



Shreyasee Prasad

Shreyapee Presed Date: 2022.12.07 ... 1559/49 +05'90" ... Jthorized Signatory Quality Manager

- This report applies only to sample lessed as above
 Total Liability of our Laboratory is limited to invoiced amount.
 Test Report endorsed only the tests and not the product certificate.
 Test Report can not be reproduced partially or full for legal/court purpose, without written permission of the Laboratory.

122-C, Adelka, Road No. SA, Palkippara Colony, Patro - 800 013 (Billar)

Mob., +918676886249 , +919431047908 sthrateal@yahoo.co.io : info@shiotiest.com

Website: www.slingicsi.onin; www.shinatesthoung.com

Page I of I



VA TEST HOUS

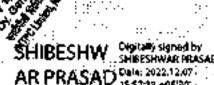


(Serving since 1988)

RECOGNISED AS EMPROMIENTAL LABORATORY BY MARFOC, GOVT. OF INDIA, INIDER ENVIRONMENT (PROTECTION ACT 1986, DEPTT KENT, GOVT, OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

	<u> </u>
Ref. No. STH/TR/22-23/4301 Dt: 06.12.2022 Your V	
	North Karanpura Super Thermal Power
Difference of this contract of the contract of	Project
[a] Name and address of the Customer	At: Tandwa
karan 17 magantan 1822 kali 18 mili 18 di	Dist- Chatra
[b] Details of Sample	Jharkhand- 825-321
[b] Details of Sample [c] Sample Collected by	Ambient die Quality Monitering (As per NAAQS)
fd) Sampling Cocation and Cocation	SHIVA TEST HOUSE on 27.11.22
	Collected from News at the top of DM Plant
e Method of Sampling [f] Sampling Environmental Condition	15 11255 (Part-1, 2,3 & 7)
	Temp. (PC) 28 ::: Humidity (%) :::::: 63:
g] No. & Type of Container	One poly Jar
[h] Instrument ID	RDS-3, FPM-3
[i] Sample Quantity [ii] Sample Code	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃) 4-4301
[j]sumpre ceue	
[k] Sample Condition on Receipt	Fit for Analysis
Items required to be tested	As per contract
[m] Whether any specific Method of Test has	No 1974 1 Made 1975 and
been suggested by the party	
[n] Date of receiving the sample	28.11.22
[o] Analysis Start Date / Analysis Completion Date	28.11.22/30.11.22
Parameters Unit Limit as per	Method of Sampling Station / Result
NAAOS 2009	
1. Particulate Matter (PM ₁₀) μg / m ³ 100	IS 5182 (Part-23) 71.8
2. Particulate Matter (PM _{2.6}): µg / m³ 60	38.8
<u> </u>	(GMAAP VOI. I)
3. Sulphur Dioxide as SO ₂ µg / m ³ 80	IS 5182 (Part-2) 13.6
4. Nitrogen:Dioxide as NO ₂ :: µg / mi ³ : 80.	IS.5182 (Part-6)
Lead (Pb) ug / m³ 1::	JS 5182 (Part-22) 0.19
e. Ammonia as NH μg / m ⁸ 400	IS 5182 (Part-5) 4:44
7. Özone (Q#) µg / m/³ 180	IS 5182 (Part-9) 14.9
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	14' 14' 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1



Verified by : Technical Manager



Streyasee Propad Date: 2022-12.07

16:0**2:09**:+05:30* Authorized Signatory Quality Manager

Tala report applies only to earnple tested as above.

Total Liability of our Laboratory is firmled to invoiced amount. Test Report endorsed only the tests and not the product cert

Test Report can not be reproduced partially or full for legal/court purpose without within permission of the L

122-C; Astriia, Road No. SA, Preliquira Colony, Pares - 500-013 (Bihart

Mob., *978676886249 : +9/9431047908 stipatral@yahoo.co.in- anin@stivaest.com



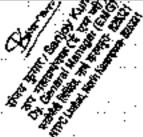
VA TEST HOUS

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSPCC, GOVT. OF MIDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1988, DEP MENT, GOVT, OF BINAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

[a] [b] [c] [d]	Name and address of the Details of Sample Sample Collected by Sampling Location Method of Sampling Sampling Environmental	Customer	6.72.2022 Your	North Karanpo Project At: Tandwa Dist- Chatra Jharkhand- 8:	hry Monnoring (As per NAAQS)			
[b] [c] [d)	Details of Sample Sample Collected by Sampling Location Method of Sampling	· · · · · · · · · · · · · · · · · · ·		Project At: Tandwa Dist- Chatra Jharkhand- 8: Ambient Air Qua	25 321 Bry Mongoring (As per NAAQS)			
[b] [c] [d)	Details of Sample Sample Collected by Sampling Location Method of Sampling	· · · · · · · · · · · · · · · · · · ·		Project At: Tandwa Dist- Chatra Jharkhand- 8: Ambient Air Qua	25 321 Bry Mongoring (As per NAAQS)			
[b] [c] [d)	Details of Sample Sample Collected by Sampling Location Method of Sampling	· · · · · · · · · · · · · · · · · · ·		At: Tandwa Dist- Chatra Jharkhand- 8: Ambient Air Qua	hry Monnoring (As per NAAQS)			
[c] [d]	Details of Sample Sample Collected by Sampling Location Method of Sampling	· · · · · · · · · · · · · · · · · · ·		Jharkhand- 8: Ambient Air Oua	hry Monnoring (As per NAAQS)			
[c] [d]	Sample Collected by Sampling Location Method of Sampling			Ambient Air Qua	hry Monnoring (As per NAAQS)			
[c] [d]	Sample Collected by Sampling Location Method of Sampling							
[d]	Sampling Location Method of Sampling	. 						
[e] .	Method of Sampling				*** *** *** *** *** *** *** *** *** **			
				Collected from New	as the top of DM Plant			
10	Sampling Environmental		· :	IS 11255 (Pan-1,2,	3 & 7)			
[1]	. John Print, Larvir Office (1921)	Condition	· · · ·	Temp. (°C)	26 Humidity (%) 63			
g	No. & Type of Container			One poly Jar	: " : :: :			
- [j h]	Instrument ID			RDS-3 FPM-3				
<u> </u>	Sample Quantity			30 ml x 6 for ea	ch (NOS, SO ₃ , NH ₅)			
[ii]	Sample Code		* ·	A-4301				
[k]	Sample Condition on Rec	cipt · · ; ··		Fit for Analysis				
[1]	Items required to be teste			As per contract				
[m]	Whether any specific Met	thod of Tes	st has. · · .	No · · · ·				
: []: [been suggested by the par	rty	: .	140	<u> </u>			
[n]	Date of receiving the sam		·: :	: 28.11.22				
[0]	Analysis Start Date / Ana		pletion Date	28:11 22:/30.11.:	22 . j. +			
	<u> </u>		Limit as per	Method of	Sampling Station / Result			
· .	Parameters	Unit	NAAGS 2009	Test	Near at the top of DM Plant			
1. Carl	on Monoxide (CO)	mg/m³	. 4	(\$ 5182 (Part-10)	0.23			
	zene (CeHe)	μg / m³	5	IS 5182 (Part-11)	0.10			
	zo(a) Pyrene	ng / m³	1	IS.5182 (Part-12)				
	enic (As)	ng / m ^{>}	. б	AAS Method.	0.45			
	(el as Ni	ng / m³	20	AAS: Method	2.93			
<u> </u>	cury (Hg)	ng / m³	Not Specified.	US EPA	A 54			



SHIBESHW Captury signed by SHIBESHWAR PRASAD AR PRASAD (000-2022-12:07

> Verified by : Technical Manager



Shreyasee. Prasad

Digitally signed by Sheeyasee Prasad Date: 2022.12.07 16/02:25 +05'30' Authorized Signatory

Quality Manager

This report applies only to sample leated as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

122-C. Aástha. Road No. SA, Pallipuira Cálouy. Pama = 500 013 (Bálas)

Mob. +9|8676\$86249|+9|945|04790\$ SCHOOLING | 60% MICROSCHOLING





(Serving since 1988)

BY MOEFCC, GOVT, OF INDIA, UNDER BINTROTHIENT (PROTECTION ACT 1984, DEPTY. MITAL LABORATOR ENT, GOVT, OF BOOK AND SHAR STATE POLLUTION CONTROL BOARD OF INDUSTRY, FORESTS & ENVIRON

TEST REPORT

		·	<u>": ." </u>	<u> </u>		
Ref No. STH/TR/22-23/4490	Dt : 21.12.	2022 Your Wo	rk Order No. 400028500	7-037-1019 Dr: 31.07.2022		
	 :_::		Project	a Super Thermal Power		
[a] Name and address of the	Customer	.:	At: Tandwa			
· · · : : : : : : : : : : : : : : : : :			Dist- Chatra Jharkhand- 825	321		
[b] Details of Sample		•		donitoring (As per NAAQS)		
c) Sample Collected by		. · 	SHIVA TEST HOUS			
(d) Sampling Location	•	•	Collected from Near at a			
[e] Method of Sampling.		· · · · · ·	::: IS 11255 (Part-1,2:3 8			
f Sampling Environmenta	Condition		Temp. (°C)	26 Humidity (%) 67		
g] No. & Type of Contained			One poly Jar			
[h] : Instrument ID :	• :		RDS-3, FPM-3	<u> </u>		
[i] Sample Quantity	• :	. "	30 ml x 6 for each (NO2, SO2, NH3)			
[j] Sample Code 🗀 🖠			A-4490			
[k] Sample Condition on Re	celpt		Fit for Analysis			
[I] Items required to be test	×d.		As per contract			
[m] Whether any specific Mo been suggested by the pa		st bas	No			
n] : Date of receiving the san	nple"		10.12.22			
o] Analysis Start Date / An	álysis Com	pletion Date:	10.12.22 /.13.12.22			
Parameters	Unit	Limit as per	Method of	Sampling Station:/ Result		
<u> </u>	₩	NAAQS 2009:	·· ·· Test ·· ·	·· Near at the top of DM Plant		
Particulate Matter (PM ₁₀)	. μg/m³·	. 100 .	(8 5162 (Part-23)	71.2		
≥ Particulate Matter (PM₂s)	ng/m³	60	CPCB (GMAAP Vol. I)	37,1		
Sulphur Dioxide as SQ ₂	μ g / m³	80	IS 5182 (Part-2)	13.3:		
Nitrogen Dioxide as NO ₂	μg/m ^a	80	IS 5182 (Part-6)	35.1		
Lead (Pb)	:µg (m³	. 1	IS 5182 (Parl-22) 0.22			
Ammonia as NHs	μg / m³	400	" IS 5182 (Part-5)"	7 (4.4 F		
Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	15.8		

SHESHW | Digitally sloned by AR PRASAD 11:36:37 +05:30

. Verified by Technical Manager



Prasad

Shreyasee Digitally signed by Shreyasee Prasad Dale: 2022.12.27 11:43:00 +05'30"

Authorized Signatory Quality Manager

This report applies only to cample tested as above.

Total Liability of our Laboratory is limited to invoiced emount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced perturbly or full for legislicount perpose without written permission of the Laboratory.

Contact us:

122-C, Aastka, Road No. 5A, Pattiputsh Colony, Patro; = \$00.013 (Baltier)

Mob.: +91\$6768\$6349; +919431047908

athencent@vahoo.co.in , info@shrvatest.com

Page I of 1

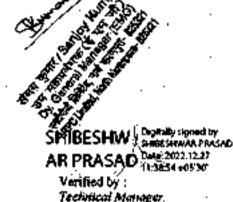


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOVE OF UIDIA, UNDER ENVIRONMENT (PROTECTION ACT 1906, DEPTI OF INDUSTRY, FORESTS & ENVIRONMENT, GOAT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. 5	TH/TR/22-23/4490(A)	De: 21.1	7.2922 Your Wo	rk Order No. 4000285	047-037-10	9f9 D1: 3L07:2022		
[a] N	[a] Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] .₽	etails of Sample			Ambient Air Quali	ty Montior	ing (As per NAAQS)		
[c] 8	ample Collected by			SHIVA TEST HOL	ISE on 09.	12.22		
[4] 8	ampling Location	•		Collected from New (of the top of I	DM Plant		
	Acthod of Sampling			IS 11255 (Part-1,2,3	&7)			
	ampling Environment	al Condition		Temp. (°C)	28	Humidity (%) 67		
	o. & Type of Contains	a r .		One poly Jar				
jbj le	strument ID			RDS-3, FPM-3				
	ample Quantity	:	·	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)				
<u>(ii) </u>	ample Code			A-4490				
[k] S	ample Condition on R	ecempt		Fill for Analysis				
(i)	ems required to be test	ted	-	As per contract				
	/hether any specific M can suggested by the p		st has	No.				
	ate of receiving the sa			10.12.22				
[0] · A	nalysis Start Date / Ar	nadysis Com	pletion, Date	10.12.22 / 13.12.22				
ı	Parameters .	Ųnit	Limit as per NAAQS 2009	Method of Test	_	ing Station / Result the top of DM Plant		
1. Carbo	n Monoxide (CO)	-mg/m³	4	18 5182 (Part-10)	0.455			
	me (C ₄ H ₄)	μ g / m³	. 5	IS 5182 (Part-11)	0.11			
Benzo(a) Pyrene ng / m³ 1			18 5182 (Part-12)	· ·				
4. Arseni		6	AAS Method	0.46				
5, Nickel		ng / m ³ :::	20	AAS Method	1,47			
Mercui	y (Hp)	ng/m³.	Not Specified	US EPA (Mathed IO-5)		0.54		





Shreyasee Prasad

11 43:11 +05:30

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to earnple tested as above.

Total Liability of our Laboratory is limited to involved amount, Teel Report endorsed only the lesis and sot the product certificate.

Test Report can not be reproduced pertially or full for tegal court purpose without written permission of the Laboratory.

Comact us:

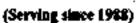
122-C. Aastha, Road No. SA, Philiputra Colony, Page = 800 0(3 (Bibar)

Mob.: +918676886249 ; +919431047908 sthoattes lightvahoo.co in ; info@shivaress.com

Webrite: www.shivntest.com; mww.shivptesthorse.com



VA TEST HOUSE





RECOGNEED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF SINAR AND BAHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4548	Dt.: 21.	12.2022 · · · Your W	ork Order No. 40002850				
[a] Name and address of the	Customer	• • • •	North Karanpurs Project At Tandwa	Super Thermal Power			
TT. Seet Law Se		· · · · · · · · · · · · · · · · · · ·	Dist- Chatra <u>Jhar</u> khand- 825	321			
[b] Details of Sample			Ambient Air Quality N	Ionitoring (As per NAAQS)			
[c] Sample Collected by	•		SHIVA TEST HOUS	E on 10.12.22			
[d] Sampling Location			Collected from Near as t	he top of DM Plans			
(e) Method of Sampling			IS 11235 (Part-1,2,3 6				
[f] Sampling Environmental	Condition		Temp. (°C)	25 Humidity (%) 71			
g] No. & Type of Container		'	One poly Jar				
[h] Instrument ID		·	RDS-3, FPM-3				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code	·	<u></u>	A-4548	<u> </u>			
[k] : Sample Condition on Re			Fit for Analysis				
[1] . Items required to be tests			As per contract No				
[m] Whether any specific Me been suggested by the pe		st has					
[n] Date of receiving the san	nple	."	12,12.22	···			
[o] Analysis Start Date / Ap.	alysis Com	pletion Date	12.12.22 / 14.12.22				
Parameters	Unit.	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant			
1. Particulate Matter (PM ₁₀)	μg7 m³°	100	IS 5182 (Part-23)	74.4 "			
2. Particulate Matter (PM _{2.5})	μg / m³	60	CPCB . (GMAAP Vol. I)	38.9			
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	12.9			
4. Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6)	33.0			
Lead (Pb)	μ g (m³.	. 4	IS 5182 (Pert-22)	0.19			
8. Ammonia as NH₃	μg/m³	400	18 5182 (Part-5)	5.4			
7. Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	20.4			

BESHW | Challed by AR PRASAD

Verified by : Technikul Manager



Prasad

Date 2022.12.27 11:46:16 +0530

Authorized Signatory Quality Manager

END OF YEST REPORT

This report applies only to sample based as above.

Total Liability of our Laboratory is firmed to invoced amount:

Test Report andorsed only the tests and not the product certificate.

Test Report can not be reproduced perfeitly or full for regalfoount purpose without written permission of the Laboratory.

Contact us:

1224C, Azorto, Road No. SA, Partiputos Colony, Pares - 600.013 (Billion)

Mob., +918676886249 , +919431047908 zihpäten i @yahoo.cu:in , imfo@elii/ratest.com

Website: www.shilvanest.com, www.shilvanesthouse.com



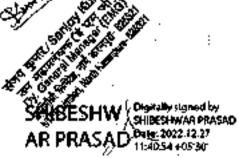


(Serving since 1988)

RECOGNISED AS ENARCHMENTAL LABORATORY BY MACEFOC, GOVE OF HIDIA, UNDER ENVIRONMENT (PROTECTION ACT 1988, DEPT). OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SHAM AND BRIAN STATE POLLUTION CONTROL BOAND

TEST REPORT

Ref. No. STH/TR/22-23/4548	(A) Dt : 2).	12.2022 Your V	Vork Order No. 40002	95067-037-1019 De : 31.97.20		
[a] Name and address o	The Customer	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample	:		į	ity Montioring (As per NAAQS)		
[c] Sample Collected by		.	SHIVA TEST HO			
[d] Sampling Location			Collected from Near	at the top of DM Plant		
(e) Method of Sampling			J\$ 11255 (Part-1,2,	3 & 7)		
f] Sampling Environme			Temp: (°C)	25 Humidity (%) 71		
g) No. & Type of Cont	Liner		One poly Jar			
h] Instrument 1D			RDS-3, FPM-3			
il Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
j] Sample Code			A-4548			
k] Sample Condition or	Receipt	:	Fit for Analysis			
 Items required to be 	tested :		As per contract			
m] Whether any specific been suggested by the		st has	No			
 n) Date of receiving the 		::	12.12.22			
ol Analysis Start Date	Analysis Com	pletion Date	12,12,22 / 14,12.2			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant		
. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	0.227		
Benzene (C _e H _s)	µg/m³	5 .	IS 5182 (Par(-11)	0.11		
. Benzo(a) Pyrene	ng / m³	1	13.5182 (Part-12).	0.18		
4. Arsenic (As) ng / m ³ 6			AAS Method	0.60 .		
Nickel as Ni	ng/m³	20	AAS Method 1.42			
: Mercury (Hg)	ng/mi [®]	Not Specified	US EPA (Method IC-5)	0.24		



Verified by : Technical Manager



Shreytsee Presed Dalg: 2022.12.27 Prasad 11:46:36 +05'30"

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount:

Test Report endorsed only the lests and not the product certificate.

Test Report can not be reproduced partially or fulf for tegaticious purpose without wither permission of the Laboratory.

Contact us:

172-C, Asstle, Road No. SA, Padiputra Colony, Patra - 400 013 (Babar)

Mob.: +913676136249; +919431047908

Website . www.shiteeest.com ; www.shiteeesthiinse



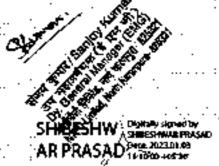


(Serving since 1988)

RITAL LABORATORY BY MOEFCC, GOVT. OF SADA, UNDER EMAROMMENT (PROTECTION) ACT 1986, DEPTT HT, GOVT, OF BRIAR AND BIHAR STATE POLLUTION CONTROL DOARD

TEST REPORT

Ref. No. STH/TR/22-23/4647	Dt : 30.12.2	922 Your Work	Order No. 4000285067-	037-1019 Dt : 31.07.2922			
(a) Name and address of the	Customer	÷:::	North Karanpura Project At: Tandwa Dist- Chatra Jharkhand- 825	a Super Thermal Power			
[b] Details of Sample	<u> </u>			Southering (As per NAAQS)			
(c) Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location	٠.	• • • • • • • • • • • • • • • • • • • •	Collected from Near at				
[e] Method of Sampling			IS 1.1255 (Part-1,2,3 &				
[f] Sampling Environmental	Condition	· ·:···· ·.	Temp. (°C)	24 Humidity (%) 73			
z] No. & Type of Container			One poly Jar				
[h] Instrument ID		•	RDS-3, FPM-3				
(i) Sample Quantity	. :	j. <u>, i.</u>	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
(j) Sample Code			A-4647				
[k] Sample Condition on Re-	ceipt . · · · ·	1.11	m Fit for Analysis minimum min				
[1] Items required to be teste	×d .		As per contract No				
(m) Whether any specific Me been suggested by the pa		st has					
[n] Date of receiving the san	nplė .		15.12.22				
[o] Analysis Start Date / Ana	alysis Com	pletion Date	15.12.22 / 18.12.22	in the discount of the <u>and</u>			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant			
Particulate Matter (PM ₁₀).	.μ g:/m 3	100	IS-5182 (Part-23)	70.2			
2. Particulate Matter (PM _{2.5})	⊭g / m³	60	CPCB (GMAAP Vol. II)	37.6			
3. Sulphur Dioxide as \$O ₂	μΩ / m³	80 :	IS 5182 (Part-2)	. 14.3.			
4. Nitrogen Dioxide as NO ₂	µg/m³	80	IS 5182 (Part-6)	343 :.			
		1	IS 5182 (Part-22)	0.10			
Lead (Pb)	µg/m;	• •		,			
Lead (Pb) 6. Ammonia as NH,	μg / m ³	400	IS 5182 (Part-5)	3.1.			



Verified by : -Technical Manager



Shreyase Shreyasee Prased Date: 2023.01.03 15:14:53 +05:30

> Authorized Signatory Quality Manager

4. Test Peport can not be reproduced partially or full for legalrooust purpose writious writing permission of the Laboral

Comact us :

122-C, Aastha, Rosa No. SA, Pathjeura Çokony, Patra = 800 013 (Baliar)

Mob.: +916676886249 ; +919431047908

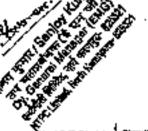


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF UNDIA, UNDER ENVIRONMENT (PROTECTION ACT 1906, DEPTE. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SMAR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4647(A)	Dt : 38.1	2.2822 Your W	ork Order No. 400028	5007-037-1	019 Dt : 31.07.2022	
[a] Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Qual	lity Monitor	ing (As per NAAQS)	
[c] Sample Collected by			SHIVA TEST HO			
[d] Sampling Location			Collected from Near	as the top of D	M Plant	
[e] Method of Sampling Sampling Environments			18 11255 (Part-1,2,	3 & 7)		
Sampling Environments	d Condition	·	Temp. (°C)	24	Humidity (%) 73	
.rl No. & Type of Containe	ਸ਼ :		One poly Jar		· · · · ·	
[h] lastrument ID			ROS-3, FPM-3			
(i) \$ample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₅)			
[j] Sample Code			A-4647			
[k] Sample Condition on Re	sceipt		Fit for Analysis			
[I] Items required to be test			As per contract			
[m] Whether any specific M been suggested by the p		st has	No			
[In] Date of receiving the sar			. 15.12.22			
[o] Analysis Start Date / Ar	ialysis Com	pletion Date	15.12.22 / 18.12.22			
Parameters	Unit	Limit as per	Method of	Sampl	ing Station / Result	
Parameters	Onk	NA4QS 2009	Test	Near at	the top of DM Plant	
1. Carbon Monoxide (CO)	mg/m³	4	IS 6182 (Part-10)		0.455	
2. Benzene (C ₄ H ₆)	μg / m³	5 .	IS 5182 (Part-11)	0.18		
s. Benzo(a) Pyrene				IS 5182 (Part-12) 0,16		
4. Arsenic (As)	ng / m³	6	AAS Method 0.28			
 Nickel as Ni 	ng / m³	20	AAS Method 5.87			
o. Mercury (Hg)	ng/m³	Not Specified	US EPA (Method IO-5)		0.57	



SHIBESHW SHIBESHWARPRASAD AR PRASAD 58121 10830

Verified by: **Technical Manager**



Prasad

Shreyasee, Olgitally signed by Shreyasee Prased Date: 2023.01.03 15:15:06 +05:30

> Authorized Signatory Quality Manager

END OF TEST REPORT.

This report applies only to sample tested as above.

Total Liability of our Laboratory is invited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Comtact us:

122-C, Austha, Read No. 5A, Parliquine Colony, Paray - 600 013 (Biher)

Mob. +918676886249;+91943104790\$ sikheiria lighyaken, co.in , miloigishi vansticom

Website: www.shimmert.com; prevenhipplesthouse coin-



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY INSEFEC, GOVT. OF HIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTE KENT, GOVE OF BROOK AND BROOK STATE POLLUTION CONTROL BOARD OF INDUSTRY, FORESTS & EMARCH

TEST REPORT

Ref. No. STH/TR/22-23/4652	• Dt : 30.	12.2022 Your W	ork Order No. 40002850	67-037-1019 Dt : 31.07.2022			
[a] Name and address of the	: Customer	i i i i i i i i i i i i i i i i i i i	North Karanpur Project At: Tandwa Dist- Chatra Jharkhand, 825	a Super Thermal Power			
[b] Details of Sample				donitoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location		• •	Collected from Near at	the top of DM Plant			
[e] Method of Sampling		·	IS 11235 (Part-1,2,3 &	£ 7)			
1] Sampling Environmenta			Temp. (*C)	24 Humidity (%) 72			
g] No. & Type of Containe	т	<u>: </u>	One poly Jan :	• •			
[h] Instrument [D :			RDS-3, FPM-3	· · .			
[i] Sample Quantity	<u>.:</u>	· '.i''	30 ml x 8 for each (NO2, SO2, NH3)			
[i] Sample Code			A-4652				
[k] Sample Condition on Re		:	Fit for Analysis				
[1] Items required to be test		<u> </u>	As per contract				
[m] Whether any specific Me been suggested by the pa		st bas -	No				
[n] Date of receiving the sar	цоје		16.12.22				
[o] Analysis Start Date / An	alysis Com	pletion Date	15.12.22 / 19.12.22				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant			
Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	"			
2. Particulate Matter (PM _{2.5})	μg / m³	60	CPCB (GMAAP Vol. I)	39.2			
3. Sulphur Dioxide as SO ₂	<u>ng</u> √m³	. 80 .	IS 5182 (Part-2)	. 15.3			
Nitrogen Dioxide as NO ₂	<u>µg</u> / m³	80	IS 5182 (Part-6)	35.0			
Lead (Pb)	μg/m³	1	IS 5182 (Part-22)	0.04			
6. Ammonia as NH ₃	μ g / m³	400	IS 5182 (Part-5)	3.6			
7. Ozone (Q ₃)	μg/m³	180	IS 5182 (Part-9)	12.4			

Eligitally signed by. HIBESHW AR PRASAD 15:1745 +165:30

Verified by: Technical Manager



END OF YEST REPORT

Shreyasee Copully lighted by Date: 2023/01.03 Prasad 15:16:51 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample lested as above.

Total triability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report carries not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

132-C, Aastia, Road No. 5A, Palliputra Colony, Patra - 200 013 (Bibiar)

Mob.: +918676486249 ; +919431047908 sthpterio i Østhoo.co.in : info@thinstest.com

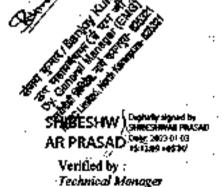
Webpite: provinshivatest.com; worde shrvatesthouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOVT, OF INDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & EMARCHMENT, GOVT, OF SHAR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-2	3/4652(A) Dt : 30.	12.2022 Your V	Work Order No. 40002	850 67- 037-101	9 De: 313	97.292		
(a) Name and add	fress of the Customer	:	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b] Details of San	nple .		Ambient Air Quali		(As per NAAQ	S)		
	cted by		SHIVA TEST HOU					
[d] Sampling Loc			Collected from Near a	if the say of DM	Plant			
[e] Method of Sau	mpling		IS 11255 (Part-1,2,3	& 7)				
'f] Sampling Env	ironmental Condition	•	Temp. (°C)	24	Humidity (%)	72		
(t) No. & Type o			One poly Jar					
[h] Instrument ID	•		RD\$-3, FPM-3					
[i] Sample Quant	tity ·		30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)					
(i) Sample Code			A-4652					
	ition on Receipt		Fit for Analysis					
(I) Items required	10 be tested		As per contract					
	specific Method of Te d by the party	st bas :	No					
	ing the sample		16.12.22					
	Date / Analysis Com	pletion Date	16.12.22 / 19.12.22					
		Limit as per	Method of	Samplin	g Station / Rea	sulf		
, Parameters	Unit	NAAQS 2009	Test	Near at d	e top of DM P	bet		
 Carbon Monoxide 	(CO) mg/m ³	4 .	IS 5182 (Part-10)	0.568				
2. Benzene (C₅H₅)	: μg / m³	5.	IS 5182 (Part-11)					
Benzo(a) Pyrene ng / m² 1			18 5182 (Part-12)	0.17				
4. Arsenic (As)	ng / m³	: . AAS Method :	i 0,21					
Nickel as Ni	ng / m³	· 20	AAS Method	d , 2.93				
e. Mercury (Hg)	ng/m³	Not Specified	US EPA (Method IO-5)		0:32			





Digitally signed by Shreyase Shreyasee Prasad Date: 2023-01-03 e Prasad

15:17:06 +05'30' Authorized Signatory · Quality Manager

-- END OF TEST REPORT

This report applies only to sample losted as abord.

Total Liability of our Laboratory is limited to involved amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Comfact us :

122-C, Aasthe, Road No. SA. Pulliputra Colony, Patra – \$00 013 (Biher)

MOb., +918676486249 . +919431047905 Email: : strange literature co.in .. infortibil/intest.com

Wellsier: www.shintatest.com; www.shintatesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MAEFICE, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SHAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4607 [M: 30.12.2	922 Your Work	Order No. 4000285067-	037-1019	Dt : 31.07	7.2022	
[a] Name and address of the	Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample			Ambient Air Quality N		As per NAAQS	· '.	
[c] Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location			Collected from New as	the top of Die	Plane .		
[e] Method of Sampling		· · · ·	IS 11255 (Part-1,2,3 &	<u>ė 7)</u> .			
[f] Sampling Environmental	I Condition	· :	Temp. (°C)	24. H	umidity (%)	71	
[g]. No. & Type of Container	c		One poly Jar		. :		
[h] Instrument ID			RDS-3, FPM-3				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-4807				
[k] Sample Condition on Re			Fit for Analysis				
[I] Items required to be tests			As per contract				
[m] Whether any specific Me been suggested by the pa		st has	No				
[n] Date of receiving the san	_{lip} le		21.12.22				
[o] Analysis Start Date / An	alysis Com	pletion Date	21.12.22/24.12.22				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		ing Station./ (the top of D		
1. Particulate Matter (PM ₁₀).	μg / m³	100	IS:5182 (Part-23)		71.3		
2 Particulate Matter (PM ₂₄)	μg / m³	60	CPCB (GMAAP Vol. I)	• :	38.8		
 Sulphur Dioxide as SO₂ 	μg/m³	. 80	.IS 5182 (Part-2)	14.8			
4. Nitrogen Dioxide as NO ₂					IS 5182 (Parl-6) 34.7		
Lead (Pb)	$\mu g / m^3$	1	IS 5182 (Part-22)		0.11		
6. Ammonia as NH ₃	μg / m³	400	I\$ 5182 (Part-5)		3.3		

Verified by : Technical Manager.



-- END OF YEST REPORT -

Shreyasee Prasad

Digitally signed by Date: 2023-01:03 Authorized Signatory

Quality Manager :

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Yest Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for registroout purpose willhoot written permission of the Laboratory

Contact as :

122-C, Annta, Road No. SA, Pailipern Colony, Perns – 100 013 (Bahar)

Mab. +918676486249; +919431047908

Website: www.shingless.com; www.shinglesthous

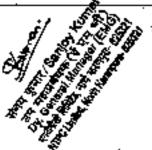


(Serving stace 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTY OF INDUSTRY, PORESTS & ENVIRONMENT, GOVT, OF SHARLAND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	STH/TR/22-23/4807(A)	'Dt : 30.1	2. <i>2022</i> Your W	ork Order No. 400026	5067-037-10	19 Dt : 31.	07.2022	
[#]	Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Details of Sample			Ambient Air Qua	lity Monitorin	g (As per NAAQ)\$7	
	Sample Collected by		•	SHIVA TEST HO				
[d]	Sampling Location			Collected from Near	at the top of DA	6 Plant		
[0]	Method of Sampling			IS 11253 (Part-1,2,	3. 4 .7) .			
ាឮ	. Sampling Environments	I Condition		Temp. (°C).	24	Humdaity (%)	71:	
ß]	No. & Type of Contains	:r		One poly Jar				
[h]	Instrument ID			RDS-3, FPM-3				
10	Sample Quantity			30 mL x 6 for each (NO ₂ , SO ₂ , NH ₅)				
Ül	Sample Code			A 4807				
[[k]	Sample Condition on Re	eceipt		Fit for Analysis				
	Items required to be test	ed ·		As per contract				
[m]	Whether any specific M been suggested by the p		st has	No				
[n]	Date of receiving the sa	mple .		.21.12.22				
[0]	Analysis Start Date / An	alysis Com	pletion Date	21.12.22/24.12.22				
	Parameters	Unit	Limit as per	Method of	Samplin	ng Station / Red	sult	
	Faranieters .	CANT.	NAAQS 2009	· Test	Near at (the top of DM P	Ta ot	
1. Car	bon Monoxide (CO) 🥏	mg/m³	4.	. IS 5182 (Part-10)	0.568			
	nzene (C _é H _é)	μg/m³	5	IS 5182 (Part-11)	0.08			
	zo(a) Pyrene	IS 5182 (Part-12)	2) 0.17					
	enic (As)	AAS Method	od : 0:21 :					
	kel as Ni	ng / m ³ ng / m ³	20	AAS Method	hod 8.80			
:	cury (Hg)	ng / m³	Not Specified	US EPA (Method 10-5)		0.65		



Digitally signed by SHIBESHW SHIBES WAR PRASAD Deta: 2023-01-03 15:21:27 +05:30 AR PRASAD

Verified by: Technical Manager



- END OF TEST REPORT

Shreyasee Digitally signed by Prasad

Shreyasee Prasad Date 2023.01.03 16:19:21 +0530 Authorized Signatory

Page I of I

Quality Manager

This report applies only to sample tosted as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Assthe, Road No. SA, Palipeers Colony, Partit - 800,013 (Bahar)

Mark. +918676886249 , +91943104790\$ stinstant Alexando co.in ; mlcostii viines com Email:

Webset . www.shibstest.com ; www.shibmesthouse









RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF NOW, LINDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. MINT, GOVT, OF BHAR AND WHAR STATE POLLUTION CONTROL BOARD OF HIDUSTRY, FORESTS & ENVIRON

TEST REPORT

Ref. No. STH/TR/22-23/4855	· Di · 31.1.	2.2022 Your W	ork Order No. 40002850	67-037-1019 Dt: 31.07.2922			
[a] Name and address of the	Customer		North Karanpura Project At: Tandwa Dist- Chatra Jharkhand- 825	321			
[b] Details of Sample.	I 7.:			donitöring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOUS	E on 21,12,22			
[d] Sampling Location			Collected from Near as t	the top of DM Pians			
[e] Method of Sampling			IS 11255 (Part-1,2,3 &	£7)			
It] Sampling Environmenta	l Condition	· · · · · · · · · · · · · · · · · · ·	Temp, (°C)	24 Humidity (%) 72			
g] No. & Type of Containe	r .		One poly Jar	.r _i ,			
[h] Instrument ID			RDS-3, FPM-3	: .:			
[i] Sample Quantity	. =.:	. " .	30 ml x 6 for each (i	NO ₂ , SO ₂ , NH ₃) :			
[j] Sample Code	•		A-4855	Marine Barrier			
[k] Sample Condition on Re		• •	Fit for Analysis				
[f] Items required to be test			As per contract				
[m] Whether any specific Me been suggested by the pa		st has	No .				
[n] Date of receiving the sar	nple		22.12.22				
[o] Analysis Start Date / An	alysis Com	pletion Date	22,12,227,25,12,22				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant			
i. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	73.16			
z. Particulate Matter (PM2.5)	μg / m³	60	CPCB (GMAAP Vol. I)	40.5			
3. Sulphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2)	15.7			
4. Nitrogen Dioxide as NO ₂	μg / m³	80	IS 5182 (Part-6)	35.2			
Lead (Pb)	pg / m³	. 3	19 5182 (Part-22)	0.14			
Ammonia et NH.	ng/m³	400	IS 5182 (Part-5)	3.6			
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	12.2			

(Digitally Denedity) (SHEESHMAR PRASAD AR PRASAD 1923-01-03

Verified by : Technical Manager.



Shreyasëe Prasad

Date 2023.01.03 16:21:32:405'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Lisbilly of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for legalicouri purpose without written permission of the Laboratory

Contact us:

122-C, Aastha, Road No. 5A, Papigpara Colony, Pana - 800 013 (Bilan)

Mob: +918676886249 : +919431047908 stigana (Granco co.in ; into Ashiveton.com





RECOGNISED AS ENGRONMENTAL LABORATORY BY MOEFCC, GOVE OF INDIA, UNDER EINVIRONMENT (PROTECTION) ACT 1969, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAIN AND BUNAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	STH/TR/22-23/4855(A)	· Dt: 31.1	2.2022 Your Y	Work Order No. 40002	85067-037 -	1019 Dt : 31.4	07,2022	
[a]	Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Details of Sample			Ambient Air Quai	lity Monitor	ing (As per NAAQ	<u>\$</u>	
[c]	Sample Collected by		: :	SHIVA TEST HO				
[d]	Sampling Location			Callected from New	at the tap of l	DM Plant		
[e]	Method of Sampling			IS 11255 (Part-1,2,	3 & 7)			
<u>[f]</u>	Sampling Environments	l Condition		Temp. (^Q C)	24	Humidity (%)	72	
ß	No. & Type of Contains	t		One poly Jar				
<u>[4]</u>	Instrument ID			RDS-3, FPM-3				
<u>rii</u>	Sample Quantity			30 ml x 6 for each (NO ₂₁ SO ₂ , NH ₃)				
Ül	Sample Code			A-4855				
.[k]	Sample Condition on Re	ecerpt .		Fit for Analysis				
<u>in</u>	Items required to be test			As per contract				
[m] ·	Whether any specific M been suggested by the p		st has	No				
[n]	Date of receiving the sa			22,12,22				
[6]	Analysis Start Date / An		pletion Date	22,12,22 / 25,12,1	22	•		
	. :		Limit as per	Method of	Samp	ling Station / Res	ult	
	Parameters	Unit	NAAQS 2009	Test	Near a	t the top of DM P	lant	
1. Carl	bon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)		0.68		
	izene (C ₆ H ₆)	μg/m³	5	IS 5182 (Part-11)	0.10			
3. Benzo(a) Pyrene ng / m³ 1				IS 5182 (Part-12)	0.17			
4. Arsenic (As) ng / m ³ 6				AAS Method	0.36			
	kelas Ni	ng/m³	20	AAS Method				
Mercury (Hg) ng / m³ Not Specified				US EPA (Method IC-5)		0.57	- :	

AR PRASAD 161633 +1830

Verified by: Technical Manager



Shreyasee Prasad

Date: 2025.01.03 16:21:46 +05'30"

Authorized Signatory Quality Manager

END OF TEST PEPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legat/court purpose without written permission of the Laboratory

Contact us:

123-C, Aastle, Road No. SA, Padiputta Colony, Plens - 100 013 (Bihar)

Mob.: +918676236249 ; +919431047908

Website: www.shirestest.com; www.shiretesthouse.com





(Serving since 1988)

RECOGNISED AS BOVINGIAMENTAL LABORATORY BY MAEFCC, GOVT. OF MICHA, UNIOER EMARCHMENT (PROTECTION ACT. 1986, DEPT. OF INCUSTRY, FORESTS & EMARCHMENT, GOVT. OF BINAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5137	Di : <i>03.</i> 01	2023 Your Work	Order No. 4000285087	-037-1019 Dt : 31:07:2022 .		
	.:		North Karangur	a Super Thermal Power		
		·	Project			
[a] Name and address of the	Castomer		At: Tandwa	:		
	. "		Dist-Chatra	· · · · · · · · · · · · · · · · · · ·		
· · · · · ·	٠.		Jharkhand- 825	321		
[b] Details of Sample	<u></u>	· <u>.</u> .	Ambient Air Quality I	Monitoring (As per NAAQS)		
[c] Sample Collected by	:	:	SHIVA TEST HOUS	SE on 29.12:22		
[d] Sampling Location	• :		Collected from Near at	the top of DM Plant:		
[e] Method of Sampling			- IS 11255 (Part-1,2,3 &	k:7) :: :.		
[f] Sampling Environmental	l Condition	<u> </u>	Temp. (°C)	16 Humidily (%) 73		
[g] No. & Type of Containe	r · · · · · ·		One poly Jar			
[h] Instrument ID	·		RDS-3, FPM-3	:		
[i] Sample Quantity	· :		30 ml x 6 for each (f	NO ₂ , SO ₂ , NH ₃)		
(i) Sample Code : :.	<u> </u>		A-5137			
[k] Sample Condition on Re	ceipt		Fit for Analysis			
(I) Items required to be teste	ed .		· As per contract			
(m) Whether any specific Me	ethod of Te	ot has .	No .	· · · · · · · · · · · · · · · · · · ·		
been suggested by the pa	urty . t	:	, MO			
(n) Date of receiving the sam		····	30.12.22	: ''		
[o] Analysis Start Date / Ana	aliysis Com	pletion Date	30.12:22 / 02.01.23	· : ·		
Parameters	Unit .	Limit as per	Method of	Sampling Station / Result		
Pacameters	Onit .	NAAQS 2009	Test	Near at the top of DM Plant		
1. Particulate Matter (PMps)	μgi / m ³	100	IS 5182 (Part-23)	75.2		
Double to Martine (DML)	· · ·	60	CPCB	44.0		
2. Particulate Matter (PM _{2.5})	μg / m ^a		(GMÁAP Vol. I)	41.8		
 Sulphur Dioxide as SO₂ 	μg / m ³	80	JS 5182 (Part-2)	13.1		
 Nitrogen Dioxide as NO₂ 	μ <u>α</u> / m ³	80	18 5182 (Part-6)	35.0		
Lead (Pb)	μg / m³	11.	(S 5182 (Part-22)	0.15		
6. Ammonia as NH ₃	μg / m³	400	IS 5182 (Part-5);	5.0		
7. Ozone (O ₃) / ₂	μg / m³	180	IS 5182 (Part-9)	14.6		

SHIBBSHW Cognaty signed by SHIBBSHW SHEESHWAR PRASAD AR PRASAD SHEED 2023 01.05 AR PRASAD SHEED SHEET SHEET

Frigure Caten/Viv

Shreyasee Prasad Prasad

Date 202201.03
16.5201 e0530
Authorized Signatory
Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Technical Manager

Total Liability of our Laboratory is firmled to invoiced amount.

Test Proport endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal court purpose without written permussion of the Laboratory.

Contact us:

177-4.; Assika, Road No. SA, Padiputta Colony, Palna – 800 013 (Bihar)

Mob.: +912676\$26249 ; +919431047906 Email sthramatighvahoo.com ; Info@shivstest.com

:Website: www.shivatest.com; www.shivetesthouse.com

S. C. 2003



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MICEFCC, GOVT. OF INDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY. OF INDUSTRY, FORESTS & EDITINGSHIEME, GOV'S, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5137(A)	Dt: 03.	01.2023 Your V	Vork Order No. 40002	85067-037-	1019 Dt: 31.	97.2022	
[a] Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample		30 10	Ambient Air Qua	lity Montto	ring (As per NAAC	න .	
[c] Sample Collected by			SHIVA TEST HO				
[d] Sampling Location			Collected from News	at the top of	DM Plays		
[e] Method of Sampling		.::	IS 11255 (Pan-1,2,	3 & 7) .			
[f] Sampling Environments	al Condition	:	Temp: (°C)	18	Humidity (%)	73	
g] No. & Type of Contains	er .	:	One poly Jar				
[h] Instrument ID			RDS-3, FPM-3	•	•		
[i] Sample Quantity	•		30 ml x 6 for each (NO ₂ , \$Q ₂ , NH ₃)				
[j] Sample Code			A-5137				
[k] Sample Condition on Re	eceipt	· · · · · ·	Fit for Analysis :				
[1] Items required to be test	ted		As per contract No				
(m) Whether any specific M been suggested by the p		st has					
[n] Date of receiving the sa	mple		. 30.12.22				
[0] Analysis Start Date / Ar		pletion Date	30.12.22/02.01.	23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		ang Station / Res		
1. Carbon Monoxide (CO)	mg / m ³	4	IS 5182 (Part-10)		. 0:227	14	
2. Benzene (C ₆ H ₆)	μg / m³	5	(\$ 5182 (Part-11)	0.12			
3. Benzo(a) Pyrene	ng/m³	1 .	"IS 5182 (Part-12)	0.18			
4. Arsenic (As)	AAS Method.	0.39					
.s Nickel as Ni					2.93		
Mercury (Hg)	ng/m³	Not Specified	AAS Method US EPA (Method IO-6)		0.25	·.•·	

SHIBESHW Stylener Stylener PRASAD AR PRASAD 165423 10530

Verified by : Technical Manager



Prasad

Digitally signed by Shreyasee Prosect Bare: 2029.01.05 16:58:16 +05'30' Authorized Signatory Quality Manager

END OF TEST: REPORT

This report applies only to sample tested of above.

Total Lisbelty of our Laboratory is Emiled to invoiced amount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

132-C; Aasthe, Road No. SA, Patlipura Colony, Pann - \$00 013 (Billian)

MAD:: +918676\$36249 ; +91943104790\$ safmates i (Styration coles ; Info@strivense.com)

Websies: www.shivatest.com; www.shivatesthoim





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MARFCC, GOVT, OF MONA, UNDER ENVIRONMENT (PROTECTION) ACT 1965, DEPTE. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BIHAR STATE POLILITION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5154	Dt : 63.0	1.2823 Your Wo	ork Order No. 40002850			122
[a] Name and address of the	Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chaira Jharkhand- 825 321			
[b] Details of Sample		•	Aimbieni Air Quality A	donitoring (A	s per NAAQS)	-
c] Sample Collected by			SHIVA TEST HOUS	E on 30.12.	22	
d Sampling Location	·		Collected from Near at	the top of DM	Plani	
e] Method of Sampling			IS 11255 (Purt-1,2,3 &	* ?)		
t] Sampling Environments	l Condition	<u> </u>	Temp. (⁰C)	18 Hu	midity (%) 7:	2.
[3] No. & Type of Containe	ŕ:	:	One poly Jaz		· · :	
h] Instrument ID	1	:	RDS-3, FPM-3			
il Sample Quantity			30 ml x 6 for each (I	NO2, SO2, N	Hs)	•
j] Sample Code		٠.	A-5154			
k] Sample Condition on Re			Fit for Analysis			
 Items required to be test. 			As per contract			
[m] Whether any specific Me been suggested by the pa		st has	No	. 5	. :	_
n Date of receiving the san	nple		31.12.22	:	•: •	
[o] Analysis Start Date / An	alysis Com	pletion Date	31,12,22 / 02,01,23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		ng Station / Resu the top of DM Ph	
1. Particulate Matier (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)		69.9	_
2. Particulate Malter (PM _{2.6})	μg/m³	60	CPCB (GMAAP Vol. I)		37.2	•
3. Sulphur Dioxide as SO ₂	μg / m³	. 80	IS 5182 (Part-2)		: 14.4.	
. Nitrogen Dioxide as NO ₂	μ ց / π ³	80	IS 5182 (Part-6)		33,0	
Lead (Pb)	$\mu g / m^3$	1.	IS 5182 (Part-22)		0.21	
3. Ammonia as NH ₃	$\mu g I_{2} m^{3}$	400	IS 5182 (Part-5)		4.3	
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)		15.6	_

Verified by : Technical Manager حماو0. dONO) 3

Shreyasee Contails agreed by Strayerae Praced Date: 2023.01.03 Prasad 17/00:29 +0530* Authorized Signatory Quality Manager

This report applies only to sample leafed as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endersed only the leafs and not the product certificate.

Test Report can not be reproduced partially or full for legal/court pulpose without where permission of the Laboratory.

Contact us:

122-C. Aastha, Road No. SA, Philippers Colony, Panna - 800 013 (Billin).

Mobi: +918676886249 ; +91943 (04790\$

Website . www.shindlest.com ; www.shinalesthois

stheams (@makeo.com; Intershipstest.com

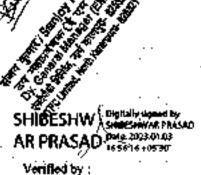


(Serving stace 1988)

RECOGNISSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAN AND BRIAN STATE POLILITION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/51!	14(A) Di: 43,6	7.2023 Your 1	Work Order No. 40002	85067-037	-1019 Dt : 31.	07.2022			
[a] Name and address	Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample	:	·.	Ambient Air Qual	ity Manitos	ring (As per NAA)	DS)			
[c] : Sample Collected	by	· · · · · · · · · · · · · · · · · · ·	SHIVA TEST HOL			::			
[d] Sampling Location	ı	· .	Collected from New	at the top of	DM Plant				
[e] Method of Samplin	12.		I\$ 11255 (Part-1,2,	3 & 7)					
[8] Sampling Environ	nental Condition	: :	Temp. (℃)	16	Humidity (%)	. 72			
No. & Type of Cor	rtainer	•	One poly Jar						
(h) Instrument (D	" -	•	RDS-3, FPM-3						
[i] Sample Quantity	.i. :	;	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)						
(j) Sample Code	·		A-5154						
[k] Sample Condition	on Receipt	•	Fit for Analysis						
[f] Items required to b	e tested		As per contract						
[m] Whether any speci been suggested by		st has	No						
[n] Date of receiving t		•	31.12.22						
[6] Analysis Start Date	/ Anilysis Com	pletion Date	31.12.22 / 02.01.2	29					
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		king Station / Re				
1. Carbon Monoxide (CC) mg/m³	.4 .	IS 5182 (Part-10)		0.68	· 1			
2. Benzene (C _e H _s)	μg/m³	5	IS 5182 (Part-11)		0.07				
3. Benzo(a) Pyrene ng / m³ 1		(\$ 5182 (Part-12)	0.17						
4. Arsenic (As)	AAS Method	0.28							
* Nickel as Ni	AAS Method								
o. Mercury (Hg)	ng/m³	Not Specified	US EPA (Method IO-5)		0.25				



600015

END OF TEST REPORT

Prasad

Shreyasee Digitally Spring to Date: 2023.01.03 17/00/45 +05/30

> Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Technical Manager

Total Liability of our Laboratory is limited to invoiced emount.

Test Report endorsed only the tests and not the product carbificate.

Test Report can not be reproduced partially or full for tegal/court purpose without written permission of the Laboratory.

Contact us:

122-C; Ajestia, Road No. SA, Pattiputja Colony, Pates - 800-013 (Bither)

Mob.: +918676886259 ; +919431047906 Excell:

Website: www.shivntescom; www.shivnesthouse.com

Migratural Agreemon com in info@delivatest.com





..... (Serving since 1988)

NED AS ENVIRONMENTAL LABORATORY BY MISEFCC, GOVT, OF MICH, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAD AND ENVIR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4489	· Du: 21-12	1.2022 Your Wo	rk Order No. 40002850	67-037-1019 Dt: 31.07.2022			
	· ·			a Super Thermal Power			
	٠.		Project				
[a] Name and address of th	e Customa		At: Tandwa	A-1-1			
	• • • • • • • • • • • • • • • • • • • •		Dist- Chatra				
	:		Jharkhand- 825	5 321			
[b] Details of Sample	. : . :			Monitoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOU:	SE on 09.12.22			
[d] . Sampling Location	· · ·		Collected from Near at	this top of Time Office (Hain Plant)			
[e] Method of Sampling	٠.		IS 11255 (Part-1,2,3	& 7) ·			
(f) Sampling Environment	al Conditio	n : :	Temp. (PC)	26 Humidity (%) 67			
g] No. & Type of Contain			One poly Jan	·			
[h] Instrument ID		. :	RDS-1, FPM-1	· . : :			
[i] Sample Quantity	. ::	·	30 ml x 6 (greach (NO ₂ , SQ ₂ , NH ₉)			
[j] Sample Code		**	A-4489	11.44			
[k] Sample Condition on R	eccipt		Fit for Analysis : :				
[1] Items required to be tes	ted		- As per contract				
[m] Whether any specific N	lethod of T	est has	Na				
been suggested by the p			No : : ·				
[n] Date of receiving the sa	umple	: ···.	10.12.22	· · · · · · · · · · · · · · · · · · ·			
[0] Analysis Start Date / A	nalysis Con	pletion Date	10.12,22 / 13.12.22	}*;;: . " "			
<u> </u>	T:	`	Method of	Sampling Station / Result			
Parametere	Unit	NAAQS 2009	Test	Near at the top of Time Office (Main Plant)			
1. Particulate Matter (PM ₁₀)	μig / m³	: 100	IS 5182 (Part-23)	75.4			
Particulate Matter (PM _{2.5})	μg / m³	60	GPCB (GMAAP Vol. I)	.41.3			
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	19 - 7 - 14.0 1			
3 Nitrogen Dloxkie as NO₂	μg / m³	80	IS 5182 (Part-6)	38.8			
5. Lead (Pb)	$\mu g / m^3$	· · · · · · · · · · · · · · · · · · ·	IS 5182 (Part-22)	0.08			
6. Ammonia as NHs	μg / m³	400	IS 5182 (Part-5)	***			
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	20.6			
		· · · · · · · · · · · · · · · · · · ·					





Shreyasee Prasad

Date: 2022.12.27 11:42:10 +05:30

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C. Azata, Road No. SA, Paulipean Colony, Page - 800 013 (Bilher)

Mob.: +918076886249 ; +919431047908

Shperiti (@yahou cu.ln., imb@shivitesi.cum

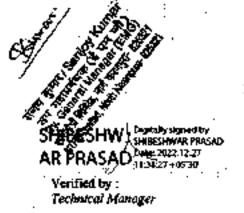


(Serving stace 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1985, DEPTS OF BIOLISTRY, FORESTS & ENVIRONMENT, GOVE OF BRIAR AND BRIAR STATE POLLLITION CONTROL BOARD

<u>TEST REPORT</u>

Re(. N	o. STH/TR/22-23/4489(A) Di: 25.1	2.2022 Your W	ort Order No. 4000Z	85067-037-	1019 Dt : 31.	97.2922	
[a]	Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra: Jharkhand- 825 321						
ы	Details of Sample			Ambient Air Qua	lity Monito	ring (As per NAAÇ)S) -	
[c]	Sample Collected by	•		SHIVA TEST HO				
[d]	Sampling Location			Collected from New	at the usp of	Time Office (Main M	wd)	
[e]	Method of Sampling			IS 11255 (Part-1,2,	3 & T)			
[ij]	Sampling Environment	al Condition		Temp. (°C)	26	Humidity (%)	67	
. gl	No. & Type of Contain	ਬ <u>.</u>		One poly Jar				
[ե]	Instrument ID	·		RDS-2, FPM-2	:			
fil	Sample Quantity			30 mt x 6 for each (NO ₂ , SO ₂ , NH ₃)				
Ül	Sample Code			A 4289				
[k].	Sample Condition on R	eceipt .		Fit for Analysis				
m	Items required to be tes	ted .		As per contract				
[m]	Whether any specific M been suggested by the p		sthas	No				
[n]	Date of receiving the sa	mple		10.12.22				
[6]	Analysis Start Date / Ar	palysis Com	pletion Date	10.12.22 / 13.12.	22			
	: .	1	Limit as per	Method of	Samp	ding Station / Re	sult "	
	Parameters	Unit	NAAOS 2009	Test	Near at	the top of Time ((Main Plant)	Office	
1. Car	bon Monoxide (CO)	mg/m³	. 4	IS 5182 (Pert-10)		0.227		
2. Bei	nzene (C ₄ H ₄)	μg / m³	5	IS 5182 (Pert-11)		0.14		
3Ber	3. Benzo(a) Pyrene ng / m³ 1			IS 6182 (Part-12)	0.19			
4. Ars	enic (As)	AAS Method	0.62					
Nic	kel as Ni	AAS Method 1.40						
6. Mei	rcury (Hg)	ng/m³	Not Specified	US EPA (Method 10-6)	· .	0.53		





Prasad

Digitally signed by Shreyasee Prasad Bale: 2022.12.27 11:42:25 +05'30"

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount:

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact as :

122-C, Aastka, Road No. SA, Paulipeura Colony, Paune – 800-013 (Bilbar)

Mc6.. +913676186249 ; +919431047906

Website: www.shivatest.com; www.shivatesthouse.com



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOVT. OF WOW, LINDER ENVIRONMENT (PROTECTION) ACT 1985, DEPT OF MOUSTRY, PORESTS & BIMMRONMENT, GOVE OF BHAIR AND BIMAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4547	Dt: 21.12.2	022 Your Work	Order No. 4000285067-6				
			North Karanpura	a Super Thermal Power 💛			
			Project				
 a) Name and address of the 	Customer		At: Tandwa				
	• •	··. ··· ·	Dist- Chatra	•			
:	:		Jharkhand- 825	321			
b] Details of Sample	٠٠.		Ambient Air Quality N	donitoring (As per NAAQS)			
 c) Sample Collected by 	:		SHIVA TEST HOUS	E on 10.12.22			
d] Sampling Location	٠	-	Collected from New as	the sop of Time Office (Moto Plant)			
e] Method of Sampling	·	"	IS 11255 (Part-1,2,3 &	k 7) . ` ::			
f) Sampling Environments	d Condition		Tomp. (°C)	25 Humidity (%) 71			
g] No. & Type of Containe	ar .		One poly Jar				
h] Instrument JD	· .:	::	RDS-2, FPM-2	<u>.</u>			
i) Sample Quantity			30 ml x 6 for each (I	NO2, SO2, NH3)			
j) Sample Code	. •		A-4547	140			
k] Sample Condition on Re	sceipt	······································	Fit for Analysis				
l] Items required to be test			As per contract				
m) Whether any specific M		i has	No				
heen suggested by the pa	arty	·					
n]. Date of receiving the sar	nple i		12.12.22	•••			
o] Analysis Start Date / An	aliysis Comp	oletion Date	12.12:22 / 14.12:22	5.74			
		Limit as per	Method of	 Sampling Station / Result 			
Parameters	Unit	MAAQS 2009	Test	Near at the top of Time Office (Main Plant)			
. Particulate Matter (PM ₁₀)	μΩ / m³	100	IS 5182 (Part-23)	73,3			
Particulate Matter (PM _{2.5})	h@ / m³	60	CPCB (GMAAP Vol. I)	41.7			
. Sulphur Dioxide as SO ₂	μg/m³	80	I\$ 5182 (Part-2)	15.1			
Nitrogen Dioxide as NO ₂	pg/m³	80	IS 5182 (Parl-6)	38.8			
Lead (Pb)	µg/m³	1 :-	IS 5182 (Part-22)	0.09			
			1				
Ammonia as NH. Ozone (O ₃)	μg/m³	400	IS 5182 (Part-5)				

C Depte By signed by J.SHBBBSHAVAR PRASAD AR PRASAD (13-0020 102-2022 12.27

Verified by : Technical Manager



END OF TEST REPORT

Prasad

Shreyasee | Digitally agried by Shreyesee Presed Dang 2022 12:27 11:45:43 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Lability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laborator

Contact us:

122-C, Assite, Road No. 5A, Padipuen Colony, Faces - 500 013 (Either)

Nub.: +912676826249; +919431047902



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSPCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAIR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4547(A)	Di : 21.	12.2022 Your V	Vork Order No. 4000;	2#5067-037-1019 Dt : 31.07.2022			
[a] Name and address of the	e Customer		North Karanpt Project At: Tandwa Dist- Chatra Jharkhand- 8:	ara Super Thermal Power 25 321			
[b] Details of Sample				lity Monitoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HO				
[d] Sampling Location		. •	Collected from Near	of the top of Time Office (Main Mant)			
[e] Method of Sampling		•	IS 11255 (Part-1,2,				
[f] Sampling Environments	l Condition	:	Temp. (°C)	25 Humidity (%) 71			
g] No. & Type of Contains			One poly Jar				
[h] Instrument ID	•	·." :	RDS-2, FPM-2				
[i] Sample Quantity		٠.	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-4547				
[k] Sample Condition on Re	eceipt		Eit for Analysis				
[l] Items required to be test	ed .		As per contract				
[m] Whether any specific M been suggested by the p		șt has	No				
[n] Date of receiving the sai			12.12.22	· : ·= -			
[o] Analysis Start Date / An		pletion Date	12.12.22 / 14.12.	22			
		Jama ing ang	Method of	Sampling Station / Result			
Parameters .	Unit	Limit as per NAAQS 2009	Test	Near at the top of Time Office (Main Plant)			
Carbon Monoxide (CO)	mg/m³	. 4	IS \$182 (Part-10)	0.34			
2. Benzene (C ₈ H ₆)	$\mu g/m^3$	5 ;	IS 5182 (Part-11)	0.09			
3. Benzo(a) Pyrene	ng / m³	1 :	IS 5182 (Part-12)	0.17			
4. Arsenic (As)	ng/m³	6	AAS Method				
Nickel as Ni	ng / m³	20 ·	AAS Method	2.80			
6. Mercury (Hg)	μ g / m³	Not Specified	US EPA (Method IC-5)	0.51			





Prasad

Date: 2022.12.27 11:46:00 +0530* Authorized Signatory Quality Manager

<u>END OF TEST REPOR</u>T

- This report applies only to sample tested as above.
- Total Liability of our Laboratory is limited to invoiced amount.

 Test Report engorsed only the tests and not the product certificate.
- Zest Report can not be regraduced partially or full for tegel/court purpose without written permission of the Laboratory.

Contact us :

1/22-C, Ansthé, Bond No. SA, Pathiputra Colony, Puga – 800 013 (Bilige)

Mob. +918676486249 . +919431047908 Бикай (

<u> Mateina i @yaleus usu in . infu@shir ntest uson</u>

Website : promeshivetest.com; www.shivatesthouse.com





(Serving since 1988)

ENTAL LABORATORY BY MORPOC, GOVT. OF INDIA, UNIDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. RECOGUESED AS ENVIRON OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BINAR AND BRIME STATE POLILITION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/23-23/4646	.Dt : 30.53	7. 2022 Vour Wo	rk Order No.::40002850	67-037-1019 Dt 31.07.2022			
				ra Super Thermal Power			
[a] Name and address of the	 Customer		At: Tandwa	· · · · · · · · · · · · · · · · · · ·			
in the mid address of the			Dist-Chatra				
	÷		Jharkhand- 82	5 321			
[b] Details of Sample		··· ··: ··:	Ambiem Air Quality	Monitoring (As per NAAQS)			
[c] Sample Collected by		*	SHIVA ŢĘST HOU	SE on 14 12:22			
[d] Sampling Location	:	: .	··· Collected from Near a	the top of Time Office (Main Flora)			
[e] Method of Sampling			IS 11255 (Part-1,2,3	& 7) ·			
[f] Sampling Environmenta		n	Temp. ([©] C)	24 Humidity (%) 73			
g]. No. & Type of Contains	r · :	: .	:- One poly Jar -:	. :			
[h] Instrument ID	:	:	RD8-1, FPM-1: ***				
ii Sample Quantity	···. ·	<u> </u>	30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₅)			
[j] Sample Code :			A-4646	:			
[k] Sample Condition on Re		: "	Fill for Analysis	<u></u>			
[1] Items required to be test		:	: As per contract				
[m] Whether any specific M been suggested by the pi		est has	No :				
[n] Date of receiving the san		::	. 15.12.22				
[o] . Analysis Start Date / An	alysis Con	plotion Date	15,12,22 / 18,12,22				
		Limit as per	··· Method of	Sampling Station / Result			
Parameters :	Unit ·	NAAQS 2009	Test	Near at the top of Time Office (Main Plant)			
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	70.1			
2. Particulate Malter (PM _{2.5})	μg / m³.:	60	CPCB (GMAAP Vol. I)	39.6			
3. Sulphur Dioxide as SO ₂	μg/m³	: 80	IS 5182 (Part-2)	16.6			
Nitrogen Dioxide as NO _{2:}	μg/m³	80	IS 5182 (Part-6)	j., m : 32.7			
5. Lead (Pb)	μg / m³. ·	1 1 : 5	··· 15:5182 (Part-22):	0.10			

6. Ammonia as NH₃	μg/m³·	400	13:5182 (Part-5)	4.0			

Digitally pigned by SPIRESHAWAR GRASAD Dags 2023 01:01 15-08:51 -45-30

Verified by : Technical Manager



Shreyasee Digitally algored by Prasad

15:14:27 +05:30

Authorized Signatory Quality Manager

- Test Report endorsed only the tests and not the product cartificate.

 Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laborato

Contact us:

122°C, Aastha, Rood No. 5A, Patliputra Colony, Patra - 900 0 3 (Bilear)

Mob: +918676586249; +919431047998

Emaile.

Website move shiretest com; www.shivatesthouse.com





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MoRFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4646(A	DL 34.	72.2022 Your W	ork Order No. 400028	5067-037-	1019 Dt : 31.	07.2022	
(a) Name and address of th	ie Customer		North Karanpu Project At: Tandwa Dist- Chatra Jharkhand- 83	· · ·	Thermal Powe	r	
(b) Details of Sample			Ambient Air Quai	ity Monitor	ing (As per NAA))\$J ² :	
[c] Sample Collected by		:	SHIVA TEST HO				
[d] Sampling Location	. ::		Collected from New	as size top of	Time Office (Main Pi	74d)	
[e] Method of Sampling			IS 11255 (Pan-1,2,				
[f] Sampling Environment	al Condition		Temp. (°C)	24:	Hurnidity (%)	. 73	
. g] No. & Type of Contain	er		One poly Jar				
[h] Instrument ID			RDS-2, FPM-2				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SQ ₂ , NH ₅)				
(j) Sample Code			A-4646				
[k] Sample Condition on R	leceipt		Fill for Analysis				
[I] Items required to be tes	ated		As per contract				
(m) Whether any specific N been suggested by the p		st has "	No				
[n] Date of receiving the sa			15.12.22				
[o] Analysis Start Date / A	nalysis Com	pletion Date	15.12.22 / 18.12.2	?2		٠.	
Parameters	Unit	Limit as per NAAOS 2009	Method of Test		ling Station / Re the top of Time ((Main Plant)		
Carbon Monoxide (CO)	mg/m³	11411	(S 5182 (Part-10)		0.341		
2. Berizene (C ₆ H ₆)	μ <u>α</u> / m³	. 5	IS 5182 (Part-11)		0.04		
3. Benzo(a) Pyrene	ng / m ³	1	IS 5182 (Part-12)		0.15		
4. Arsenic (As)	ng / m³	6	AAS Method	:	0.29	: .	
Nickel as Ni	ng/m³	20	AAS Method		5.59		
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Method IO-6)		0.08		



Verified by : **Technical Manager**



END OF TEST REPORT

Shreyasee Prasad

Digitally signed by Siveyasee Prasad Date: 2023,01,03 15:14:40+05:30

Authorized Signatory Quality Manager :

This report applies only to sample tested as above.

Total Liniplity of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product conflicate,
Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Assilia, Road No. SA, PstNpytra Colony, Pana - 300 013 (Baks)

M60.. ±918676886249 . •919431047908

Website: www.shimalesi.com; www.shimalesthous

entre l'Ottabon co in : infe@shirotest com-



(Serving since 1988)



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFOC, GOVE OF MIDIA, UNDER ENVIRONMENT (PROTECTION ACT 1984, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BRIGH AND BRIGH STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4651	Dt: 38.12	2022 - Your W.	ork Order No. 40002850	067-037-1019 Dt. 31.07.2022			
*: '	. 1		North Karanpur	ra Super Thermal Power			
pie godinima. "			Project				
[a] Name and address of th	Customer		At: Tandwa				
		• • • • •	Dist- Chatra				
	•	٠	Jharkhand- 82	5 321			
[b] Details of Sample			Ambiera Air Quality	Monitoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOU	SE on, 15,12,22			
[d] Sampling Location	٠.	· .	Collected from Near at	the top of Time Office (Main Plant)			
[e] Method of Sampling			- IS 11255 (Part-1,2,3	& 7)			
f] Sampling Environments	al Condition	n .	Temp. (°C)	24 Hümdity (%) 72			
2] No. & Type of Contains			One poly Jar				
[h] Instrument ID	- '.	<u> </u>	RD\$-2, FPM-2				
[i] Sample Quantity			30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₂)			
[j] Sample Code			A-4651				
[k] Sample Condition on R	eceipt		Fit for Analysis				
[1] Items required to be test			As per contract				
[m] Whether any specific M been suggested by the p		est has	No.				
[n] Date of receiving the sa	mple	· · · · · ·	16.12.22	· · :			
[o] Analysis Start Date / Au	ialysis Con	npletion Date	16.12.22 / 19.12.22	2 fabrica in the second			
	[·	Limit as per	Method of	Sampling Station / Result			
Parametere	Unjit	NAAQS 2009	Test	Near at the top of Time Office (Main Plant)			
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Parl-23)	71.7			
2. Particulate Matter		60	CPCB	38.3			
(PM _{2.6})	hā (m)		(GMAAP Vol. I)	•			
3. Sulphur Dioxide as SO ₂	μg / m³	60	IS 5182 (Part-2)	987 8 [14.4			
Nitrogen Dioxide as NO ₂	μά / m³	80	IS 5182 (Part-6)	33.4			
5. Lead (Pb)	μg / m³	1	IS 5182 (Part-22)	0.04			
 Ammonia as NH₃ 	µg / т³	400	IS 5182 (Part-5)	1			
or Latenthind do Lin 19		,					

Digitally signed by SHIRESHIMAR PRASAS PRASAD 15:11:19+09:30

Verified by : Technical Manager



- END OF TEST REPORT

Prasad

Shreyasee, Shreyasee Prassed Date: 2023.01.03 15:16:22 +05'30' Authorized Signatory

Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report endorsed only the tests and not the product certificate.

Test Report endorsed only the tests and not the product certificate.

Contact us:

122-C, Aastha, Road No. 5A, Pathyeara Cokery, Patria - 300 013 (Biline)

Mob 4918676886249 : 4919431047908 sarania la la comencia de la contra la contra

Website - move shipstest com ; www.shrvalesthouse.com

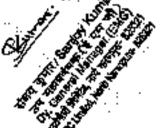


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MAERCO, GOVT. OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPT OF MOUSTRY, FORESTE & ESAVIRONMENT, GOVT, OF BIHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	o. STH/TR/22-23/4651(A)	Dt : 30.	12.2022 Your V	York Order No. 40002	285067-037-1019 IN : 31.07:2022		
	· · · · -	- 		North Karanpi	ira Super Thermal Power		
[a]	Name and address of th	e Customer		Project At: Tandwa			
٠.				: Dist- Chatra:	:: · · · · · · · · · · · · · · · · · ·		
		<u></u>		: Jharkhand- 8:			
[b]	Details of Sample		·		lity Mönitöring (As per NAAQS)		
[¢]	Sample Collected by.	•	·	SHIVA TEST HO	<u> </u>		
[4]	Sampling Location			_	at the top of Time Office (Main Plant)		
[e]: :	Method of Sampling			18 11255 (Part-1,2,			
91	 Sampling Environment 	al Condition		Temp. (°C)	24 Humidity (%): :72		
ائ	No. & Type of Contain	ef	:	One poly Jar .	er Teberhale "		
[h]	Instrument LD	٠		RDS-2, FPM-2			
[i]	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[i]	Sample Code	. '	: .	A-4651			
[k]	Sample Condition on R	eccipt		Fit for Analysis	· · · · · · · · · · · · · · · · · · ·		
īn	Items required to be tas		·	As per contract			
[m]	Whether any specific M been suggested by the p	lethod of Te	st has	Not the contract of the contra			
[n]	Date of receiving the sa			16.12.22			
[0]	Analysis Start Date / A		pletion Date	18.12.22719.12.	22		
	Parameters	Unik	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)		
ı. Car	bon Monoxide (CO)	mg/m³	4	IS 5182 (Pert-10)	0.46		
	nzene (CeHs)	μ g / m³	5	IS 5182 (Part-11)	0.05		
	nzo(a) Pyrene	ng/m³	1	IS 5182 (Part-12)	0.14		
	enic (As)	ing/m³	6	AAS Method	0,14		
	kel as Ni	ng/m³	20	AAS Method			
·	reury (Hg)	hā 1 th ₃	Not Specified	US EPA (Method (0-5)	0.16		



Digitally algored by SHIBESHAWAR PRASAL AR PRASAD 15:11:31 +05:30

Verified by : Technical Manager



Prasad

Date: 2023.01.03

15:16:36 +05'30' Authorized Signatory Quality Manager

END OF TEST REPORT

.-..-- :: `-

This report applies only to sample tested as above.

Total Liability of our Laboratory is irrited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory:

Contact us :

122-C, Aastba, Road No. SA, Indjapen Colony, Pama - 800 013 (Bihar)

M66: 4918676586249; 4919431047908

stinaton kartino co.in ; info@ihivattist.com 11111

Website: www.shinatest.com; www.shinatesthous



(Serving since 1988)



AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1985, DEPTT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAIR AND SHAIR STATE POLLUTION CONTROL BOARD RECOGNISED AS ENVIRON

TEST REPORT

Ref. No. STH/TR/22-23/4896 Dt: 36,12-2022 Your	Work Order No. 4000285067-037-1019 Dt : 31:87:2022				
	North Karanpura Super Thermal Power				
	Project				
[a] Name and address of the Customer	At: Tandwa				
	Dist- Chatra				
	Jharkhand- 825 321				
[b] Details of Sample	Ambiem Att Quality Monitoring (As per NAAQS)				
[c] Sample Collected by	SHIVA TEST HOUSE on 20.12.22				
[d] Sampling Location	Collected from Near or the top of Time Office (Main Plant)				
[e] Method of Sampling	- 18 1 J 255 (Part-1/2,3 & 7)				
[f] Sampling Environmental Condition	Temp. (℃) 24 Humidity (%) 71				
g] No. & Type of Container	One poly Jan. : : - : : : . : - : : : : : : : :				
[h] Instrument ID	RDS-1, FPM-1:				
[i] Sample Quantity	30 ml x 8 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code	A-4806				
[k] Sample Condition on Receipt	: ··· Fit for Analysis: ··· ···				
[f] Items required to be tested.	Ae per contract				
[m] Whether any specific Method of Test has	No PER DE LA PERE DE LA PERE				
been suggested by the party	HO				
n : Date of receiving the sample :	[1 2].12.22 [1 2].				
[o] Analysis Start Date / Analysis Completion Date	21.12.22/24.12.22				
I imit ac oa	Method of Sampling Station / Result				
Parameters Unit NAAQS 200	Mention of Name of the control of The Office				
1. Particulate Matter (PM ₁₀)" μg / m ³ 100	IS 5182:(Part-23) 71.7				
2 Porticulate Matter	CPCB 400				
(PM _{2.5}) µg /m³ 60	(GMAAP Vol. I) 40.9				
kt 1412.5)					
3. Sulphur Dioxide as SO ₂ µg / m ³ 80	IS 5182 (Part-2) 16.8				
3. Sulphur Dioxide as SO ₂ µg / m ³ 80.					
3. Sulphur Dioxide as SO ₂ µg / m³ 80 Nitrogen Dioxide as NO ₂ µg / m³ 80					
3. Sulphur Dioxide as SO ₂ µg / m ³ 80.	J8 5182 (Part-5) 33.8				

Verified by : Technical Manager



Desc 2023 01 #3 16:18:38 +05'30' Authorized Signatory Quality Manager

- This report applies only to sample tested as above.

 Total Liability of our Laboratory is limited to invoked amount.

 Test Report endursed city the tests and not the product cartilicate.

 Yest Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Road No. SA, Putlipetra Colony, Par mar — \$000,013 (Bahar) -

Mob. +918676886249; +91943104790\$

stimaturi divence co in a microstratest com

Websies . www.shiriaesi.com ; www.shiriaesthouse



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1886, DEPTE. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAN AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4806(A)	Di: 30.1	2.2022 Your W	ork Order No. 400028				
[a] Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample			Ambient Air Qua	ity Monite	oring (As per NAAQ)	5)	
[c] Sample Collected by		: '	SHIVA TEST HO	USE on:2	0.12.22		
[d] Sampling Location			Collected from Neur	ar elle egy e	Time Office (Main Plan	M()	
[e] Method of Sampling			IS 11255 (Part-1,2,	3&7)			
[f] Sampling Environment	al Condition		Temp. (°C)	24	Humidity (%)	71	
g) No. & Type of Contain	er ·		One poly Jar		•		
(h) Instrument (D			RDS-2, FPM-2				
[i] Sample Quantity		• •	30 mf x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code		·	A-4806				
[k] Sample Condition on R	cccipt .	••	Fit for Analysis				
[1] Items required to be test	ted	· · -	As per contract				
[m] Whether any specific M been suggested by the p		st has.	No				
[n] Date of receiving the sa			21.12.22				
[o] Analysis Start Date / Ar	nalysis Comp	pletion Date	21.12.22 / 24.12.22				
		. Limit as per	Method of	Sam	pling Station / Res	LUTE	
Parameters	Unit	NAAQS 2009	Test	Near	it the top of Time () (Main Plant)	ffice	
Carbon Monoxide (CO),	mg / m ^o	4	(S 5182 (Part-10)		0.588		
2. Benzene (C ₆ H ₆)	μg/m³	5	IS 5182 (Part-11)		0.04		
3. Benzo(a) Pyrene	ng / m³	1	IS 5182 (Part-12)		0.16		
					0.36		
Nickel as Ni	ng / m³	: 20	AAS Method	. :	4.4		
6. Mercury (Hg)	ug/m³	Not Specified	US EPA (Method IO-5)	:-	0.16		

Oligitally signed by SHIBESHWAR PRASAD SAD 0846 2023.01.03 15:28:50 +05'90' Verified by :

Patha 800017

Shreyasee Shippered Prosed Prasad

Date: 2073.01.03 16:1854+05'30' Authorized Signatory

Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above. --

Technical Manager

Total Liability of our Laboratory is limited to envoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced particity or full for tegat/court purpose without written permission of the Laboratory.

Contact us:

122-C. Aaster, Road No. SA, Pattiputts Colony, Patte - 800 013 (Behar)

stretta i Svohoo.co. ... ; inio/Ashmetea.com Mob., +918676486249 , +919431047908

Website: www.shivarest.com; www.shivaresthinde.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF MOIA, LINDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BINAR AND BRIGH STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STM/TR/22-23/4854	Dt: 31.12.	2022 Your Wo	rk Order No. 40002850	67-037	1019 Dt. 3	1.07.2022		
·. · · · · · · · · · · · · · · · · · ·	:		North Karanpur Project	a Sup	er Thermal Pov	ver		
[a] Name and address of the	e Chstomer		At: Tandwa		: ::			
	:	·	Dist- Chatra	. :		. :		
· · ·		•	Jharkhand- 829	5.321				
[b] Details of Sample	· .	:::	Ambient Air Quality		ing (As per NAAOS) · . ·		
[c] Sample Collected by	:	·	SHIVA TEST HOU			·		
[d] Sampling Location		٠.	Collected from Near a	the tep	of Time Office (Mathe	Plant)		
(e) Method of Sampling			1S 11255 (Part-1,2,3		14" 14			
[f] Sampling Environment	d Condition	n :	Temp. (^a C)	24.	Historically (%)	72		
[2] No. & Type of Containe			One poly Jar		.:. :			
[h] Instrument ID	• • • • • • • • • • • • • • • • • • • •		RDS-2, FPM-2	· '.				
[i] Sample Quantity	· :: '		30 ml x 6 for each	(NO ₂ , S	O ₂ , NH ₃)	:		
[j] Sample Code			A-4854		· . "" .	i:		
[k] Sample Condition on Re	eceipt		Fit for Analysis					
[I] Items required to be test		· .	As per contract	-::	: :			
[m] Whether any specific M		est has	No.					
been suggested by the p	anty	9.			·			
[n] Date of receiving the sa			22.12.22 22.12.22 / 25.12.22					
[o] Analysis Start Date / Ar	ialysis Con	piction Date						
1	· .	Limit as per	Method of	Sa	mpling Station /	Result		
Parameters	Unit	NAAGS 2009	Test	Near	at the top of Tip (Main Plant)			
1. Particulaté Matter (PM ₍₀₎)	μg/m³	190	IS 5182 (Part-23)		73.7			
Particulate Matter : (PM _{2.6})	ug / m³	60	CPCB (GMAAP Vol. I)	::::	42.1	···· :		
3. Sulphur Dioxide as SO ₂	μg / m³ :	. 80.	IS 5182 (Part-2)		17.3	:		
Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6)		35.0	,		
5. Lead (Pb)	μg / m³	1 1	IS 5182 (Part-22)		0.18			
e. Ammonia as NHs	μg / m³		IS 5182 (Part-5)		4.6	. : : : -		

Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date: 2029.01.03

Verified by Technical Manager



DAIL: 2025-01-03 Prasad

16:21:03:+05:30* Authorized Signatory Quality Manager

This report applies only to eximple tested as above.

Total Liability of our Laboratory is limited to invoiced amount

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

122-C, Azstka, Road No. SA, Pathiputra Colony, Pame - 800 013 (Billian)

:: Website : www.shivstest.com ; www.shivatesthibase.com

sthema (@vahou.co in ; joio@shinatest.com

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORPCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTE OF BIOUSTRY, FORESTS & EMPIROMISSIT, GOVT. OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4854(A)	Di: 37.7	2.2922 Your \	Work Order No. 40002	85067-037-1019 Dt : 31.07.20		
(a) Name and address of th	ie Casiomer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
(b) Details of Sample		:		ity Monitoring (As per NAAQS).		
[c] Sample Collected by			SHIVA TËST HO			
[d] Sampling Location			Collected from New	et the top of Time Office (Main Plant)		
[e] Method of Sampling			IS 11255 (Part-1,2,			
f Sampling Environment	al Condition		Temp. (°C)	24 Humidity (%) 72		
g] No. & Type of Contain			One poly Jar			
h) Instrument ID			RDS-2, FPM-2			
i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₈)			
j] .Sample Code			A-4854			
[k] Sample Condition on R	eceipt .		Fit for Analysis			
(l) Items required to be tes	ted		As per contract			
[m] . Whether any specific M been suggested by the s		st has	No			
n] Date of receiving the sa			22.12.22			
[o] Analysis Start Date / A	nalysis Com	pletion Date	22.12.22 / 25.12.22			
: Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)		
r. Carbon Monoxide (CO)	mg/m³	. 4	IS 5182 (Part-10)	0.80		
2. Benzene (C _s H _s)	μg/m³	. 5	IS 5182 (Part-11)	0.06		
Benzo(a) Pyrene	ng / m³	1	IS 5182 (Part-12)	0.17		
. Arsenie (As)	ng / m³	6	AAS Method 0.50			
Nickel as Ni	rig / m ³	20	AAS Method	9.79		
8. Mercury (Hg)	µg / m³	Not Specified	US EPA (Method IO-5)	0.25		

(, Digitally signed by ASHIBESHWAR PRASAD ESHW AR PRASAD (544): 2023-01-03

Verified by : **Technical Manager**



END OF TEST REPORT

Shreyasee Date: 2023.01.03 Prasad 1621:17 +0530

> **Authorized Signatory** Quality Manager

This report applies only to earnple tested as above.

Total Liability of our Laboratory is limited to invoiced emount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permassion of the Laboratory.

Page I of I

Contact us:

122-C, Aasths, Road No. 5A, Pathouth Colony, Paus - 800-013 (Bihar).

Mob.: 4918676886349 ; +919431647908 Ersell ; stiputea i givanos co in ; paticigistavatest com

Website: grown this nest com; grown ship mesthouse com





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTI OF BEDUSTRY, FORESTS & EMPIRORMENT, GOVT, OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5136	Dt: 03.0	1.2023 Your We	ork Order No. 40002850	67-037-1019 Dt: 31.07.2022		
. :		:	North Karanpur	a Super Thermal Power		
			Project			
[a] Name and address of th	e Customer	г · ·	At: Tandwa	· · · ·		
			Dist- Chatra			
<u>:</u> :			Jharkhand- 825	5 321		
[b] Details of Sample	<u>: : ' '</u>		Ambiem Air Quality	Monuoring (As. per NAAQS)		
[e] Sample Collected by		***	SHIVA TEST HOU	SE on 29 12.22		
[d] Sampling Location			Collected from New or	the top of Time Office (Male Plant)		
[e] Method of Sampling	٠.		IS 11255 (Part-1,2,3)	\$.7)		
[f] Sampling Environment	al Conditio	<u> </u>	Temp. ([©] C)	18 Humldity (%) 73		
g] No. & Type of Contain			One poly Jar	· 17 · · · · · · · · · · · · · · · · · ·		
[fh] Instrument ID		•	RDS-1, FPM-1			
[i] Sample Quantity	·· .: ·· ·		30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
(i) Sample Code	· - i	1. 4 4	A-5236			
[k] · Sample Condition on R	eccipt .		Fit for Analysis.			
[1] Items required to be tes	ted	*	As per contract			
[m] Whether any specific M	ethod of T	est has				
been suggested by the p	arrty	:	No.:			
[n] Date of receiving the sa	mple		30.12.22			
[o] Analysis Start Date / A	nalysis Con	npletion Date	30.12.22 / 02.01.23	". : : · · · · · · · ·		
		Limil as per	. Method of	Sampling Station / Result		
Parameters	Unit:	NAAOS 2009	Test	Near at the top of Time Office (Main Plant)		
1. Particulate Matter (PM ₍₀)	μg/m³:	100	18 5182 (Part-23)	74.3		
 Particulate Matter (PM₂₆) 	μ g 7 m³ .	60	CPCB (GMAAP Vol. I)	43.4		
3. Sulphur Dioxide as SO ₂ .	μg / m³	80:	IS 5182 (Part-2)	13.8		
Nitrogen Dioxide as NO:	μα/m³	80	IS 5182 (Part-6)	37.7		
5. Lead (Pb)	μg / m³	1	IS 5182 (Part-22)	0.06		
6. Ammonia as NH ₃	μg / m³	400	IS 5182 (Part-5)	6.1		
7. Ozone (O ₃) 👍	μg/m³	180	IS 5182 (Part-9)	21.6		

Digitally agned by : SHIBESHWAR PROSAC Bijg-1021.01.01.01 1653:50 +05:30

Verified by : Technical Manager



Shreyaseë Prasad.

Duty 2021/01/00 16:57:36:406'50' Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoked amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Austha, Road No. SA, Padaptura Colony, Pana. — 800 013 (Siher).

MOD_+918676816249 (+91943164790\$...

Website: www.shivatest.com; www.shivatesth

sthostial givehoc.co.in _min@elivenest.com



(Serving slace 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY. OF RIDUSTRY, PORESTS & ENVIRONMENT, GOVT. OF SHAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5136(A)	Dt: 03.	<i>01.2023</i> Your V	Vork Order No. 400020			
(a) Name and address of th	e Oustomer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Quai	lity Monitoring (As per NAAQS)		
[c] Sample Collected by	:. :	. :	SHIVA TEST HO			
[d] Sampling Location				as the top of Tune Office (Main Flant)		
[e] Method of Sampling			IS 11255 (Part-1,2,			
[f] Sampling Environment	al Condition	· .	Temp. (°C)	18 Humidity (%) 73		
g] No. & Type of Contain	€ г	··. · · ·	One poly Jar			
[b] Instrument ID .		•	RDS-2, FPM-2			
(i) Sample Quantity		:. <u>"-</u>	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₅)			
[j] Sample Code	٠.	· :	A-5136			
[k] Sample Condition on R	eccipt		Fil for Analysis			
 jtems required to be test 	ted		As per contract			
(m) Whether any specific M been suggested by the p		st has	No :			
[n] Date of receiving the sa			30.12.22			
[o] Analysis Start Date / Ar	nalysis Com	pletion Date	30.12.22 / 02.01.2	23		
			Method of	Sampling Station / Result		
Parameters	Unit	Limit as per NAAQS 2009	Test	Near at the top of Time Office (Main Plant)		
1. Carbon Monoxide (CO)	mg/m³	4 .	\$\$ 6182 (Part-10)	0.46		
2. Benzene (CeHe)	μg / m³	5	IS 5182 (Part-11)	0.11		
3. Benzo(a) Pyrene	ng / m³.	1	I\$ 5182 (Part-12)	0.19		
4. Arsenic (As)	ng/m³	6.	AAS Method	0.42		
Nickel as Ni	ng / m³	20	AAS Method	1,40		
6. Mercury (Hg)	ng/m³	Not Specified	US EPA (Method IO-5)	0.26		

Olgiumy signed by SHESSHWAN PRASAD Dete: 2023.61.03 M-54003 +405'34" Vérified by : Technical Manager



END OF TEST: REPORT

Shreyasee Prasad

Shreyasee Presad Date: 2023.01.03 1657:48+05'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Lisbelly of our Laboratory is smiled to invoiced emount.

Test Report endorsed only the lesis and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

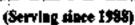
172-C; Aesthe, Road No. SA, Pathpura Colony, Pant - 300 013 (Bihar)

Mc6.:+918676886249; +91943104790\$

athornal @vahoo co.in , unfe@shivanez.com

Website: www.shimatest.com; www.shimatesthouse.com







RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF MOIA, LINDER ENVIRONMENT (PROTECTION) ACT 1986, DEPT OF BIOLISTRY, FORESTA & ENVIRONMENT, GOVT. OF BRIAN AND BRIAN STATE POLLUTION CONTROL BOARD

<u>TEST REPORT</u>

Ref. No. STH/TR/22-23/5153	Dt: 03.0].	2018 Vone Wo	ek Oeder No. Addasesa	67-037-1019 Dt 31:07:2022		
tisk ito. Darpaiyar-anyong	Dr. 40.02.	2023 TOM #10		a Super Thermal Power		
[a] Name and address of th	e Customer		At: Tandwa	4		
			Dist-Chatra			
			Jharkhand- 82	5 321		
[b] Details of Sample			Ambiem Air Quality	Monitoring (As per NAAQS)		
[c] Sample Collected by		•	SHIVA TEST HOU	9E on 30.12:22		
[d] Sampling Location			Collected from New at	the top of Time Office (Main Plant)		
[e] Method of Sampling	:	<u></u> . ::-	IS 11255 (Part-1,2.3)	&7)		
$J oldsymbol{f} = Sampling Environments$	I Conditio	n .	Temp. (°C)	18 Humidity (%) 72		
1 No. & Type of Contains	¥ ·	· · · · ·	- • • • • • • • • • • • • • • • • • • •			
[h] Instrument ID	•. •		RDS-2, FPM-2			
[i] Sample Quantity	٠.	· .:: -	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)		
[j] Sample Code	·	: 1.	A-5253			
[k] Sample Condition on R	eccipi <u>t</u>		Fit for Analysis			
[1] Items required to be test	ted :		As per contract			
(m) Whether any specific M been suggested by the p		est has	No			
[n] Date of seceiving the sa			31.12.22			
[o] Analysis Start Date / Ar		pletion Date	31.12.22 / 02.01.23			
		d lenst an ana		Sampling Station / Result		
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at the top of Time Office (Main Plant)		
1. Particulate Matter (PM ₁₀)	'μg/m³	100	t8 5182 (Part-23)	73.4		
 Particulate Matter (PM₂₆) 	µg / m³ :	60	CPCB (GMAAP Vol. II)	42,1		
3. Sulphur Dioxide as SO ₂	. µg / m³	80	IS 6182 (Part-2)	15.9		
Nitrogen Dioxide as NO ₂	.μg / m³	80	IS 5182 (Part-6)	34.0		
- IN ABOUT BUILDING MO LINE						
6. Lead (Pb)	μg / m³ :	1 . [IS 5182 (Part-22)	0.11		
		400	IS 5182 (Part-22) IS 5182 (Part-5)	0.11 4.9		

Digately righed by SHEESHAWA PRASAC

Verified by: Technical Manager



Prasad

Shreyasee Shreyasee Prasad 16.59:53 +05'30'

Authorized Signatory Quality Manager

This report applies only to earnple tested as above:

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written pennission of the Laboratory.

Contact us:

122-C, Aastha, Rose No. 5A, Pathputra Colony, Patra - 309.013 (Bekar).

Mob.: +918676886249 . +919431047908 stheathe Lithraboo.co.m; info@hnotest

Website: www.shiostest.com; www.shouseshouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENARCHMENT, GOVT, OF BRIAN AND BRIAN STATE POLLETTION CONTROL BOARD

TEST REPORT

Ref. No	STH/TR/22-23/5153(A)	Dt: 65.6	1.2023 Your W		5047-037-1019 Dt: 31.07.20		
(a)	Name and address of th	e Customer	•	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
(b)	Details of Sample			_	ity Monitoring (As per NAAQS)		
[¢]	Sample Collected by			SHIVA TEST HO			
[4]	Sampling Location	•		Collected from New .	at the top of Three Office (Hale Plant)		
[e]	Method of Sempling			IS 11255 (Part-1,2,)			
<u> </u>	 Sampling Environment 	al Condition		Temp((°C)	18 Humidity (%) 72		
4]	No. & Type of Contain			One poly Jar			
[4]	Instrument ID			RDS-2, FPM-2			
(i)	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
j)	Sample Code			A-5153			
k]	Sample Condition on R	eceipt .		Fil for Analysis			
(I)	Items required to be tes	ted		As per contract			
(m)	 Whether any specific M been suggested by the p 		si has	No.			
[n]	Date of receiving the sa		"	31.12.22			
[o]	Analysis Start Date / Ar	nalysis Com	pletion Date	31.12.22 / 02.01.2	3		
	· <u> </u>		Limit as per	Method of	Sampling Station / Result		
	Parameters	Unit	NAAQS 2009	Test	Near at the top of Time Office (Main Plant)		
ı. Carl	bon Monoxide (CO)	mg/m ³	4 '	IS 5182 (Part-10)	0.455		
z. Ber	nzene (C ₄ H ₆)	μg / m³	5	IS 5182 (Part-11)	0.03		
3. Ber	izo(a) Pyrene	ng/m³	1	IS 5182 (Part-12)	0.14		
4. Ars	enic (As)	ng / m³	6	AAS Method	0.14		
	kel as Ni	ng/m³	20	AAS Method	5,59		
5. М ет	cury (Hg)	µg / m³	Not Specified	US EPA (Method (O-5)	0.08		



Verified by : Technical Manager



END OF TEST REPORT

Shreyasee Shreyase Property Prasad

Shreyasee Presed Ome: 2023 01.03 17:00:10 +05:30

Authorized Signatory Quality Manager

This report applies only to sample tosted as above.

Total Liability of our Laboratory is limited to invoked amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced panishly or full for regelecourt purpose without written permission of the Luboratory.

Contact us :

122/C, Aestha, Road No. SA, Pallapura Colony, Parta - \$00 013 (Biliar).

Mob.: +918676886289; +91943(047908)

silmatra Lightehoo oo in ; en Kirijishi wataa coo Website: www.shiratest.com; www.shiratesthoate

Page t of t





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MARPICE, GOVT, OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEFTE. OF BIDUSTRY, FORESTS & EMPRONMENT, GOVT, OF BEHAR AND SEMAN STATE POLILITION CONTROL BOARD

TEST REPORT

Ref. No. 5TH/TR/22-23/4491 D			k Order No. 400028606	,	07.2 0 22*		
			·· North Karanpur	a Super Thermal Pow	e r		
l '			Project				
[a] Name and address of the C	ustomer	•.:	At: Tandwa				
			Dist-Chatra	. •			
			Jharkhand- 825	5,321			
(b) Details of Sample	•		Ambient Air Quality.	Monitoring (As per NAAQS)	.:		
[c] Sample Collected by:			SHIVA TEST HOU	SE on 09.12.22			
[d] Sampling Location			Collected from Near a	the top of Switch Yard Office I	indiding		
[e] Method of Sampling.		•	1S 11255 (Part-1,2,3	& 7)			
[f] Samgling Environmental C	Condition	ń .	Teimp. (*C)	26 Humidity (%)	67		
g] No. & Type of Container			One poly Jar	· · · · · ·			
[h] Instrument ID	. :		RDS-4, FPM-4				
[i] Sample Quantity			30 ml x 6 for each ((NOz, SOz, NHa)	∵ :		
[j] Sample Code		:	A-4491				
[k] Sample Condition on Rece	biot	٠.	Fit for Analysis				
[l] Items required to be tested			As per contract				
[m] Whether any specific Meth been suggested by the part	họd of To	est has	No				
[n] Date of receiving the samp			10.12.22				
[o] Analysis Start Date / Analysis		pletion Date	10.12.22/13.12.22				
				Sampling Station / R	tesult		
Parameters	Unit	Limit es per NAAOS 2009	Method of Test	Near at the top of Switte Office Building	ch Yard		
1. Particulate Matter (PM ₁₀) µ	ig/m³	100	IS 5182 (Part-23)	74.7			
a Dominulata filation	ıg/m³	60	CPC8 (GMAAP Val. II)	41.2			
	ığ/m³	. 8 0	(S 5182 (Part-2)	13.9	÷		
	ıg/m³	89	IS 5182 (Part-6)	36.2			
	ıg/m³	1	IS 5182 (Part-22)	.0.19			
- 4	g/m³	: 490	IS 5182 (Part-5)	4.7			
6. Ammonia as NH ₃ µ	1147111- 7		10 0 102 1 21 27				

Venified by : Technical Manager.



Shreyasee Prasad

11x13:23 +05'30"

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legat/court purpose without winess permission of the Laboratory.

Contact us:

1727-(C) Assilta, Road No. SA, Priffputra Colony, Partig - 100 013 (Bibar)

Med.. +918676886249 , +919431447968

Website , <u>www.shivatést.com</u> ; <u>www.shiva</u>



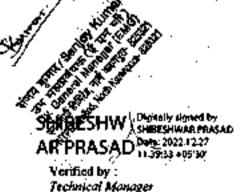
Poge 1 of 1.



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. N	to. STH/TR/22-23/4491(A)	i Dt.: 21.1.	2.2922 Your We	ork Order No. 4000269			07.2022	
(a)	Name and address of th	e Customer	·. "	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825-321				
[b]	Details of Sample					ring (As per NAAC	(5)	
[c]	Sample Collected by			SHIVA TEST HO			-,	
[0]	Sampling Location	-		Collected from Near	at the top of	Switch Yard Office Ba	ilding	
[0]	Method of Sampling			IS 11255 (Part-1,2,				
16	Sampling Environments	ol Condition		Temp. (°C)	26	Humidity (%)	67	
ī	No. & Type of Contains			One poly Jar	<u> </u>			
[h]	Instrument ID		.· .	ROS-4, FPM-4				
[i]	Sample Quantity		•	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
(ii)	Sample Code			A-4491				
(k)	Sample Condition on R	eccipt		Pit for Analysis				
[I]	Items required to be test	ted :		As per contract				
[m]	Whether any specific M been suggested by the p		st has	No				
	Date of receiving the sa	mple		10.12.22				
이	Analysis Start Date / Ar	natysis Com	pletion Date	10.12.22 / 13.12.22				
			Limit as per	Method of	Samp	oling Station / Re-	sulf .	
	Parameters	Unit .	NAAQS 2009	Test	Near at	the top of Switch Office Building	Yard	
1. Ca	rbon Monoxide (CO)	mg/m³	. 4	IS 5182 (Part-10)		0.23		
2. Be	nzene (C _é H _é)	μg/m³	5	IS 5182 (Part-11)		0.13		
	nzo(a) Pyrene	JS 5182 (Part-12)	,					
	senic (As)	ng / m ³ ng / m ³	6	AAS Method				
	ckel as Ni	ng/m³	_ 20	AAS Method		4.30		
6. M c	rcury (Hg)		Not Specified	US EPA (Melhod (0-5)		0.35		





Shreyasee Prasad

11:43:36 +05:30*

Authorized Signatory Quality: Manager

- END OF TEST REPORT

This report applies only to asympte tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced panishly or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C., Austhe, Road No. 5A., Pathpure Colony, Paris - 800 (13 (Éther)

Mob. +918676886249 : +91943104790\$ Emmil: sthortrut@vnhee.co.in < mfo@tshivnees.com

Website . www.shivates.com; preve shivatesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVY, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT (905, DEPT). OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF ENAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Rel No. STH/TR/22-23/4549	· D1 : 21.1	2.2022 Your W	ork Order No. 4000285	067-037-4019 Dt: 31-97-2022			
[a] Name and address of th	e Customer	:	North Karagpur Project At: Tandwa Dist- Chatra Jharkhand- 82!	a Super Thermal Power 5 321			
[b] Details of Sample	:		Ambient Air Quality	Monitoring (As per NAAQS)			
[c] Sample Collected by		.	SHIVA TEST HOU	SE on 10.12.22			
[d] :: Sampling Location			Collected from Near at	t the top of Switch Yard Office Building			
[e] Method of Sampling .			IS 11255 (Part-1,2,3	& 7)			
[f] Sampling Environment		1	Temp. (*C)	25 Humidity (%) 71			
g] No. & Type of Contains	4		One poly Jar				
[h] Instrument (D		•	RDS-4, FPM-4				
i Sample Quantity	<u>:</u>			h (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code : .			A-4549				
[k] Sample Condition on R			Fit for Analysis				
[1] Items required to be test			As per contract				
[m] Whether any specific M been suggested by the p		est has	No				
[n] Date of receiving the sa	mple		12.12.22				
[o] Analysis Start Date / Ai	alysis Con	pletion Date	12.12.22 / 14.12.22	·			
		Limit as per	Method of	Sampling Station / Result			
Parameters	Unit :	NAAQS 2009	Test	Near at the top of Switch Yard Office Building			
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	74.7			
Particulate Matter (PM _{2.5})	µg./m³	***	CPCB (GMAAP Vol. I)	42.8			
3. Sulphur Dioxide as SO ₂ .	.μ g / m³	80: :.	IS 5182 (Part-2)	13.9			
Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-5)	37.1			
5. Lead (Pb)	μg / m³	· · · 1	IS 5182 (Part-22)	9.19			
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	5.2			
7. Ozone (O ₃), ;	μg/m³	180	IS 5182 (Part-9)	23.7			

(Digitally signed by / SHBESHWAR PRASAD PRASAD 022-12.27 11:41:96 +0530° Venified by :

Technical Manager

Patna \$90043

- END OF TEST REPORT

Shreyasee Olginally signed by Shievesee Presed Date: 2022.12.27 Prasad 11:46:33 +05'00' Authorized Signatory

Quality Manager

This report applies only to earnple tested as above.

This report appears only to earnier tested as above.

Total Liability of our Laboratory is fimilial to improved appoint.

Test Report endorsed only the tests and not the product outstroke.

Test Report can not be reproduced perhally or full for legal/court purpose without written permission of the Laboratory.

Contact us:

1224G, Aastha, Road No. SA, Palliputra Colony, Peter - 800 013 (Bihar).

Mob. +915676856799 , +919431017908 Sthridde i @velico.co;in ; in fo@drivintest.com

Website: www.shivanest.com . www.shivanesthouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSPICE, GOVT. OF MONA, UNDER ENVIRONMENT (PROTECTION) ACY 1986, DEPTT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	. STH/TR/22-23/4549(A)	Dt : 21	12-2022 Your 3	Work Order No. 4000	85067-037	1019 Dt : 31.	07.202		
(a)	Name and address of th	e Customer		North Karanpe Project At: Tandwa Dist- Chatra Jharkhand- 82	·	r Thermal Powe	τ .		
[b]	Details of Sample	`.			·	ring (As per NAA)	25)		
[c]	Sample Collected by			SHIVA TEST HO					
[d]	Sampling Location			Collected from Near	as the top of	Switch Yard Office Bu	Ald ing		
[e]	Method of Sampling			IS 11255 (Part-1;2,	3 & 7)	-			
. gr.	Sampling Environment	al Condition	· · ·	Temp. (°C)	25	Humidity (%)	71		
العر	No. & Type of Contain			Qne poly Jan	·				
Th1	Instrument ID		· · · · · · · · · · · · · · · · · · ·	RDS-4, FPM-4		,			
[i] ·	Sample Quantity			30 ml x 6 for ea	ch (NO ₂ , S	3O ₂ , NH ₃)			
(i)	Sample Code			A-4549					
<u> </u>	Sample Condition on R	eceipt		Fit for Analysis					
(I)	Items required to be tes	ted	:	As per contract					
(m)	Whether any specific M been suggested by the p		st has ;	No					
[n]	Date of receiving the sa			12.12.22					
[o]	Analysis Start Date / A	nalysis Com	pletion Date	12.12.22 / 14.12.1	12.12.22 / 14.12.22				
:	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at	oling Station / Re the top of Switch Office Building			
1. Cart	on Monoxide (CO)	mg/m³	4" "	3S 5182 (Part-10)	:.	0.34			
2. Ben	zene (C ₄ H ₄)	μg / m³.	6	\$ 5182 (Part-11)		0.13			
3. Ben	zo(a) Pyrene	ng/m³	1	IS 5182 (Part-12)		0.21			
4. Arse	enic (As)	rig / m³	6 :	AAS Method		· . 0.45			
	kekiasNi	ng / m³	20	AAS Method		2.86			
6. Mer	cury (Hg)	Ing 4 that	Not Specified	US EPA (Method (O-5)		ó. 36			



Рајиа 900010

Prasad

Shreyasee, Digitally signed by Date: 2022.12.27 11/47/12 +05'30'

Authorized Signstory Quality Manager

- END OF TEST REPORT

Technical Manager

This report applies only to sample tested as above.

Total Lisbilly of our Laboratory is limited to involved amount.

Test Report endoused only the tests and not the product certificate.

Test Réport can not be reproduced partielly or full for legal/court purpose without whiten permission of the Laboratory.

Contact us:

122-C, Aasthi, Road No. 5A, Parliperra Colony, Prens - 400 013 (Billiar)

Mob.: +9|8676\$36249 ; +9|941|04790\$

Website: www.shirvnest.com; www.shirvnesthides/

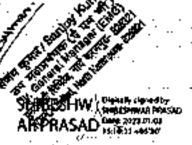


(Serving since 1988)

ENTAL LABORATORY BY MOSFCC, GOVT, OF MICIA, WINDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTE MENT, GOVT, OF BHAIR AND SHAR STATE POLLUTION CONTROL BOARD OF MOUSTRY, FORESTS & ENVIRONS

TEST REPORT

	· ·.					
. Ref. No. STH/TR/22-23/4648	Dt: 381	2.2022 Your Wo	rk Order No. 4000285 0			
			North Karanpur	a Super Thermal Power		
			Project	· · · · · · · · · · · · · · · · · · ·		
[a] Name and address of th	e Customer	г .	At: Tandwa			
			Dist- Chatra			
· :			Jharkhand- 829	5 321		
[b] Details of Sample			Ambiem Ar Quality	Monitoring (As per NAAQS)		
[c] Sample Collected by		• • • •	SHIVA TEST HOU	SE on 14:12:22		
[d] Sampling Location		*	Collected from Neur a	the top of Switch Yard Office Building		
[e] Method of Sampling			IS 1 (255 (Part-1,2,3	&7)		
[f] Sampling Environment	al Condition	0	Temp. (°C)	24 Humidity (%) 73		
[2] No. & Type of Contain			One poly Jar			
[h] Instrument ID			RDS-4, FPM-4	:		
[i] Sample Quantity			30 ml × 6 for each ((NO ₂ , SO ₂ , NH ₃)		
[j] Sample Code			A-4648			
[k] Sample Condition on R	eceipt		Fit for Analysis			
[I] Items required to be tes	ted		As per contract No			
[m] Whether any specific M		est has				
been suggested by the p	iarty .		NO :	:		
[n] Date of receiving the sa	ımple -		15.12.22			
[o] Analysis Start Date / Ar	halysis Con	npletion Date	15.12.22718.12.22	e and are in the contract of		
		l imit on mor	B B a Market land	Sampling Station / Result:		
Parameters	Unit	Limit as per	Method of	Near at the top of Switch Yard		
		NAAQS 2009	Test	Office Building		
1. Particulate Matter (PM ₁₀)	μg/m³	100	l6 5182 (Pärt-23)	1131 71.8 25 11		
2. Particulate Matter		**	CPCB	27.2		
(PM _{2.5})	μg/m³	60	(GMAAP Vol. I)	37.0		
3. Sulphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2)	:: 16,4		
Nitrogen Dioxide as NO ₂	μg/m³	80	(S 5182 (Part-6)	33.7		
5. Lead (Pb)	μg√m³.	1	IS 5182 (Part-22)	0.21		
6. Ammonia as NH ₃	μg/m³	400	IS 5:182 (Part-5)	4.0		
7. Ozone (O ₃)	µg/m³	180	(S 5182 (Part-9)	11.5		



Verified by : Technical Manager



Prasad

Shreyasee Digitally algored by Shreyasee Property Cate: 2023.01.03 15:15:18+05'30',

> Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is United to Invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

Contact us :

172-C, Assitia, Road No. 5A, Pattippine Colony, Pates - 600 013 (Bifue)

Mob.: +918676886249; +919431047905

Website . www.sbiyssess.com ; www.shivstesdeouse.com

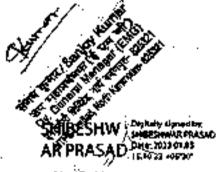
Page i of i



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1908, DEPTE. OF DIGUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAN AND BRIAN STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4648(A)) Di: 38.3	2.2023 Your W	fork Order No. 400028	35067-037- 1	019 Dt: 31	.07.202		
(a) Name and address of th	Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Qua		ng (As per NAA)	28)		
[c] Sample Collected by		• .	SHIVA TEST HO			· · ·		
[d] Sampling Location			Collected from Near			aribiling		
(e) Method of Sampling (f) Sampling Environment		'	IS 11255 (Pan-1,2,	3 & 7)	_			
[4] Sampling Environment	al Condition		Temp. (°C)	24	Humidity (%)	73		
No. & Type of Contain	ĊГ		. One poly Jar					
[h] Instrument ID	·.	:	PLDS-4, FPM-4		•			
(i) Sample Quantity			30 mt x 6 for each (NO ₂ , SO ₂ , NH ₃)					
[j] Sample Code			A-4648					
[k] Sample Condition on R	eceipt		Fit for Analysis					
[1] Items required to be tes	ted		As per contract					
(m) Whether any specific M been suggested by the p	lethod of Texarty	st has	No .					
[n] Date of receiving the sa		· " - "	15.12.22					
[o] Analysis Start Date / A	nalysis Com	pletion Date	15.12.22 / 18.12.22					
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at 1	ing Station / Re he top of Switch Misce Building			
Carbon Monoxide (CO)	mg / m³	4	IS 5182 (Part-10)		0.34			
2. Bęńżené (C₀H₀)	μg/m³	5	IS 5182 (Part-11)		0.04			
3. Benzo(a) Pyrene	ng / m³	1	(\$ 5182 (Part-12)		0.16			
4. Arsenic (As)	ng / m³	6	AAS Method		0.14			
Nickel as Ni	rig / m ³	20	AAS Method		5.73			
6. Mercury (Hg)	uð / m ₃	Not Specified	US EPA (Mathod IÓ-5) :		0.49			



Verified by : Technical Manager



- END OF TEST REPORT

Shreyasee § Prasad

Digitally tigned by Shreyasee Prasad Date: 2023.01.03 15:15:30 +05'30"

Äuthorized Signatory Quality Manager

This report applies only to sample tested as above:
Total Liability of our Laboratory is limited to invoiced amount,
Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or fulf for legislopout purpose without written permission of the Laboratory.

Contact as:

122-C, Aastka, Road No. 5A, Padiputta Colony, Patta – 800 013 (Bilian)

Mob.: +912676826249; +919431047908

Website: www.shivagest.com; www.shivetesthouse.



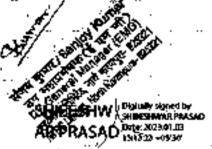


(Serving since 1988)

AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF MINA, UNDER ENVIRONMENT (PROTECTION) ACT 1984, DEPTY, OF MOUSTRY, FORESTS & ENVIRONMENT, GOVE, OF ENVIR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4653	De : 30.1	2.2022 Your W	ork Order No. 4000285	067-037-1019 D1: 31.67.2022
[a] Name and address of the	e Customer		North Karanpur Project At: Tandwa	ra Super Thermal Power
Tan Tan	• • • • • • • • • • • • • • • • • • • •		Dist- Chatra	
		_	Jharkhand- 82	5 321
b Details of Sample	.:		Ambient Air Quality	Monitoring (As per NAAQS)
[c] Sample Collected by	. •		SHIVA TEST HOU	
[d] Sampling Location			Collected from Near at	t the top of Switch Yord Office Building
[e] Method of Sampling			IS 11255 (Part-1;2,3	& 7)
[f] Sampling Environments	d Condition	r :	Temp. (*C):	24 Humidity (%) 72
[1] No. & Type of Contains			One poly Jar	
[h] Instrument ID	· .:.		RDS-4, FPM-4	· · · · · · · · · · · · · · · · · · ·
[i] Sample Quantity			30 ml x 6 for each	h (NO ₂ , SO ₂ , NH ₃)
[j] Sample Code	:		A-4653	
[k] Sample Condition on Re	toemt		Fit for Analysis	
[f] Items required to be test			As per contract	
[m] Whether any specific M been suggested by the p		est has	No : ··	
[n] Date of receiving the sa			16.12.22	_
[o] Analysis Start Date / At		pletion Date	18.12.22 / 19.12.22	2
. :				Sampling Station / Result
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at the top of Switch Yard Office Building
1. Particulate Matter (PM ₁₀)	μ g / m³	100	IS 5182 (Part-23)	72.9
2 :Particulate Metter (PM _{2.5})	μg / m³	60	CPCB (GMAAP Vol. I)	38.2
3. Sulphur Dioxide as SO ₂	μġ/m³	80⊹	IS 5182 (Part-2)	16.7
Nitrogen Dioxide as NO ₂	μg / m³	80	IS 5182 (Part-6)	31.7
5. Lead (Pb)	μg/m³	1	IS 5182 (Part-22)	0.14
6. Ammonia as NH ₃	μg / m³	400	IS 5182 (Part-5)	225 4. 2 23
7. Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	10.3



Verified by: Technical Manager



Prasad

Shreyasee\Chigitally sloned.by £84e: 2023.01.03

15:17:21 405301 Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to cample tested an above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certainale.

Test Report can not be reproduced partially or full for tegaticount purpose without written permission of the Laboratory.

Contact as:

122-C, Aastha, Road No. 5A, Padiputta Colony, Paten -\$00-013 (Bittar)

Mon., +918676836249 ; +919431047908

sthoatau (@vahoo.co.in ; priocôstrivates).com



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTY OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAIR AND BURKE STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4653(A)	Dt: 30.	12.2022 Your V	Work Order No. 40002	185067-037-1019 Dt : 31,07,202		
(a) Name and address of th	ie Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample				ity Monttoring (As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HO			
[d] Sampling Location		-	Collected from Nour	at the top of Switch Varil Office Building		
	. :		IS 11255 (Part-1,2,			
[e] Method of Sampling [f] Sampling Environment	al Condition		Temp. (°C)	24 Humidity (%) 72		
 No. & Type of Contain 	eri		One poly Jar			
[h] instrument ID .			RDS-4, FPM-4			
(i) Sample Quantity		· · ·	30 mil x 6 for ead	ch (NO2, SO2, NH3)		
[j] Sample Code		: .	A-4653			
[k] Sample Condition on R	eceipt		Fit for Analysis			
[1] Items required to be tes	ted		As per contract			
[m] Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sa			16.12.22			
[o] Analysis Start Date / Ar		pletion Date	16.12.22 / 18.12.22			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Ballding		
1. Carbon Monoxide (CO)	mg / m³	.4 .	IS 6182 (Part-10)	0.46		
2. Benzené (C _e H _e)	μg / m³	· 5	IS 5182 (Part-11)	0.01		
3. Benzo(a) Pyrene	ng / m³	. 1	. IS.5182 (Part-12).	0.15		
4. Arsenic (As)	ng / m³	6	AAS Method	0.22		
Nickel as Ni	ng / m³	20	AAS Method	4.30		
6. Mercury (Hg)	ին չաչ	. Not Specified	US EPA (Method (O-6)	0.16		

Date: 2023.01.03 15:13:38 • 45:90*

Verified by : Technical Manager



END OF TEST REPORT

Shreyasee! Prasad

Digitally signed by Shreyasee Prased Dute: 2023.01.03 1\$ 17:36 +05'30" Authorized Signatory

Quality Manager

This report applies only to sample tested as ebove.

Total Lability of our Laboratory is limited to invoiced amount.

Test Report endursed only the tests and not the product certificate.

Test Report can not be reproduced partially or half for legal/court purpose without written permission of the Labouatory.

Contact us:

122-C, Aistha, Read No. 5A, Patigodia Colony, Paus – 800-013 (BRiar).

Mob.: +918676886249 ; +91943104790\$ sthretrationabos on in circle dishipatest com

Website . www.shiveest.com; powe-shiveesthouse.com





(Serving since 1985)

RECOGNISEO AS ENVIRONMENTAL LABORATORY BY MOEPCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAIR AND BHAIR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4808	Dr: 30.12	2.2022 Your Wo	rk Order No. 40002850	67-037-1019 Dt.: 31:07:2022	
(a) Name and address of th	e Custome	·	North Karanpur Project At: Tandwa Dist- Chatra Jharkhand- 82:	ra Super Thermal Power	
(b) Details of Sample				Monitoring (As per NAAQS)	
[c] :Sample Collected by			SHIVA TEST HOU		
[d] Sampling Location	: .	: '	i	the top of Switch Yard Office Bailding	
[e] Method of Sampling		• • • • • • • • • • • • • • • • • • • •	- IS 11255 (Part-1,2,3		
[f] Sampling Environment	al Conditio	n	Temp. (⁰C)	24 Humidity (%) 71	
g] No & Type of Contain			One poly Jar		
L[h] Instrument ID		•	RDS-4, FPM-4	\$	
[i] Sample Quantity	:	•	30.ml x 8 for each ((NO ₂ , \$O ₂ , NH ₃)	
[j]Sample Code			A-4898		
[k] Sample Condition on R	eceipt		Fit for Analysis		
[1] Items required to be tes			As per contract		
[m] Whether any specific M been suggested by the p		est has	No .		
[n] Date of receiving the sa	mple :	·	21.12.22		
[o] Analysis Start Date / A	nalysis Con	npletion Date	21.12.22 / 24 12.22		
	:	Limit as per	Method of	Sampling Station / Result	
Parameters	Unit	NAAQS 2009	Test	Near at the top of Switch Yard Office Building	
1. Particulate Matter (PM ₁₀)	μg/m²	100	IS 5182 (Part-23)	73.5	
Particulate Matter (PM _{2.5})	μg / m³	60	CPCB (GMAAP Vol. I)	39.1	
3. Sulphur Dioxide as SO ₂	μα/m³	-80	IS 5182 (Part-2)	17.5	
, Nitrogen Dioxide as NO ₂	μġ / m³	80	IS 5182 (Part-6)	34.1	
i ≲. Lead (Pb)	μg/m ^g	1 1	IS 5182 (Part-22)	0.14	
6. Ammonia as NH ₂	μg/m³	400	IS 5182 (Part-5)	4.3	
7. Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	13.7	

Vertified by : Technical Manager



Shreyasee) Prasad 16.19.47 +05'30'. Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to swoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for tegat/court purpose without written permission of the Laboratory.

Contact us:

122-C, Azetha. Rood No. SA, Padipurra Colony, Pame - \$00 013 (Bibar)

Mob., +918676\$86249 . +919431047908 shorter i Øyahoo oo in ; lofo@shirktest.com

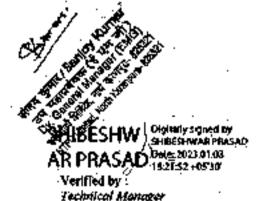
Website: www.shuvatest.com; www.shrvatest



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEPCC; GOVT. OF INDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1806, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BROAR AND BOMAR STATE POLILITION CONTROL BOARD

TEST REPORT

Ref. N	o. STH/TR/22-23/4808(A) <u>Di</u> : 36.3	2-2 0 22 Your W	ork Order No. 400028	15067-037-1019 Dt: 31.07.202		
(a)	Name and address of the	ne Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
թլ	Details of Sample	<u> </u>		_	ittv Monitoring (As per NAAQS)		
[¢]	Sample Collected by			SHIVA TEST HO			
[4]	Sampling Location				at the top of Switch Yard Office Building		
[0]	Method of Sampling		· <u>.</u>	IS 11255 (Pan-1,2,			
[f]	. Sampling Environment	al Condition		Temp. (°C)	24 Hurnidity (%) 71		
g	No. & Type of Contain	¢r	.: '	One poly Jar	• • • • • • • • • • • • • • • • • • • •		
[h]	Instrument ID			RDS-4, FPM-4			
(i)	Sample Quantity :	::::.		30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[]	Sample Code			A-4808			
[k]	Sample Condition on R	leceipir		Fit for Analysis			
[1]	Items required to be tes			As per contract			
(m)	Whether any specific Notes been suggested by the y		st has	No			
[0]	Date of receiving the sa		:	21.12.22			
[0]	Analysis Start Date / A	nalysis Com	oletion Date	21,12,22 / 24,12,22			
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result : Near at the top of Switch Yard Office Building		
1. Car	bon Monoxide (CO)	mg/m³	4 :	IS 6182 (Part-10)	0.57		
2. Ber	nzene (C _s H _s)	μg / m ³	· · · 5	IS 6182 (Part-11)	0.08		
s. Ber	nzo(a) Pyrene	ng/m³	1	IS 5182 (Part-12)	0.18		
	enic (As)	ng/m³	· · 6 ··.	AAS Method	0.22		
	Nickel as Ni ng / m³ 20			AAS Method 7.16			
8. Mer	reury (Hg)	ng/m³	Not Specified	US EPA (Melhod IO-8)			





Shreyasee Prasad

BME 2009.01.09 161959-0590

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample leated as above.

Total Liability of our Laboratory is lented to invoiced amount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can set be reproduced partially or full for legislacourt purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Hond No. SA, Patlipunta Colony, Pinca - 200 D13 (Bilier)

Mob +918076386249 : +919431047908 Small : site sina kaltunikoo soo ka ; ku kalikshi suksaa sa

Website: www.shinotest.com; www.shinotesthinuse.com



(Serving since 1988)



MENTAL LABORATORY BY MORFOO, GOVE OF MOM, UNDER ENARDMENT (PROTECTION) ACT 1986, DEPTT. RECOGNISED AS ENVIRON OF INDUSTRY, FORESTS & IDENTICAMENT, GOVT. OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref	No. STH/TR/22-23/4856	Dt: 31.12	2.2822 Your W	ork Order No. 4000285	067-037-1019 Dt: 31.07.2022	
[a]	Name and address of th	e Customer	·.	North Karampur Project At: Tandwa Dist- Chatra Jharkhand- 82:	a Super Thermal Power	
[b]	Details of Sample		· .		Monitoring (As per NAAQS)	
[c]	Sample Collected by	·		SHIVA TEST HOU		
[d]	Sampling Location				the top of Switch Yard Office Building	
[0]	Method of Sampling		· -	IS 11255 (Part-1,2,3		
្រា	Sampling Environments	al Conditio	n	Temp. (°C)	24 Humldity (%) 72	
gl	No. & Type of € ontains	π ·	•	One poly Jan.	· · · · · · · · · · · · · · · · · · ·	
<u>[h]</u>	Instrument ID			RDS-4, FPM-4	:	
(i)	Sample Quantity	· ··.	· . · · ·	30 ml x 6 for each	ı (NO _{Zı} SO _Z , NH₃)	
(i)	. Sample Code	- .		A-4856		
[k]	Sample Condition on Ke	eceipt		Fit for Analysis		
m ::-	Items requiréd to be test	ted		As per contract		
[m]	Whether any specific M been suggested by the p			No		
(a)	Date of receiving the sa	mple		22.12.22		
િ	Analysis Start Date / Ar	ialysis Con	npletion Date	22.12.22 / 25.12.22		
	:		Limit as per	Method of	Sampling Station / Result	
	Parameters	Unit	NAAQS 2009	Test	Near at the top of Switch Yard Office Building	
1. Par	ticulate Matter (PM ₁₀)	μ ς / m³	100	tS 5182 (Part-23)	74.8	
2: Pa	rticulate Matter V ₂₅)	μg / m³	60	CPCB (GMAAP Vol. 1)	40.3	
	Iphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	15.7	
	regen Dioxide as NO _{2:}	μġ/m³	80.	IS 5182 (Part-6)	36.1	
s. Le	ad (Pb)	μg / m³	. 1	18 5182 (Part-22)	0.18	
6. An	monia as NH ₃	μg / m³·	400 :	IS 5182 (Part-5)	4.5	
7. Oz	one (Os)	μg / m³	180	IS 5182 (Part-9)	14,3	

AD 16:16:5) +05:30 Verified by : Technical Manager



Shreyasee Prasad

Shreyasee Prasad Date: 2023.01.03

16(22:02 +05*30* Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product cartificate.

. Test Report can not be reproduced partially or full for legalicourt purpose without written permission of the Laboratory.

Contact us:

122-C, Austita, Road No. 5A, Patiquate Colony, Pater. - 200 013 (Biber)

NUM +918676886249 +919431047948 <u>sikpental (ĝivekoo co im , info@shivence com</u>

Website : www.shirintest.com ; proor.shiratesthouse.com



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF DEDUSTRY, PORESTS & ENVIRONMENT, GOVT. OF SHAR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4856(A)	Dt : 31.1.	2.2022 Your V	Vork Order No. 30002	85067-037-	1019 Dt : 31.0	7.2922		
(a) Name and address of th] Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Qua	lity Monitor	ing (As per NAAQ	S)		
[c] Sample Collected by			SHIVA TEST HO					
[d] Sampling Location			Collected from Near	at the top of .	Switch Fard Office Bu	ilding		
[e] Method of Sampling	·.		IS 11255 (Part-1,2,		. : -			
[f] Sampling Environment	al Condition		Temp. (*C)	24	Humidity (%)	72.		
gl No. & Type of Contain	er .		One poly Jar			•		
[h] Instrument ID			RDS-4, FPM-4					
[i] Sample Quantity	:	_	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)					
[j] Sample Code			A-4856					
[k] Sample Condition on R	eccipt	· .	Fit for Analysis					
[I] terms required to be tes	teđ		As per contract					
[m] Whether any specific M been suggested by the p		st bas	No :					
[n] Date of receiving the sa		:	22.12.22					
[o] Analysis Start Date / As	alysis Com	pletion Date	22.12.22 / 25.12.22					
:		Limil as per	Method of	Samp	ling Station / Red	sult		
Parameters	Unit	NAAQS 2009	Test		the top of Switch Office Building	Yard		
1. Carbon Monoxide (CO)	mg / m³	. 4	IS 5182 (Part-10)	• .	: 0.34			
2. Benzene (C ₆ H ₆)	μg / m³	5	IS 5182 (Part-11)		0.02			
3. Benzo(a) Pyrene	ng/m³	": 1	: IS:5182 (Part-12)	· .	0.15			
4. Arsenic (As)	ng / m³	6	AAS Method		0.29			
Nickel as Ni	.ng/m³	20 '	AAS Method		5.73	·. ::		
6. Mercury (Hg)	µg/m²	Not Specified	US EPA (Method IO-5)		0.25			



Verified by : Technical Manager



Shreyasee Prasad

Date: 2023.01.03 16:22:19 +05'30'

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to cample lested as above.

Total Liability of our Laboratory is limited to invoiced emount.

Test Report endorsed only the lasts and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

132-6, Assiya, Rood No. SA, Padipetra Colony, Patra - 800 013 (Bilgar)

Mon.: +918676286249 ; +91943 | 047908 stheam i Covation co. m.; info@strovatesr.com

Website: www.thivistest.com; sowe-thivetesthouse





(Serving since 1988)

RECOGNISEO AS ENVIRONMENTAL LABORATORY BY MOEFICE, GOVE OF NOW, UNDER ENVIRONMENT (PROTECTION) ACT 1988, GEPTT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BOHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5138	Dt: 03.07	.2023 You'r Wor	k Order No. 400028506	7-037-1019	Dt: 31,07,2022		
	.::-		North Karanpur				
· · · · · · · · · · · · · · · · · · ·		'.:	Project	a Dapor Therm			
[a] Name and address of th	e Custome	r .	At: Tandwa				
			Dist- Chatra		:		
: : : :			Jharkhand- 825	5 321	٠. '		
[b] Details of Sample			Ambiens Air Quality	Montigring (As per l	(A1QS) :::::		
[c] Sample Collected by	: :		SHIVA TEST HOU	SE on 29.12.22	:. :		
[d] Sampling-Location		:	Collected from Near at	the top of Switch Yan	Office Building		
(e) Method of Sampling	': ":	·	IS 11255 (Part-1;2,3				
[f] Sampling Environment	al Conditio	п.	Temp. (°C)	18 Humidity	(%) 73		
[g]: No. & Type of Contain	· 图 ···	: : : :	One poly Jar				
[h] Instrument ID :			RDS-4, FPM-4	: : : : : : : : : : : : : : : : : : : :	: <u>-</u> -		
(i) Sample Quantity	T .:	14 Ta 15 4	30 ml x.6 for each ((NO ₂₎ SO ₂ , NH ₃)	1. 1. 1.		
[j] Sample Code	•		A-5138	1.77.4	. **		
[k] Sample Condition on R	eceipt		Fit for Analysis ::				
[I] Items required to be tes			As per contract				
[m] Whether any specific N	(ethod of T	est bas	No :				
been suggested by the p	ARRIY :	: · · · · · · · · · · · · · · · · · · ·					
[n] Date of receiving the sa	mple		30.12.22				
[o] Analysis Start Date /.A.	nalysis Con	npletion Date	30.12:22 / 02.01.23) [iii :			
		l imit on hor	Method of	Sampling Sta	tion / Result 🧸		
Parameters	Unit	Limit as per NAAQS 2009	Test	Near at the top			
1. Particulate Matter (PM ₁₀)	<u>μά / m³</u>	: -100	IS 5182 (Part-23)	77.	3		
2. Particulate Matter (PM _{2.5})	μg/m³	60	CPCB (GMAAP Vol. I)	44	.4		
3. Sulphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2)	12	.1		
i. Nitrogen Dioxide as NO ₂	μg/m³	. 80	IS 5182 (Part-6)	32			
5. Lead (Pb)	μg/m³	1	13 5182 (Part-22)	0.1			
8. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	5.1			
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	21			
	- harrin		10 0102 (1 2011-0)				

AD 16.54:39 +03:30 Verified by : Technical Manager



NO OF TEST: REPORT

Shreyasee Prasad

Day: 2023 01 03 1658:31 405'30'

Authorized Signatory Quality Manager

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C; Adella, Rodd No. 54, Pathjetta Colony, Patha - 390 013 (Balum)

Mob.: +918676386349; +919431047908

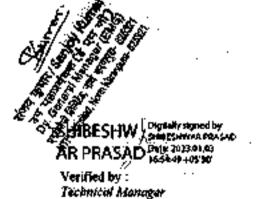
Website : www.shrvatest.com; www.shrvatesthouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAIR AND BHAIR STATE POLILITION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5138(A)	Di: 03.	01.2023 Your V	Vork Order No. 40002	85067-03 ⁷	7-1019 Dt: 31.	67.202		
[a] Name and address of th	Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample					ring (As per NAAQ	87		
[c] Sample Collected by			SHIVA TEST HO			· : :		
[d] Sampling Location					Switch Yard Office Bu	ilding		
[e] Method of Sampling			IS 11255 (Part-1,2,		· .* .			
[f] Sampling Environments	al Condition		Temp₂ (°C)	18	Humidity (%)	73		
g] No. & Type of Containe	\$T		One poly Jan					
(h) Instrument ID			RDS-4, FPM-4		. :			
[i] \$ample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)					
[j] Sample Code		::	A-5138					
[k] Sample Condition on R	eceipt . ·		Fit for Analysis					
[I] Items required to be test	red.		As per contract					
[m] Whether any specific M been suggested by the p		st has	No. 3.					
[n] Date of receiving the sa			30.12.22					
[o] Analysis Start Date / Ar	ialysis Com	pletion Date	30.12.22 / 02.01.1	23 .				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		pling Station / Res t the top of Switch Office Building			
Carbon Monoxide (CO)	mg / m³	4	IS 5182 (Part-10)	:	0.34			
≥ Benzene (C _e H _e)	μg / m³	5 .	IS 5182 (Pari-11) 0.13					
3. Benzo(a) Pyrene ng / m³. 1			IS 5182 (Part-12)					
4. Arsenic (As)	AAS Method 0.46			. :				
4. Arsenic (As)			AAS Method 2.84					
6. Mercury (Hg)	ng / m ^a	Not Specified	US EPA (Method IQ-6)		0.17			





END OF TEST REPORT

Shreyase | Orgitally signed by | _Bue 2023.01.03 e Prasad . 165**657**:+0530 Authorized Signatory

Quality Manager

Page 1 of 1

This report applies only to sample tested as above.

Total Liability of our Laboratory it limited to involved amount

Test Report endorsed only the tests and not the product certificate

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contect us:

122-C, Adolta, Rose No. SA, Pathipetra Colony, Patrix - 200 013 (Bibar)

Mob +918676886249;+919431047908 Email:

salosana (<u>glysalos) es</u> un , unio <u>(glysalos es</u>

Website : <u>www.shirotest.com</u>; www.shwatesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BRIAN STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No: STH/TR/22-23/5155	Dt: 83,81	.2023 Your We	ork Order No. 40002850	067-037-1019 Dr : 31.07-2022		
[a] Name and address of th	e Customa	•	North Karanpui Project At: Tandwa Dist- Chatra Jharkhand- 82:	ra Super Thermal Power		
[b] Details of Sample				Monttoring:(As per HAAQS)		
[c] Sample Collected by			SHIVA TEST HOU			
[d] Sampling Location				the top of Switch Yard Office Building		
[e] Method of Sampling			1S 11255 (Part-1,2,3			
[f] Sampling Environments	d Conditio	<u>.</u>	Temp. (⁹ C)	18 Humidity (%) 72		
No. & Type of Containe		•	One poly Jar			
			RDS-4, FPM-4			
[h] Instrument ID [i] Sample Quantity	:	•	30 ml x 6 for each (NO ₂ , SO ₃ , NH ₃)			
[i] Sample Code	•	· . · .	A-5155			
[k] Sample Condition on R	eceipt		Fit for Analysis			
[l] . Items required to be test	ted ·		As per contract			
(m) Whether any specific M been suggested by the p		est has	No:	Acres 1		
[n] Date of receiving the sa		. '!	31,12,22			
[o] Analysis Start Date / At	ualysis Coc	upletion Date	31.12.22 / 02.01.23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard		
B. O. O. B. A. B. Share B.	::		* * *	Office Building		
1. Particulate Matter (PM 10)	μig / m³	100	IS 5182 (Part-23)	72.5		
2. Particulate Matter (PM ₂₅)	μg / m³	60	CPCB (GMAAP Vol. I)	38.0		
3. Sulphur Dioxide as SO ₂	¨μg / m³	80	IS 5182 (Part-2)	14.7		
Nitrogen Dioxide as NO ₂	·μg / m³	: 80.	IS 5182 (Part-6)	34.9		
5. Lead (Pb)	μg/m³	1 .	1\$ 5182 (Part-22)	0.11		
6. Ammonia as NH ₃	·μg/m³·	400	IS 5182 (Part-5)	3.5		
7. Ozone (O ₃)	μg/m³	.: 180	IS 5182 (Part-9)	13.9		

Verified by : Technical Manager



Shreyase Shreyasee Prasad e Prasad BMg: 2023/01/03 17:01:02 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to impoced emotion.

Test Report endorsed only the tests and not the product certificals.

Test Report can not be reproduced partially or full for legal/court purpose without within permission of the Laboral

122-C, Assiba, Road No. 5A, Parliptore Colony, Patrix - 800 013 (Bifter)

Mab.: +918676886249; +919431047908 sriperna i cayango, co.m., se for a salivanes, com-

Website: www.shivatist.com; proveshiyatesthouse com



(Serving slace 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOVT. OF MOIA, ENVIRONMENT (PROTECTION) ACT 1906, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SHAR AND BHAIR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5155(A)	Dt: #3.6	1.2023 Your W	ork Order No. 400028	15087-037-1019 Dt : 31.07.2022		
[a] Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Amblent Air Oug	lity Monitoring (As per NAAOS)		
(c) Sample Collected by		- :	SHIVA TEST HO			
[d] Sampling Location		- "	Collected from Neur	et the top of Switch Vard Office Building		
[e] Method of Sampling			1S 11255 (Part-1,2,			
[4] Sampling Environment	al Condition		Temp. (°C)	18 Humidity (%) 72		
() No. & Type of Contain			Orie poly Jar			
(h) Instrument ID			RDS-4, FPM-4:	:		
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH₃)			
[j] Sample Code			A-5155			
[k] Sample Condition on R	eceipt	·	Fit for Analysis			
[f] Items required to be tes	ied		As per contract			
[m] Whether any specific N been suggested by the p		st has	No 31.12.22 31.12.22/02.01.23			
[n] Date of receiving the sa	imple .					
[o] Analysis Start Date / Ar	nalysis Com	pletion Date				
Parameters	Unit '	Limit às per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Building		
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Pert-10)	0.68		
2. Benzene (CaHe) ug / m³ 5		IS:5182 (Part-11)	0.04			
3. Benzo(a) Pyrene ng / m ³ 1			IS:5182 (Part-12).	0.18		
4. Arsenic (As) ng / m³ 6			AAS Method	0.28		
Nickel as Ni ng / m ³ 20			AAS Method	5.87		
6. Mercury (Hg)	μg / m³	Not Specified	US EPA (Method IO-5)	0.40		



Verified by : Technical Manager



Showaron France Shreyasee Prasadi Dave: 2023-01.03 17:01:19 +05'30'

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced perfielly or full for legal/boun purpose without written permission of the Laboratory.

Contact us :

122-C, Amstha, Road No. SA, Partigutes Colony, Pates - 800-013 (Bilter)

Mob +918676886249;+919431047908

Website - www.shiratesr.com , aww.shiratestbouse.com



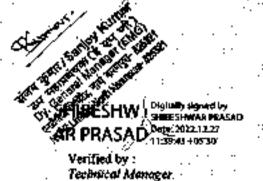


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEPCC, GOVT, OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF BEDUSTRY, FORESTS & EMPIROMMENT, GOVT, OF SHIAR AND BRIAR STATE POLILITION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4492	1 DO: 28.02	2022 Your Wor	k Order No. 4000285067	7-037-1019 Dt : 31.07.2022		
[a] Name and address of t	. :		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
(b) Details of Sample .		:		Monitoring (As per NAAQS)		
[c] Sample Collected by	· : ·	: :.	SHIVA TEST HOUS			
[d] Sampling Location		•	Collected from Near at	the top of Tejusovi Bullding (Township)		
[e] Method of Sampling			18 11255 (Part-1,2,3 &	k_7)		
[f] Sampling Environmen	tal Condition	n	Temp. (°C):	26 Humidity (%) 67		
 No. & Type of Contain 	.	· ·	One poly Jar			
[h] Instrument 1D			RDS-1, FPM-1			
(i) Sample Quantity		٠	30 ml x 6 for each (1	NO2, SO2, NH3)		
[j] Sample Code	.:		A-4492			
[k] Sample Condition on F	Receipt		Fit for Analysis			
[1] Items required to be te	stedi .	· · ·	As per contract			
[m] Whether any specific I been suggested by the		est has	No. 10.12.22			
[n] Date of receiving the s	ample .					
[o] Analysis Start Date / A	inalysis Con	npletion Date	10.12.22./13.12.22			
	T	Limit as per	Method of	Sampling Station / Result		
Parameters	Unit	NAAQS 2009	Test	Near at the top of Tejasavi Building (Township)		
1. Particulate Matter (PM ₁₀)	. µg / m³	100	IS 5182 (Part-23)			
Particulate Matter (PM _{2.6})	μg / m³ .	60	CPCB (GMAAP Vol. I)	38.9		
3. Sulphur Dioxide as SO ₂ .	. 'pg / m³	80	_ IS 5182 (Part-2)	15.2		
Nitrogen Dioxide as NO ₂	μg/m³	:80	IS 5182 (Part-6)	35.2		
5. Lead (Pb)	μg / m³·	· 1 .	IS 5182 (Part-22)	0.20		
6. Ammonia as NH ₃	μg / m²	400	(S 5182 (Part-5)	5.4		
7. Ozone (O ₃)	μg / m³	180	(S 5182 (Part-9)	19.2		



Patien \$00013

Shreyasee Prasad

Date: 7022.12.27 Authorized Signatory

· · · · Quality Manager

This report applies only to sample lested as above, Total Liability of our Laboratory is limited to involved emotion,

Test Report endorsed only the tests and not the product certificate.
 Test Report can not be reproduced partially or full for legal/bourt purpose without written permission of the Laboratory.

Contact us:

132-C, Aastha, Road No. SA, Pattiputra Colony, Patra - \$00 013 (Biliar)

Nach : +912676286249 : +919431047908 ethoania i @hishoo.co.un ; imfo@ethoraussi.com

Page Lof L



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORPCC, GOVT. OF WOW, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF BIDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

<u>Test report</u>

Ref. No. STH/TR/22-23/4492(A)	Dt: 21.1	2. 2012 Y our W	ork Order No. 4000285	047-037-1	019 Dt: 31.67	2022
[a] Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample					ring (As per NAAQ)\$)
[c] Sample Collected by			SHIVA TEST HOL			
[d] Sampling Location			Collected from Near a	I the top of	Tejesari Building (To	enskip)
[e] Method of Sampling			IS 11255 (Pan-1.2,3		· · ·	
[f] Sampling Environment	Temp, (°Č)	26	Humedity (%)	67		
t] No. & Type of Contains					•	•
(h) Instrument ID			One poly Jar RDS-1, FPM-1	•		
[i] Sample Quantity	·		30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-4492			
[k] Sample Condition on R	eceipt		. Fit for Analysis .			
[1] Items required to be tes			As per contract			
(m) Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sa		· :	10.12.22			
[o] Analysis Start Date / Ar		pletion Date	10.12.22 / 13.12.22			
· · · · · · · · · · · · · · · · · · ·	T:	حفيمه فيندا	9.000.41.45	Şam	pling Station / Res	şult
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		at the top of Teja: aliding (Towaship	
Carbon Monoxide (CQ)	mg/m³	· 4	IS 5182 (Part-10)		0.34	
2. Benzene (C ₆ H ₆) µg / m ³ 5		IS 5182 (Part-11)	0.10 ***			
3. Benzo(a) Pyrene ng / m³ 1		IS 5182 (Part-12) 0.18				
4. Arsenic (As) ng / m³ 6			AAS Method	0.58		
Nickel as Ni	ng/m³	20	AAS Method		2,84	
6. Mercury (Hg)	ng/m³	Not Specified	US EPA (Method IO-5)		0.23	



Verified by : Technical Manager



Shreyasee Shreyasee Presed Prasad .Cate: 2022.12.27

11:4401+0530 Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to comple tested as above, Total Liability of our Laboratory is limited to invoiced emounts:

Test Report endursed only the tests and not the product certificate.

Test Report can not be reproduced partiety or full for legal/court purpose without written permission of the Laboratory.

Contact us:

1,22-C, Aastha, Road No. SA, Pailiputta Colony, Petna - \$00 013 (Bilian).

Mob.: +91\$6768\$6249 : +919431047908 sthramá i @vshoo.co.m (inébőshevalest.com

Website: www.shivatest.com; www.shivatesh





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY SIGNECO; GOVT. OF WORA, LINDER ENVIRONMENT (PROTECTION) ACT 1968, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF SHAR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

\$5067-037-1019 Det 31.07.2022			
oura Super Thermal Power			
825 321			
lity Manitoring (As per NAAQS)			
OUSE on 40.12.22			
er at the top of Tejasari Building (Township			
2;3 & 7) · · ·			
25 Humidity (%) 71			
: :			
ach (NO ₂ , SO ₂ , NH ₂)			
A-4550			
Fit for Analysis			
As per contract			
No			
12.12.22			
2.22			
Sampling Station / Result			
Near at the top of Tejasavi Building (Township)			
3) 72.5			
40.9			
) 14.5			
36.0			
2): 0.18			
4.5			
) 15.8			

Verified by : Technical Manager



END OF TEST REPORT

Digitally signed by Prasad Date 2022 12:27 1137/30 +0530*; Authorized Signatory

Quidity Manager ...

This report applies only to sample sessed as above.

Total Liability of our Laboratory is limited to invoced amount.

Test Report endorsed only the tests and not the product certificate

Test Report can not be reproduced partially or full for legal/court purpose without written permiterion of the L

122-C, Austra, Road No. SA, Padiguara Colony, Pages - 300 013 (Billion)

Mub +918676886249; +91943104790\$

Page Lof I



(Serving since 1988)

RECOGNEED AS ENVIRONMENTAL LABORATORY BY MARFCC, GOVT, OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SHIAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4550(A)	De: 21.1	2.2022 Your Wo	rk Order No. 4000288	067-037-1019	D4: 31.07/2022	
[a] Name and address of th		North Karanpu Project At: Tandwa Dist- Chatra Jharkhand- 82	ra Super Therma 5 321	l Power		
[b] Details of Sample				ty Monitoring (As pe	r NAAOS)	
[c] Sample Collected by:			SHIVA TEST HOU		• •	
[d] Sampling Location		•	Collected from Near a	i the top of Tejesavi Bul	iding (Townskip)	
[e] Method of Sampling		· .	IS 11255 (Part-1,2.3			
[f] Sampling Environment	al Condition		Temp. (°C)	25 Humidit	y (%) 71	
.g] No. & Type of Contains	į.		One poly Jar. :-		•	
[h] Instrument ID			RDS-1, FPM-1			
(i) Sample Quantity		: .	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-4550			
[k] Sample Condition on R	eceipt		Fit for Analysis			
(i) Items required to be tes	ted -		As per contract			
[m] Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sa		:	12.12.22			
[o] Analysis Stert Date / Ar		pletion Date	12.12.22/14.12.2	2 ;	· ·.	
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling State Near at the top Building (To	of Tejasavi	
Carbon Monoxide (CQ)	mg/m³	.∷4	18 5182 (Part-10)	0.113		
2. Benzene (C _a H ₆)	μg/m³	. 5	IS 5182 (Part-11)	0,11		
3. Benzo(a) Pyrene	ng / m³	1	IS 5182 (Part-12)	0.17		
4. Arsenic (As)	ng / m³	6	AAS Method	0.48	· · · · ·	
Nickel as Ni	ng / m³	. 20	AAS Method 1.47			
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Mathod IO-5)	0.49	. :	

Digitally agreed by SHIBESHWAR PRASAD Date: 2022-12:27 AR PRASAD 11:41:41 +05301

Verified by: Technical Manager



-- END OF TEST REPORT

Shreyasee Shiring and Brief Prasad

Principassa Presad Page 2072.12.27 11:47:48 +0530 Authorized Signatory

Quality Manager

This report applies only to comple lested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the lests and not the product certificate.

Test Report can not be reproduced partially or full for legisticount purpose without written permission of the Laboratory.

Contact os :

132-C, Aastha, Road No. SA, Pathiputta Colony, Patha - 800 0) J (Bahar)

Mach.: +913676386249 ; +91945(047908

siteams (45mboo.co.m. /mb@shirosest.com

Website: www.shirest.com; www.shiresteithiouse.com

Page Fof I





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTY. OF MOUSTRY, FORESTS & ENVIRON ENT. GOVT. OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4649	·Dt: 36.12	2.2022 Your Wo	rk Order No. 400028506	7-037-1019 DI: 31.97.2022		
				a Super Thermal Power		
l			Project	:		
[a] Name and address of the	e Custome	t .	At: Tandwa	•		
L. : " · "			Dist- Chatra			
<u> </u>	<u> </u>	•	Jharkhand- 825	321		
[b] Details of Sample		1. :		Monitoring (As per NAAQS)		
[c] Sample Collected by	<u>. · · · </u>	· ·	SHIVA TEST HOUS	SE on 14.12.22		
[d] Sampling Location			Collected from Near at	the top of Telasari Bulling (Township)		
[e] Method of Sampling			IS 11255 (Part-1,2,3 &	& 7)		
[f] Sampling Environment	al Conditio	n	Temp. (°C)	24 Humidity (%) 73		
[3] No. & Type of Contain	è r ·	·	One poly Jar	· . · · · · · · · · · · · · · · · · · ·		
[h] Instrument ID			ROS-1, FPM-1	· · · · · · · · · · · · · · · · · · ·		
[i] Sample Quamity	<u> </u>	:	30.ml x 6.for each (I	NO2, SQ2, NH3)		
[i] Sample Code ::			A 4649			
[k] Sample Condition on R	eccipt		Fit for Analysis As per contract No			
[I] Items required to be tes	ted					
[m] Whether any specific N	fethod of T	est has				
been suggested by the p	arty					
[n] Date of receiving the sa	unple :		15.12.22			
[o] Analysis Start Date / A	nailysis Con	npiction Date	15.12.227.18.12.22	_ <u></u> · · ·		
i	. •	d feet an area	Backers of	Sampling Station / Result		
Parameters	Unit	Limit as per NAAOS 2009	Method of Test	Near at the top of Tejasavi Building (Township)		
Particulate Matter (PM ₁₀)	μg /.m³	100	18 5182 (Part-23)	67.1		
Particulate Matter (PM _{2.5})	μg / m³	60	CPCB (GMAAP Vol. I)::	34.6		
3. Sulphur Dioxide as SO ₂	ug / m³	80	IS 5182 (Parl-2)	13,4		
Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6)	31.8		
5. Lead (Pb)	μg/m³.	1 .	IS 5182 (Part-22)	0:28		
e. Ammonia as NHs	-μg / m³	400	IS 5182 (Part-5)	4.0		
7. Ozone (O ₃)	μġ / m³	180	IS 5182 (Part-9)	16,8		

Verified by : Technical Manager



OF TEST REPORT

Digitally signed by Shreyasee Prasad Shreyasee Bate: 2023.01,03 Prasad 15:15:42 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample trated as above.

Total Dability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Meb. +918676486249 ,+919431047908

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

Contact us:

122-C, Aastha, Roed No. 5A, Pathiputra Colony, Patris - 800 013 (Bahin)

Website: www.shrvsiest.com; www.shrvsiesthouse.com

statutus i Symbon.co. in : into@himytest com



(Serving stace 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT, OF HIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DIRPTE OF INDUSTRY, FORESTS & EMPROPMENT, GOVT, OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4649(A)	Dt: 30.7	2.2022 Your W	ork Order No. 400028 3	5007-037-1019	Date: 31.07.20		
[a] Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321						
[b] Details of Sample			Ambient Air Qual		As per NAAOS)		
[c] Sample Collected by		<u>:</u> :	SHIVA TEST HO				
(d) Sampling Location			Collected from Near	et the top of Tejasar	i Ballding (Townshi		
[e] Method of Sampling			JS 11255 (Part-1,2,:				
[f] Sampling Environment	al Condition		Temp. (°C)		midity (%) 7		
No. & Type of Contains			One poly Jar				
[h] Instrument ID			RDS-1, FPM-1				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-4649				
[k] Sample Condition on R	cocipt		Fit for Analysis				
[f] Items required to be tes	ted		As per contract No				
[m] Whether any specific M been suggested by the p		st has					
[n] Date of receiving the sa		_	15.12.22				
[o] Analysis Start Date / Ar		pletion Date	15,12,22 / 18,12,22				
		t this air non	Melhod of	Sampling 8	Station / Result		
Parameters	Unit	Limit as per NAAQS 2009	Test		top of Tejasavi (Township)		
 Carbon Monoxide (CO) 	mg/m³	.4	IS 5182 (Part-10)	0.34			
2. Benzene (CεHε) μg / m³ 5		IS 5182 (Part-11)	0:09:				
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12)	0.14			
Arsenic (As) ng / m³ 6			AAS Method				
Nickel as Ní ng / m³ 20			AAS Method	S Method 4.26			
8. Mercury (Hg)	ng / m³	Not Specified	US EPA (Method 10-5)		0.08 .		

Verified by :

Technical Manager



Shreyasee Prasad

Shreyasee Prasad Date: 2023.01.03 15:15:55 +05/30

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is firstled to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partiety or fulf for logal/count purpose valingst written permission of the Laboratory.

Contact us:

122-C, Aaster, Rood No. 5A, Padiperra Colony, Pana - 800 013 (Bibar)

Mob.: +918676886249 ; +919431047908

Website: www.shivaess.com; www.shivaesificess.com

shows two hoses in ; jetos shoutes com





MENTAL LABORATORY BY MORFOC, GOVT. OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPIT, OF MIDUSTRY, FORESTS & EMPROMISENT, GOVT, OF BEAUT AND BOARD STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4654	Dt: 30.17	2022 Your Wo	rk Order No: 400028500	7-037-7019 D4: 31.07.2022		
[a] Name and address of th	ie Custome	· ·	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra			
[b] Details of Sample			Jharkhand- 825	Monitoring (As per NAAQS)		
[c] Sample Collected by		·	SHIVA TEST HOUS			
[d] Sampling Location				the top of Tojanari Building (Township		
e Method of Sampling	:		IS 11255 (Part-1,2,3 d			
Sampling Environment	al Conditio	<u> </u>	Temp: (^q C)	24 Humidity (%) 72		
g] No. & Type of Contain			One poly Jar			
[h] Instrument [D		· .	RD\$-1, FPM-1	· ·		
() Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
jj Sample Code			A-4654			
[k] Sample Condition on R	eceipt	. :	Fit for Analysis			
I) " Items required to be tes		"	As per contract			
 [m] Whether any specific N been suggested by the p 		est has	No			
[n] Date of receiving the sa			16.12.22			
o Analysis Start Date / A	nalysis Con	npletion Date	16.12.22 / 19.12.22			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi Building (Township)		
1. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	67.7		
Particulate Matter (PM _{2.5})	μg / m³	60	CPCB (GMAAP Vol. I)	37.6		
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	15.2		
Nitrogen Dioxide as NO ₂	μg / m³	- 80	IS 5182 (Part-6)	32.9		
·		1	IS 5182 (Part-22)	0.14		
LEead (Pb)	, μαγπ - ι		15 5 1 0 2 (Part-22)	V, 144		
s: Lead (Pb) s: Ammonia as NH ₃	μg / m³·	-	IS 5182 (Part-5)	4.5		

Verified by : Technical Manager



Shreyasee) Prasad

Shreyasee Prasad Date: 2023 01.03 15.17:52 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount:

Test Report endursed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Padiptitis Colosty, Panes - \$00-013 (Bilber)

Mob., +918676886249; +91943164790\$

Website . www.shimmest.com; www.shimmesthouse.com

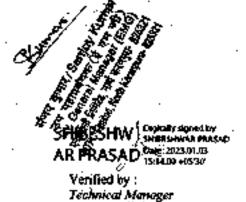
sitipakia ligityahoo.co.in , nolio@shi/raksa.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1906, DEPT OF INDUSTRIC FORESTS & ENVIRONMENT, GOVY, OF BRIAN AND RIMAN STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. N	la. STH/TR/22-23/4654(A)	D1:34.	11.2022 Your V	Work Order No. 40002	85067-037-1019	D1: 32.07.2022		
[a]	Name and address of the	ne Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[6]	Details of Sample			Ambient Air Qual		s per NAÃOS)		
[c]	Sample Collected by		•	SHIVA TEST HOL				
[d]	Sampling Location			Collected from New o	et the top of Tejeser	Bailding (Township)		
[¢]	Method of Sampling			IS 11255 (Part-1,2,:	\$ & 7) · · · ·			
រឮ	Sampling Environment	al Condition		Temp. (^o C)	24 Hui	midity (%) 72		
.jg]	No. & Type of Contain	ėr		One poly Jar		· .		
[b]	Instrument ID			RDS-1, FPM-1		•		
[i]	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
6 0	Sample Code			A-4654				
[k]	Sample Condition on R	eccipt		Fit for Analysis				
[1]	ltams required to be tes	ted :		As per contract				
(m)	Whether any specific M been suggested by the p		st has	No				
[n]	Date of receiving the sa		•	16.12.22				
[0]	Analysis Start Date / A	nalysis Com	pletion Date	18.12,22 / 19.12.22				
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at the	tation / Result top of Tejasavi (Tewnship)		
1. Ca	rbon Monoxide (CO)	mg/m³	. 4.	IS 5182 (Part-10)		.568		
	nzene (CsHs)	μg / m ³	5	IS 5182 (Part-11)		0.07		
3. B e	ntzo(a) Pyrene	ng/m³	1	IS 5182 (Part-12)	· (),15		
	senic (As)	ng / m³	6	AAS Method	1	.78		
Ni	ckel as Ni	ng/m³	20	AAS Method		2.84		
6. M e	ercury (Hg)	ng / m³	Not Specified	US &PA : \$46(hod (O-5)	11.	0.25		





- END OF TEST REPORT

Prasad

Digitally signed by Shreyston Praced Date: 2023.01.03 15:18:08 +05'30"

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to inversed amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced perhally or full for legationari purpose without written permission of the Laboratory.

Page I of I

Contact us:

122-C. Austra, Road No. SA, Parligutta Colony, Patra - 800-013 (Bihar).

Mob., 4918676886249 , 4919431047908 sthostical@vahoo.co.in ; info@drivatest.com

Website: www.skilvatest.com., www.skilvatesthouse.com

. 1 Sec. 10



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MAEFCC, GOVT, OF MOIA, LINDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4809	Di: 30.12	2.2022 Your Wo	rk Order No. 400028506	7-037-1019 Dt : 31:07:2022			
11 .			North Karanpura Super Thermal Power Project				
[a] Name and address of the	: Cüstomei	r .	At: Tandwa				
			Dist- Chatra	: :			
! :			Jharkhand- 825	321			
[b] Details of Sample	:-			Monitoring (As per NAAQS)			
[c] Sample Collected by			SHIVÁ TEST HOUS				
[d] Sampling Location	:		Collected from Near as	the top of Telesari Building (Township)			
[e] Method of Sampling		:	IS 11255 (Part-1,2,3 &	€·7)			
[f] Sampling Environments	Conditio	b	Temp. (°C)	24: Humidity (%) 71			
g) No. & Type of Containe	× .		One poly Jar	: .			
[[h] Instrument [D .			ROS-1, FPM-1				
[i] Sample Quantity	•		30 ml x 6 for seach (I	NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code	٠.		A-4809				
[k] Sample Condition on Re	ecipt.		Fit for Analysis				
[I] Items required to be test			As per contract				
[m] Whether any specific M	ethod of T	est has					
been suggested by the p	arty		No .				
[n]. Date of receiving the sar			21.12.22				
[o] Analysis Start Date / An	adysis Con	rpletion:Date	21.12.22 / 24.12,22				
		Limit as per	Method of	Sampling Station / Result			
Parameters	Uņlt	NAAQS 2009	Test	Near at the top of Tejasavi Building (Township)			
Particulate Matter (PM ₁₀)	μg / m³	: ,100	IS 5182 (Part-23)	68.2			
Particulate Matter (PM _{2.5})	μ g / m³	50	CPCB (GMAAP Vol. I)	36.3			
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	15.2			
Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6)	32.0			
5. Lead (Pb)	μg / m³	1	IS 5182 (Part-22).	0.18			
6. Ammonia as NH ₃	μg/m³	. 400	IS 5182 (Part-5)	4.2			
7. Ozone (O ₃).	μg/m³	180	IS 5182 (Part-9)	15.0			

| Digitally signed by ||SHIRESHWAR PRASAD SAD 15:22:03 +06:30*

Verified by : **Technical Manager**



e Prasad 16023,01.03

Shreyase Chightelly signed by 16:20:19 +05'30"

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to eample tested as above.

Total Litblity of our Laboratory is limited to invoked amount.

Test Report endorsed only like tests and not the product certificate..

Test Report can not be reproduced partially or full for legalitourit purpose without written permission of the Laboratory.

Coutnet us:

t22-C, Aastria, Rose No. SA, Pullipute Colony, Pages - \$10,013 (Bihar).

Mob.: +918676886249; +91943104799\$ sthostná literatico, co.in ; mfo@drivatest com

Website - www.shivetesi.com , www.shlvatesihouse.com

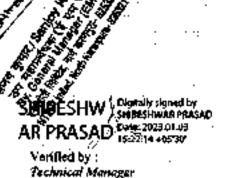


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSPCC, DOVT, OF MIDIA, UNDER SIMIRONMENT (PROTECTION) ACT 1965, DEPTY, OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No: STH/TR/22-23/4889(A)	Dt : 38.7	2.2022 Your W	ork Order No. 4000285	067-037-1	019 Dt : 31.0	7.2022	
[a] Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321						
[b] Details of Sample			Ambient Air Qual.	ity Monitor	ing (As per NAAQ	S	
[c] Sample Collected by	•	· ·	SHIVA TEST HOL			•	
[d] Sampling Location			Collected from Near e	u the top of 1	ejesavi buliding (Ter	ruship)	
[c] Method of Sampling			IS 11255 (Part-1.2,3	& 7) .			
[f] Sampling Environment:	Temp. (°C)	24	Humidity (%)	71			
g] No. & Type of Contains							
[h] Instrument liD			One poly Jar RDS-1, FPM-1				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)				
(j) Sample Code			A-4809:				
[k] Sample Condition on Re	eceipt.		Fit for Analysis				
[i] Items required to be test	ted		As per contract				
(m) Whether any specific M been suggested by the p		și has	No				
[n] Date of receiving the sa			21.12.22				
[o] Analysis Start Date / Ar	nalysis Com	pletion Date	21.12.22 / 24.12.22				
Parameters	Unit	Limit as per NAAQS 2009	: Method of Test	Near a	ing Station / Red at the top of Tejas ilding (Township)	eavi	
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)		0.45		
2. Benzene (C _s H _s)	μg / m³	. 5	IS:6182 (Part-11)		0.06		
3. Benzo(a) Pyrene	ng / m³	1	IS 6182 (Part-12)		0.16		
Arsenic (As)	ag/m³	6	AAS Method		0.21	:	
Nickel as Ni	ng / m³	20	AAS Method		5.68	.:	
8. Mercury (Hg)	ng / m³	Not Specified	: US EPA (Method (O-5)	:	0.16		



Pathoa 80(9)13

Degreally signed by Shreyasee Shreyasee Prasad Bute: 2023.01.03 Prasad

16:20:34 +05:30 Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample lessed as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product conficate.

Test Report can not be reproduced partially or full for legal/count purpose without written particular of the Laboratory.

Contact us:

122-C, Aasthi, Road No. 5A, Patliputra Cology, Patrix - \$00.013 (Bittar)

Mob. +918676886249 , +919431047908

sthpatra i @vahoo.co.in ; imfo@silivatest.com

Website: www.shilvmesi.com , www.shilvmesthouse.com



(Serving since 1988)

RECOGNISES AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1985, DEPTY. OF INDUSTRY, FORESTS & EMARCHMENT, GOVT, OF BHAIR AND SINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4657	Dt: 31.12.2	822 ··· Your Worl	k Order No. 4000285067	7-037-1019 Dt : 31,07.2022	
[a] Name and address of the	be Custome		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321		
[b] Details of Sample		. : ' .		Monitoring (As per NAAQS)	
[c] Sample Collected by		• • • • • • • • • • • • • • • • • • • •	SHIVA TEST HOUS		
[d] Sampling Location		•	Collected from New at	the top of Tejesovi Rullding (Township)	
[e] Method of Sampling	:		IS 11255 (Part-1,2,3 &	k 7)	
[f] Sampling Environment	al Conditio	И	Temp. (*C)	24 Humidity (%) 72	
g) No. & Type of Contain			One poly Jar	· · · · · · · · · · · · · · · · · · ·	
[h] Instrument ID	·· ·		RDS-1, FPM-1		
[i] Sample Quantity			30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₂)	
[i] Sample Code	:		A-4857		
[k] Sample Condition on R	leceipt		Fit for Analysis		
[l] Items required to be tes	sted ··		As per contract		
[m] Whether any specific N been suggested by the		est has	No		
[n] Date of receiving the sa	ample	:	22.12.22		
[6] Analysis Start Date / A	nalysis Con	upletion. Date	22,12;22 / 25,12,22		
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi Building (Township)	
1. Particulate Matter (PM ₁₀)	μg / m³	: 100	IS 5182 (Part-23)	74.3	
Particulate Matter (PM _{2d})	μg / m³	60	CPCB (GMAAP Vol. I)	38.0	
3. Sulphur Dioxide as SO ₂	μg / m³	. 80.	IS 5182 (Part-2)	18.8	
Nitrogen Dioxide as NO;				33.8	
5. Lead (Pb)				· 0.2 t ··	
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-22) IS 5182 (Part-5)	5.0	
7. Ozone (O ₃)3	μg / m ^a	180	IS 5182 (Part-9)	17.1	

Verified by :

Technical Manager

Patha 300013

Shreyase Shreyasee Prasad e Prasad/ 1623361.03 16:22:35 +05'30' **Authorized Signatory**

Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involced amount.

Test Report endorsed only the tests and not the product certificate.

That Report can not be reproduced partially or full for legalizonal purpose without written permission of the Laboratory.

122-C, Aastha, Hoad No. 5A, Padapura Colony, Pausa - 800 013 (Bihar)

Mub. +918676886249; +91943104790\$ Email:

Website: www.shilvitestr.com; www.shilvitestrbinuse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1906, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/4857(A)	Dr: 31.17	.2022 Your W	ork Order No. 4000285067-037-1019 Dt : 32.67.2022			
[a] Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Quali	ry Manito	ring (As per NAA))S)
[c] Sample Collected by	:		SHIVA TEST HOU	ISE on 21	12.22	-
[d] Sampling Location		• •	Collected from Near a	t the top of	Tejasari Bullillug (To	weskip)
[e] Method of Sampling			I\$ 11255 (Part-1,2,3		-:-	
[f] Sampling Environment			Temp. (^C C)	24	Humidity (%)	72
gl No. & Type of Contain	tr		One poly Jar			
:[h] · Instrument [D	<u> </u>		RD\$-1, FPM-1			
[i] Sample Quandity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-4857			
[k] Sample Condition on R	eceipt .		Fit for Analysis			
[1] Items required to be tes			As per contract			
[m] Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sa	mple ·	-	22.12.22			
[o] Analysis Start Date / As	nalysis Com	pletion Date	22.12.22 / 25.12.22			
		Limit as per	Method of	Samp	iling Station / Re	sult :
Parameters	Unit .	NAAQS 2009	Test		at the top of Teja Adding (Township	
Carbon Monoxide (CO)	mg / m³	4	(\$ 5182 (Part-10)	0.77		
2. Benzene (C ₆ H ₆)	μg / m³	5	IS 6182 (Part-11)			
3. Benzo(a) Pyrene ing / m³ 1			IS 5182 (Part-12) 0.13			
4. Arsenic (As)				AAS Method 0.28		
Nickel as Ni				AAS Method 7.10		
6. Mercury (Hg) ng / m³ Not Specified			US EPA (Method IQ-5)		0,41	

Verified by : Technical Manager



Shreyasee Prasad

Date: 2023-01-03 16:22-53 +0530

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Yest Report undersed only the tests and not the product conflicate.

Test Report can not be reproduced partially or full for legislicount purpose without written permission of the Laboratory.

Contact us:

123°C. Assitta, Road No. 5A, Patlipulia Colony, Page -800 013 (Billar)

Mub., +918676866249 ; +919431047968

Website . www.shiVstest.com; www.shivstesthouse

stipuma i iĝivahoo co in ; info@sti varost com





RECOGNSED AS ENVIRONMENTAL LABORATORY BY NOEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1968, DEPTL OF MIDUSTRY, FORESTS 2 ENVIRONMENT, GOVT. OF BOVAR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. 5TH/TR/22-23/5139	Dt: 03.0	1.2023 Your Wo	ork Order No.: 400028500	57-037-1019 Dt: 31.07.2022	
: · · · · · · · · · · · · · · · · · · ·			North Karanpura Super Thermal Power		
l	_	: '	Project		
[a] Name and address of the	: Customer		At: Tandwa		
·			Dist-Chatra		
			Jharkhand- 825		
[b] Details of Sample		· · ·		Aonttoring (As per NAAQS)	
[c] Sample Collected by		. · · · · · · · · · · · · · · · · · · ·	SHIVA TEST HOUS		
[d] Sampling Location				the top of Tejasari Bullding (Termship)	
[c] Method of Sampling		· : ·	IS 11255 (Part-1,2,3 &		
[f] Sampling Environmenta	_	n:.	Temp. (°C)	18 Humidity (%) 73	
g] No. & Type of Contains	r · .	·· ·	One poly Jar.	· · · · · · · · · · · · · · · · · · ·	
[h] Instrument ID	<u> </u>	· ·	RDS-1, FPM-1	· · · · · · · · · · · · · · · · · · ·	
[i] Sample Quantity			30 mi x 6 for each (f	NO2; SO2, NH3]	
[j] Sample Code			A-5139		
[k] Sample Condition on Re		<u> </u>	Fit for Analysis		
(I) Items required to be test			As per contract		
[m] Whether any specific M		est has	No		
been suggested by the p		· <u> </u>			
[n] Date of receiving the sai			30.12.22		
[0] Analysis Start Date / An	<u>iälysis Con</u>	pletion Date	30.12.22 / 02.01.23		
		Limit as per	Method of	Sampling Station / Result	
Parameters :	Unit	NAAQS 2009	Test	Near at the top of Tejasavi Building (Township)	
Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	, 75.7	
2: Particulate Matter (PM2s)	μg/m³	€0	CPCB (GMAAP Vol. I)	43.3	
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	13.0	
Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6)	37,1	
5. Lead (Pb)	μg/m³	1	IS 5182 (Part-22)	0.11	
6. Ammonia as NH ₃	. μg/m³	400	IS 5182 (Part-5)	5.4	
7. Ozone (08)	μg/m³	180	IS 5182 (Part-9)	22.8	

AR PRASAD DO TO TO THE PROPERTY OF THE PROPERT 16:55:03 +05'30'

Verified by : Technical Manager



END OF TEST: REPORT

Prasad

Shreyased Shreyase Pricad

Driac and Drie 2023.01.03 16 59:10 +05:30

> Authorized Signatory Quality Manager

This report applies only to sample instead as above.

Total Usibility of our Laboratory it fimility to invoked amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partiefly or full for legalicourt purpose without written permission of the Laboratory.

Contact us:

122-C; Aastha, Road No. SA, Pellipura Colony, Panns - 800 013 (Biligar)

M66: +918676486249 : +919431047908 salteratura | Spiraturo, co im ; info@shivratest.com

Welpite: prove shinolest com; prover shinatesthou



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEPCC, GOVT, OF MOIA, UNIDER ENVIRONMENT (PROTECTIONS ACT 1988, DEPTT OF INDUSTRY, FORESTS & BANKKONMENT, GOVE OF BINAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/3139(A)	Dt.: 83.6	1.2023 Your W	ork Order No. 400028	5067-037-1019 Dt: 31.07.2022		
[a] Name and address of th	e Customer	:	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Amblent Air Qual	ity Monitoring (As per NAÁQS)		
[c] Sample Collected by	•	•	SHIVA TEST HOL			
[d] Sampling Location			Collected from Near	et the top of Telesari Building (Township)		
[e] Method of Sampling			IS 11255 (Part-1.2,:	S&T)		
[f] Sampling Environment	al Condition	· ·	Temp. (°C)	18 Humidity (%) 73		
g No. & Type of Contains	ল	•	One poly Jar	· · · ·		
[h] Instrument ID		:	RDS-1, FPM-1			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₃ , NH ₃)			
[] Sample Code	: :		A-5139			
[k] Sample Condition on R	eceip1	•	Fit for Analysis			
[1] Items required to be test	ted		As per contract			
[m] Whether any specific M been suggested by the p	lethod of Te	st has	No			
[n] Date of receiving the sa			30.12.22			
[o] Analysis Start Date / Ar		pletion Date	30,12,22 / 02,01,23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi Building (Township)		
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	0.23		
2. Benzene (C ₆ H ₈)	μg / m³ :	:. 5	(\$ 5182 (Part-11) 0.11			
3. Benzo(a) Pyrene				0.19		
4. Arsenic (As)				0.24		
Nickel as Ni				1.43		
6. Mercury (Hg)	ng/m³	Not Specified	US EPA (Method IC-S)	0.28		

SHIBESHW Digitaly signed by ... AR PRASAD 1655-15 +05-90

Ventied by : Technical Manager



Shreyase Date: 2023.01.03 Prasad 16k59:25 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involced amount.

Test Popport endorsed only the tasks and not the product certificate.

Test Report can not be reproduced parketly or full for legaticous purpose without written permission of the Laboratory.

Page I of I

Contact as:

172-C, Aastha, Road No. 5A, Pattipuus Colony, Patae – 900 013 (Éthar).

Mob.: +918676886249 ; +919431047908

Wabsise . www.shivasese.com , www.shivasese

Sthoene li@vahoo.co.in ; info@shivatesLcom .







RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF MONA, UNDER ENVIRONMENT (PROTECTION) ACT 1965, DEPTT, OF INDUSTRIC FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BRIAR STATE POLISITION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5156	Dt: 83.03.	2023 Your Wo	rk Order No. 400028506	7-037-1019 Dt : 31.07.2022			
			North Karanpura Project	a Super Thermal Power			
[a] Name and address of th	e Customer		At: Tandwa				
: .		•	Dist- Chatra	•			
			Jharkhand- 825	321			
[b] Details of Sample	•			Monitoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOUS				
[d]: Sampling Location			Collected from Near at	the top of Tejosovi Building (Township)			
[e] Method of Sampling	. : :	·	IS 11255 (Part-1,2,3 &				
[f] Sampling Environment	al Condition	n	Temp. (°C)	19 - Humidity (%) 72			
No. & Type of Contain			One poly Jar				
[h] Justrument ID	: .		RDS-1, FPM-1				
[i] Sample Quantity			30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₃)			
(j) Sample Code		<u>.</u>	A-5256				
[k] Sample Condition on R	eccipt		Fit for Analysis				
[I] Items required to be tes		':	As per contract				
[m] Whether any specific M		est has	No				
heen suggested by the p	arty · · ·	'					
[n]. Date of receiving the sa		!	31.12.22				
[o] Analysis Start Date / Ar	nalysis Con	pletion Date	31.12.22 / 92.01.23				
	····	- 1.1	in in the	Sampling Station / Result			
Parameters	Unit	Limit as per NAAOS 2009	Method of Test	Near at the top of Tejasavi Building (Township)			
1. Particulate Matter (PM ₁₀)	μ ο / m³	100	IS 6182 (Part-23)	74.0			
 Particulate Matter (PM₂₅) 	hð (w _z	60	CPCB (GMAAP Vol., II):	40.3			
3. Sulphur Dioxide as SO ₂	.μg/m³	80	(S 5182 (Part-2)	15.9			
Nitregen Dioxide as NO₂	μg/m³	80	IS 5182 (Part-6)	34.6			
5. Lead (Pb)	μg/m³.	1 .	IS 5182 (Part-22)	0.18			
e. Ammonia as NHs	μg/m³	400	IS 5182 (Part-5)	4,4			
o. Million at as 1473 ···							

Verified by : Technical Manager



Prasad

Shreyaseev Digitally signed by Shreyasee Prassed Datg: 2023,01.03 17:01:35 +05'30'

Anthorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Cability of our Laboratory is irrelated to invoced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or Auf for legal/court purpose without written permission of the Laboratory.

122-C, Amitha, Road No. SA, Philippoint Colony, Pages - 800-913 (Bilber).

Mob., +918676386249 , +91943104790\$

Streamed @rabox.co.in ; in lo@shirness.co

Website: www.shinstest.com; www.shimtesthouse.co

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT, OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAIR AND BHAIR STATE POLLUTION CONTROL BOARD

<u>TEST REPORT</u>

Ref. No. STH/TR/22-23/5156(A)	Du: 03.4	<i>J.2923</i> Your W	ork Order No. 400028	5067-037-1	1019 Dt: 31.	07.20 22	
[a] Name and address of th	Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
(b) Details of Sample			Ambient Air Qual	ity Monistos	ing (As per NAAC	<u>s</u>	
[c] Sample Collected by		•	SHIVA TEST HO				
(d) Sampling Location			Collected from Near	as the top of '	Tejesavi Bialiding (Tor	enskije)	
[e] Method of Sampling			IS 11255 (Part-1,2,	3 & 7)			
[7] Sampling Environments	al Condition		Temp. (°C)	18∵	Humidity (%)	. 72	
[3] No. & Type of Contains	वा ः		One poly Jan				
[h] Instrument [D]			RD\$-1, FPM-1				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)				
[j] Sample Code	•		A-5156				
[k] Sample Condition on Re	eceipt		Fit for Analysis				
[1] Items required to be test			As per contract				
[m] Whether any specific M been suggested by the p		st has:	No	.∴.	:		
[n] Date of receiving the sa			31.12.22		.: .		
[o] Analysis Start Date / Ar	uilysis Com	pletion Date	31.12.22/02.01.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near :	ting Station / Res at the top of Tejas liding (Township	avi	
1, Carbon Monoxide (CO):	mg/m³	- 4	18 5182 (Part-10)		. 0.68		
2. Benzene (C₀H₀)	"μ g /·m ³	. 5	IS 5182 (Part-11)		0.07		
3. Benzo(a) Pyrene					0.19		
4. Arsenic (As)					0.29	•	
Nickel as Ni	ng/m³	20	AAS Method		8.59		
6. Mercury (Na)	ng / m³	Not Specified	US EPA (Method IO-5)		0:08		

Digitally signed by SHIBESHIWAR FRASIKO AR PRASAD 16:57-02:301:00

Verified by : Technical Manager



- END OF TEST REPORT

Shreyasee Prasad Digitally signed by Prasad

Date: 2029.01.08 1797:51 +0530

Authorized Signatory Quality Manager

This report applies only to eample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced perceitly or full for legal/court purpose without written permission of the Laboratory.

Contact us:

127-C. Áastha, Road No. 5A, Parlipinto Colony, Peros - \$00-0]3 (Bifter)

Mob.: +918676886749 : +919431047906 Shpates lightahoo.co in , last igs hearts com.

Website: www.shivitest.com; www.shivwesthouse.com



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEPCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF SHIAR AND SHIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5248	Dt: 13.4	1.2023 Your We	rk Order No. 40002850 0	57-037-1019 Dt : 31.07.2022	
(a) Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825-321		
(b) Details of Sample				Monitoring (As per NAAQS)	
[c] Sample Collected by		· .	SHIVA TEST HOUS		
[d] Sampling Location			Collected from Near at	the top of Time Office (Main Plans)	
[e] Method of Sampling			4\$ 11255 (Part-1,2.3 &		
[f] Sampling Environments	1 Condition		Temp. (°C)	15 Humidity (%) 75	
[1] No. & Type of Containe	:r	'	One poly Jar		
h] Instrument ID			RDS-1, FPM-1		
il Sample Quantity			30 ml x 6 for each ()	NO ₂ , SO ₂ , NH ₃)	
j] Sample Code 🔑	•:	· ·	A-5248		
[k] Sample Condition on Re	eceipt		Fit for Analysis		
 Items required to be test 	ed .		As per contract		
 (m) Whether any specific M been suggested by the p 		st has	No		
n] Date of receiving the sa			07.01.23		
o] Analysis Start Date / Ar		pletion Date	07.01.23/09.01.23		
Parameters.	Unit	Limīt as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)	
i. Particulate Matter (PM ₁₆)	μ́g / m³	100	IS-5182 (Part-23)	73.3	
Particulate Matter (PM _{2.6})	μg / m³	60	CPCB (GMAAP Vol. I)	:42.5	
S. Sulphur Dioxide as SO ₂	μg/m³	. 80	IS 5182 (Part-2)	14.2	
Nitrogen Dioxide as NO ₂	μg/m³	80	1S 5182 (Part-6) 37.1		
Lead (Pb)	μg/m³	1	(S 5182 (Part-22)	0.09	
. Ammonia as NH ₃	μg/m³	- 400	IS 5182 (Part-5)	5.2	
Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	20.9	

Decg: 242301.15 AR PRASA

Verified by : Technical Manager



Shreyasee Prasad

Shreyasee Presed Date, 2023,01.13 13:35:54 +05'30"

Authorized Signatory, Quality Manager

ític report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legaticibuit purpose without writin permission of the Laboral

Contact us :

122-C, Assita, Road No. 5A, Pulliquina Colony, Petna - 800 013 (Biliga)

Mub. +918676886749 :+919431047996

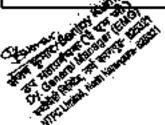
Website - www.shimtes.com ; www.shlvmesRouse.



RECOGNOSO AS ENVIRONMENTAL LABORATORY BY MARFOC, GOVE OF MENA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTE OF BIOUSTRY, FORESTS & ENVIRONMENT, GOVE OF SHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5248(A)	D(: 13.	91.2 9 23 Your V	Vork Order No. 40002	85067-037	-1019 Dt : 31	.67.2022		
[a] Name and address of the	[a] Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Aniblent Air Qua	lity Manita.	ring (As per NAA)	QS)		
[e] Sample Collected by			SHIVA TEST HO	USE on 05	:01.23			
[d] Sampling Location			Collected from Near	at the top of	Time Office (Main P	law)		
[c] Method of Sampling			1\$ 11255 (Part-1,2					
[f] Sampling Environmenta	al Condition		Temp. (°C)	15	Humidity (%)	76		
[z] No. & Type of Contains	क्ष		One poly Jar					
[h] Instrument ID			RDS-1, FPM-1					
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)					
[j] Sample Code			A-5248					
[k] Sample Condition on R	eccipt		Fit for Analysis					
[]] items required to be test	ted		As per contract					
[m] Whether any specific M been suggested by the p		st has	Ng					
[n] Date of receiving the sa	mple		.07.01.23					
[o] Analysis Start Date / Ar	nalysis Com	pletion Date	07.01,23 / 09.01.23					
	1	Limit es per	Melhod of	Samp	ling Station / Re	sult		
Parameters	Unit	NAAQS 2009	Test	Near at	the top of Time	Office :		
,		11/7/4/20 2003	. 1 631		(Main Plant)			
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)					
2. Benzene (C₀H₀)					IS 5182 (Part-11) 0.11			
Benzo(a) Pyrene					IS 5182 (Part-12) 0.19			
4. Arsenic (As)					AAS Method 0.44			
Nicke) as Ni	ng/m³	20	AAS Methòd 1.40					
6. Mercury (Hg)	ng/m³	Not Specified	US EPA (Method IO-6)		0.34	_		



SHIBESHW Shibeshwar Prasad AR PRASAD Cose-2023.01.13 13:37:18 +0530

Verified by : **Technical Manager** Patha

Shreyasee | Olgitally Pigned by Shreyasee Prasad Prasad

Cate: 2023.01.13 13:36:19 +05'30'

Authorized Signatory Quality Manager

END OF TEST: REPORT -

This report applies only to sample tested as above.

Total Lishiby of our Laboratory is limited to invoked amount.

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partiely or full for legal/continuouse without written permission of the Laboratory.

Page I of I

Contact us:

122-C, Aastha, Rood No. SA, Pathipatra Cology, Patru - 800 013 (Bihar)

Mob +918676886249 : +919431047908

stipatra i @vahos.co.in ; info@strystest.com

Website : www.shiovtest.com : www.shiostesthouse.com

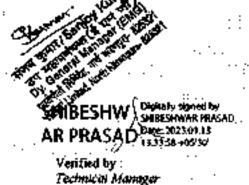


(Serving since 1988)

RECOGNISED AS EINMONMENTAL LABORATORY BY MOEFOC, GOVT, OF MIDIA, UNIDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTE OF BIDUSTRY, FORESTS & EMPRONMENT, GOVE OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

test report

Ref. No. STH/TR/2	2-23/5276 Dt : 13.91	.2023 Your Wo	rk Order No. 400028504	87-037-1019 Dt : 31.07.2822			
	. 12%.		North Karanpur Project	a Super Thermal Power			
[a] Name and	address of the Custome		At: Tandwa				
[4]		· · · · .	Dist- Chatra				
	•		Jharkhand- 829	321			
[b] Details of	Sample			Monitoriug (As per NAAQS)			
[c] Sample Co			SHIVA TEST HOUS	SE on 06:01.23			
[d] Sampling I	ocation	:	Collected from Near at	the top of Time Office (Math Plant)			
			IS 11255 (Part-1,2,3)	<u>& 7)</u>			
	avironmental Conditio	ит	Temp, (⁰€):	18 Humidity (%) 72			
	e of Container		One poly Jar	·			
[h] Instrument			RDS-2, FPM-2				
	antity :	-:	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
(j) Sample Co		· ·	A-5276	graph and the			
	ndition on Receipt	. :	Fit for Analysis				
	red to be tested		As per contract				
[m] Whether a	ly specific Method of T sted by the party	est has	No	- : : : : : : : : : : : : : : : : : : :			
	civing the sample	. :	07.01.23				
	tert Date / Analysis Cor	mpletion Date	07.01.23 / 09.01.23				
	···		ha sasis di sa	Sampling Station / Result :::			
Paramete	ars Unit	Limit as per NAAOS 2009	Method of Test	Near at the top of Time Office (Main Plant)			
1. Particulate Mat	ter (PM ₁₀): jug / m³	100	18 5182 (Part-23)	71,1			
2. Particulate Ma (PM ₂₅)		60	CPC8 (GMAAP Vol. I)	36.3			
3. Sulphur Dioxid	e as SO ₂ µg/m³	.80	S 5182 (Part-2)	15.7			
Nitrogen Dioxi		80	IS 5182 (Part-6)	: 32.4			
75. Lead (Pb)	μg/m³	· 1 :	IS 5182 (Part-22)	0.21			
e. Ammonia as N			IS 5182 (Part-5)	4.7			
7. Ozone (Q ₃)		180	IS 5182 (Part-9)	16.5			



800013

Shreyasee Prasad

Evite: 1033.01.13 13:38:52 +65'30' Authorized Signatory Quality Manager

This report applies only to semple leated as above.

Total Liability of our Laboratory is invited to invoiced amount.

Test Report endorsed only the tests and not the product pertiticate.

Test Report can not be reproduced permission of the treat Report can not be reproduced permission of the t

Contact us:

IZZ-C; Agsha, Road No. 5A, Padipura Colony, Paga — 200,013 (Estur)

Mob.: +918676886249; +919431047901 stinensi kiliyahoo.co.in ; lafo@stinratest.coe

Website: www.shinalest.com; www.shinatestboase.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEPCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1906, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SHAR AND SWAR STATE POLLUTION CONTROL BOARD.

TEST REPORT

Ref. No. STH/TR/22-23/5276(A)	Dt : 13.0	1.2025 Your W	Ork Order No. 4000285067-037-1019 Dt.: 31.67.2022					
[a] Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321							
[b] Details of Sample			Ambient Air Oua	lity Monito	ring (As per NAAC	253		
[c] Sample Collected by			SHIVA TEST HO					
[d] Sampling Location			Collected from Near	at the top of	That Office (Main Pl.	mr)		
[e] Method of Sampling		_	15 11255 (Part-1,2,					
[t] Sampling Environment	al Condition	•	Temp. (°C)	18	Humidity (%)	72		
g] No. & Type of Contain		_	One poly Jar					
[h]. Instrument ID			RDS-2, FPM-2	•				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)					
[j] Sample Code			A-5276					
[k] Sample Condition on R	eceipt		Fit for Analysis					
[l] ltems required to be tes		•	As per contract					
(m) Whether any specific M been suggested by the p		st has	No					
[n] Date of receiving the sa			07.01.23					
[o] Analysis Start Date / Ar	nalysis Com	plotion Date	07.01.23 / 09.01.23					
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		bling Station / Re the top of Time ((Main Plant)			
Carbon Monoxide (CO)	mg/m³	_ 4	IS 5182 (Part-10)	0.68				
2. Benzene (C ₆ H ₆)	μg/m³	. 5	IS 5182 (Part-11)	0.08				
Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12)	0.18				
4. Arsenic (As)	ng/m³	6	AAS Method	Method 0.14				
<u>Ni</u> ckel as Ni				AAS Method 7.10				
6. Mercury (Hg)					(10.55)			

C Digitally signed by SHIBESHWAR PRASAD AR PRASAD Date 2023.01.13 13:34:09 + 05'30'

Verified by : Technical Manager



<u>- END OF TEST REPORT --</u>

Shreyase) Digitally signed by Shreyasee Prasad Date: 2023.01.13 e Prasaç 13:41:40 +05:30"

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory its limited to invoiced amount.

Test Report endorsed only the tests and not the product carbinate.

Test Report can not be reproduced partially or full for legal/court purpose vertical written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Parliguera Colody, Pages – 600 DJ 3 (Bible)

Mah.: +918676886249 ; +91943104790\$

stiperantigivation co.in : Info@stinguest.com

Webtite: new shiretest com : provishivatesthouse com







(Serving since 1988)

RECOGNISED AS ENARONMENTAL L'ABORATORY BY MAEFICE, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEFYZ. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHIAR AND BHIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5396	Dt : 21.0	1.2023 - Your Wi	ork Order No. 40002850	67-037-1019 Dt : 31.07.20	22		
	211 22.X		North Karanpura Super Thermal Power				
l		:	Project				
[a] Name and address of the	e Customer		At: Tandwa				
(4)			Dist- Chatra				
,			Jharkhand- 825	5.321			
[b] Details of Sample				Monitoring (As per NAAQS)	٠٠		
[c] Sample Collected by	٠.		SHIVA TEST HOU:	SE on 11.01,23			
[d] Sampling Location		<u>.</u>	Collected from Near et	the top of Tane Office (Main Plant)			
[e] Method of Sampling			IS 11255 (Part-1.2,3)				
[f] Sampling Environment	al Conditio	n · ·	Temp. (°C)	14 Humidity (%) 75			
] No. & Type of Contains		•	One poly Jar				
[]h] Instrument ID	:	·····	RDS-2, FPM-2	•• •• ••			
[i] Sample Quantity		· .	30 ml x 6 for each (NO2, SO2, NH3)	. :		
[j] Sample Code	:	:	A-5396				
[k] Sample Condition on R.	eceipt :		Fit for Analysis				
[1] Items required to be tes		• • • •	As per contract				
[m] Whether any specific M		est has	Na				
been suggested by the p	anty	: .					
[n] Date of receiving the sa	mple :		12.01.23				
[o] Analysis Start Date / Ar	nalysis Con	pletion Date	12 01.23 / 14.01.23 History History				
		Limit es per	Method of	Sampling Station / Result	t· ·		
Parameters ::	Unit ·	NAAQS 2009	Test	Near at the top of Time Off (Main Plant)	ķe		
1. Particulate Matter (PM _{I0})	ng / m³	100	IS 5182 (Part-23)	73.0	-···.'		
Particulate Matter (PM _{2.5})	μg / m ³	60	CPCB (GMAAP Vol. I)	.42.0	;		
3. Sulphur Dioxide as \$O ₂	μg/m³	.80	IS 5182 (Part-2)	13.7			
Nitrogen Dioxide as NQ ₂	μg / m³	80	IS 5182 (Part-6)	36.6	·:,		
~ Lead (Pb)	μg / m³	1	IS 5182 (Part-22)	0.09			
s. Amreonia as NH	μg / m³	400	IS 5182 (Part-5)	5.3			
7. Ozone (O ₂)	μg/m³	180	IS 5182 (Part-9)	22.2	<u>;;;</u>		
		— · · · · · ·					

(; Oʻgʻstaliyi signed by || SHIBESHWAR PRASAD D.0ate: 2023.01.21 465732+0530

Verified by: Technical Munager



Prasad

Shreyasee Shreyase Process Shreyasee Frasad Date: 2023.01.21 17:01:36 +05'30' Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laborato

Contact us ;

132-C, Aasthe, Road No. 5A, Parliperra Colony, Perna - 800 0) 3 (Binar)

Mob., +912676826249 ; +919431047908

schneine i Governon.co. ur.; in fr@shirotest.co.

Website: www.shivees.com; www.shiveesboute

Page f of F



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFOC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTIONS ACT 1988, DEPTE. OF INCUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5396(A)	Dt : 21.0	01.2023 Your V	Vork Order No. 40002	85067-03	7-1019 Dt: 31.	07.2022			
[a] Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321								
[b] Details of Sample			Ambient Air Qua	lity Monte	oring (As per NAAÇ	S D			
[c] Sample Collected by	_		SHIVA TEST HO						
[d] Sampling Location			Collected Street News	et Our top o	Time Office (Main Ph	me()			
[e] Method of Sampling			IS 11255 (Part-1,2						
[f] Sampling Environment	d Condition		Temp. (°C)	14	Humidity (%)	75			
 No. & Type of Contains 			One poly Jer						
[h] Instrument ID					RDS-2, FPM-2				
[i] Sample Quantity	•		30 ml x 6 for each (NO ₂ , SO ₂ , NH ₅)						
[j] Sample Code	·	-	A-5396						
[k] Sample Condition on R.	cocipt		Fit for Analysis						
[1] Items required to be test	(ed		As per contract						
[m] Whether any specific M been suggested by the p		st has	No						
[n] Date of receiving the sa			12.01.23						
[o] Analysis Start Date / Ar	ialysis Com	pletion Date	12.01.23 / 14.01 23						
· ·		tank se see	Method of	San	ipling Station / Re-	suft :			
Parameters .	Unit	Limit as per NAAQS 2009	Test	Near	at the top of Time ((Main Plant)	Office			
1. Carbon Monoxide (CO)	mg/m³	. 4	IS 6182 (Part-10)	. 0.11					
2. Benzene (C ₆ H ₆)				IS 5182 (Part-11) 0.10					
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12) 0.21						
4. Arsenic (As)				AAS Method 0.42					
Nickel as Ni	ng / m²	20	AAS Method		2.80				
Mercury (Hg) ng / m³ Not Specified			US EPA (Method KI-5)		0.32				

SHIBESHW SHIPPES AND STREET SHIPPES AD

AR PRASAD 0484 702501.21

Verified by : Technical Manager



Prasad

Shreyasee Charles Spreadby Shreyasee Prasad Gate: 2023.01.21 17:01:59 +05'30' **Authorized Signatory** Quality Manager

- END OF TEST REPORT -

Title report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legislacourt purpose without written permission of the Eutopratory.

Contact as:

122-C, Aasthe, Road No. 5A, Pattipetra Colony, Page - \$00 013 (Bibar)

Mob., +918676\$86249 . +919431047908 EmaD :

Website: www.shrvsorsi.com; www.shrvstesthouse.com

##patra | @relico.co.in ; mb/d/shi rawa .com





(Serving since 1988)

RECOGNSED AS ENVIRONMENTAL LABORATORY BY MAERGO, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1906, DEPT). OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

	: ·	· ····		<u> </u>	
Ref. No. STH/TR/22-23/5436	Di: 21.0	1.2023 Your Wo	rk Order No.: 4000285 0		D): 31.07.202
: .:	٠.:		North Karanput	a Super Then	mal Power
l	: `		Project		
[a] Name and address of th	e Customer	r	At: Tandwa	· '.: '' .	· :.
1 2 3 3 4 5			Dist-Chatra	- 201	
I Date the second second	. : ::		Jharkhand- 82		
101 : Demilo de President.	<u> </u>	. :	Ambient Air Quality SHIVA TEST HOU		r Auckgo) :
[c] Sample Collected by ::	· ·	-:	Collected from Near a		Day (Marin Marin
[d] Sampling Location	- : . ;	 	IS 11255 (Part-1,2,3		TER (ADMINITURE)
[e] Method of Sampling	Al Chadisia	·	Temp. (AC)	17 Humldi	v (%) 73
[f] Sampling Environment			: One poly Jar		y (20) 1 /3
[No. & Type of Contain [[n] Instrument ID	ε ι	· <u>·</u>	RDS-2, FPM-2		.
[i] Instrument ID [ii] Sample Quantity	- :- ::	•	30 ml x 8 for each	(NOs SOs NHs)	·:
[i] Sample Code	 :		A-5436	(1402, 302, 1413)	
[k] Sample Condition on R	*****	• • •	Fit for Analysis:		
[1] Items required to be tes		As per contract	.: -		
[m] Whether any specific M		act hoe	As per vorman	· .	······································
been suggested by the p		*** mas	No	:	
[n] Date of receiving the sa			14.01.23		·····
[o] Analysis Start Date / A		nnletion Date	14,01.23 / 16.01.2	á :	
	1				tation / Result
Parameters :	Unit .	Limit as per	Method of		p of Time Office
in 1,0		*NAAQS 2009	Test		n Plant)
1, Particulate Matter (PM ₁₀)	μg / m³	: 100	IS 5182 (Part-23)		4.4
2. Particulate Matter		- 7	CPCB		
(PM _{2.5})	μg / m³	60	(GMAAP Vol. I)	l:: .	9.1 9.1
3. Sulphur Dioxide as SO ₂	$\mu g / m^3$. 80	(S 5182:(Part-2)	·	17.6
Nitrogen Dioxide as NO ₂	$\mu g / m^3$	80 -	IS 5182 (Part-6)		37.2 "::
ra. Lead (Pb)	μg / m³	1 .	IS 5182 (Parl-22)		0.04
6. Ammonia as NH ₃	μg / m³		IS 5182 (Part-5)		5.0
' '	μg / m³	180	IS 5182 (Part-9)	 	17.0
7. Ozone (O ₃)	1 1-20				

Olgitally signed by SHIBESHWAR PRASAD AR PRASAD 16:59:32 +06:50

Verified by : Technical Manager



Shreyasee Prasad

Eure: 2023/01.21 17:13:12 +05'30"

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is lithited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or aid for legal/court purpose without written permission of the Laboratory

Céntact us :

122-C, Aastha, Road No. 5A, Pétlipuaré Colony, Pause – 600 013 (Bôhér)

Mob : +918676886249 : +91943104790\$

· Website: www.dirinteit.com; www.

sthouta i Sitvahoo.co in info@shivatest.com

Page 1 of 1



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. N	io. STH/TR/22-23/5436(A)	Dt: 21.6	77.2023 Your V	York Order No. 40002 8	95067-037-1019 Dt : 31.07.2022	
[2]	Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321		
[b]	Details of Sample			Ambient Air Qual	lity Monitoring (As per NAAQS)	
[c]	Sample Collected by			SHIVA TEST HO	USE on 13.01.23	
[d]	Sampling Location			Collected from Near	at the top of Those Office (Main Plant)	
(e)	Method of Sampling			IS 11255 (Part-1,2,	3 & 7)	
[f]	Sampling Environments	d Condition	•	Temp. (°C) .	17 Humidity (%) 73.	
:L	No. & Type of Contains			One poly Jar		
[h]	Instrument LD	•	•	RDS-2, FPM-2	•	
M	Sample Quantity			30 ml x 8 for each	(NO ₂ , SO ₂ , NH ₃)	
(ii)	Sample Code			A-5436		
[k]	Sample Condition on R	sceipt	_	Fit for Analysis		
[1]	Items required to be tes	ted.		As per contract		
[m]	Whether any specific M been suggested by the p		st has	No ·		
[n]	Date of receiving the sa			14.01.23		
િ	Analysis Start Date / An		pletion Date	14.01.23 / 16.01.23		
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office	
			7477440 2000	7030	(Main Plant)	
	toon Monoxide (CO)	rng / m³	- 4	IS 5182 (Part-10)	0.68	
2. Be	nzene (C ₆ H ₆)	μg / m³	5	38 5182 (Part-11)	0.05	
3. Benzo(a) Pyrene ng / m³ 1				IS 5182 (Part-12)	0.16	
4. Arsenic (As) Ing/m³ 6			6	AAS Method : 0.06		
: Nic	kel as Ni	ng/m³	20	AAS Method	7.16	
6, M e	roury (Hg)	ng/m³	Not Specified	LIS (EPA (Method IO-5)	0.16	

SHIBESHW Object By signed by SHIBESHWAR PRASAD Date: 2023.01.21

Verified by : Technical Manager



Shreyasee Prasad Olgitally signed by Shreyesse Presed Date: 2023.01.21 17 13-29 e05'30'

Authorized Signatory
Quality Manager

- EMD OF TEST RÉPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced emount.

Test Report endorsed only the lests and not the product certificate.

. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Assika, Road No. 5A, Parliputra Colony, Paina - 800 0) 3 (Bilgar)

Mob.: +915076800249; +919431047900 Email: <u>attravea hijhathoo.co.on</u> (<u>Info@shovaces.com</u>

Website: www.shivntest.com; www.shivmesthouse.com

: [/



VA TEST HOUSE



(Serving since 1988)

RECOGNISEO AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF MOIA; UNDER ENVIRONMENT (PROTECTION) ACT 1866, DEPT. MENT, GOVT. OF BRIAR AND BIHAR STATE POLLUTION CONTROL SCARD OF INDUSTRY, FORESTS & ENVIRON

ſ	Ref. No. STH/TR/22-23/5885 : Di	41 02 2022 Von We	-t ()	7-037-1019 Dt 31.67.2922
Ŀ		. 42,02,6033 · · £0 4 WU		Super Thermal Power
1			Project	gather meimar komer
-	[a] Name and address of the Custo	nemar	At: Tandwa	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
-	[a] traine and dontess of the Cush	Aurea	Dist-Chatra	··· ·· · · · · · · · · · · · · · · · ·
1		;; 	Jharkhand- 825	391 5 : :
H	[b] : Details of Sample: 1997	·		fonitoring (As per NAAQS)
ł	[c] Sample Collected by	31.1	SHIVA TEST HOUS	
⋰		::::::::::::::::::::::::::::::::::::::		he top of Time Office (Mala Plant)
_	[e] Method of Sampling		: JS 1255 (Part 1,2,3 &	
_	[f] Sampling Environmental Cond	dition	Temp. (*C.)	19. Humidity (%) 71
. -	No. & Type of Container		One poly Jer	
4	pi Instrument ID		::RD8-1, FPM-1:	: :::::::::::::::::::::::::::::::::::::
	[i] Sample Quantity		30 ml x 6 for each (h	
ı	[j] Sample Code	· :: ::	A-5885 ::	*: *: "
_	[k] : Sample Condition on Receipt:		Fit for Analysis	· · · · · · · · · · · · · · · · · · ·
_	[1] Items required to be tested		As per contract	·
ı	[m] Whether any specific Method	of Test has	1:. :	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ŀ	been suggested by the party		No	
ΞE	n Date of receiving the sample	· :	28.01.23	: :::::
ľ	[o] Analysis Start Date / Analysis	Completion Date	28.01.23 / 30.01.23	' !
Г		Circle in a man	عب فيستون	Sampling Station / Result
1	Parameters U	nit Limit as per	Method of	Near at the top of Time Office
ŀĽ	<u> </u>	NAAUS 2008 :	Test Harr	(Main Plant)
ſ	1. Particulate Matter (PM ₁₀) μg /	/ m³ 100	IS 5182 (Part-23)	74.0
. F			CPCB	'Abe'
1	<u> </u>		:: (GMAAP Vol:il)	46.6
		m³ .80	IS 5182 (Part-2)	11.9
•		/m³ :::80 ::	IS 5182 (Part-6)	34.0
: <u>.</u>		(m³: 1 ·::.	(\$ 5182 (Part-22)	0.09.
		m³ : 400	IS 5182 (Part-5)	6.7
	7. Ozone (Q ₀) 💥 💛 🖂 itg /	/m ² 180 :	IS 5182 (Part-9)	24.5
	-C-3	· · · ·	· · · · · · · · · · · · · · · · · · ·	

Digitally signed by

Verified by : Technical Manager



Shreyasee Prasad

Shreyasee Prasad Date: 2023.02.02 15:14:22 +05'30'. Authorized Signatory

Quality Manager

- his report applies only to almple toping as above,
- Total Liability of our Laboratory is fimilial to invoiced amount. Test Report endersed only the tests and not the product certificate.
 - Test Report can not be reproduced partially or full for legal/coun purpose without writing permit

(22-4), Assaba, Road No. SA, Patipulm Colony, Palm - 800 013 (Billian).

Nob : +918676886249 . +919431047904

www.shiveeist.com; www.

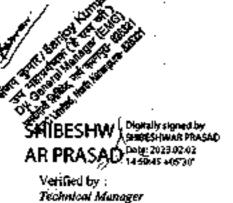


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL L'ABORATORY BY MAEFICE, GOVT. OF INDIA, UNDER EMPROPRIENT (PROTECTION) ACT 1984, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5885(A)	Di: 02. 6	22.2833 Your W	Vork Order No. 400028	5067-037-1019 Di: 31.07.2022	
[a] Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321		
[b] Details of Sample			Ambiens Att Qual	ity Monitoring (As per NAAQS)	
[c] Sample Collected by			SHIVA TEST HOL	USE on 25.01.23	
[d] Sampling Location			Collected from Near	at the top of Time Office (Main Plant)	
[e] Method of Sampling			18 1 1255 (Pan-1,2,1	3 & 7)	
[<u>f</u>] Sampling Environments	l Condition		Temp. (°C)	19 Humidity (%) 71	
[1] No. & Type of Contains	ir .		One poly Jar		
[fh] Instrument ID			RDS-2, FPM-2	· · · · · · · · · · · · · · · · · · ·	
[i] Sample Quantity		. ***	30 ml x 6 for each (NO _{2,} SO _{2, NH₃)}		
[j] Sample Code			A-5885		
[k]. Sample Condition on Re	ceipt		Fil for Analysis:		
[1] Items required to be test			As per contract		
(m) Whether any specific M been suggested by the p		st has	No		
[n] Date of receiving the sar			28.01.23	_	
[o] Analysis Start Date / An	alysis Com	pletion Date	28.01.23 / 30.01.23	:	
		Limit as per	Method of	Sampling Station / Result	
Parameters	Unit	NAAQS 2009	Test	Near at the top of Time Office (Main Plant)	
1. Carbon Monoxide (CC);	mg/m³	4	IS 6182 (Part-10)	0.23	
2. Benzene (CaHa) μg / m³ 5		(S 5182 (Part-11) 0.11			
3. Benzo(a) Pyrene ng / m³ 1			(\$ 5182 (Part-12) 0.22		
4. Arsenic (As) ng / m³ 6			AAS Method	0.39	
Nickel as Ni	ng / m³	20	AAS Method	2.80	
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Method ID-6)	0.28	



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Bate: 2023.02.02 15:14:52 +05'30"

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above

Total Listility of our Laboratory is limited to avvolced amount.

Test Report endorsed only the tests and not the product cartiagate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Azsika, Road No. 3A, Pathperra Colony, Puna - 300 013 (Hätar)

Mcb. +978676\$86249 ; +919431047908

Website: www.shrvacas.com; www.shinatesthouse.com

stimulnatiótychen en in ; intoátskivanss com



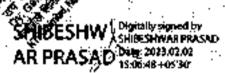
/A TEST HOU

(Serving slace 1988)



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1968, DEP OF INDUSTRY, FORESTS & EMPIRONMENT, GOVT: OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

Ref. No. STH/TR/22-21/5890	Dr #2.02	2023 Your	Work Order No. 4000285	067-037-1019	Dt.: 31.07.2922
	. :: .:	1	North Karanpure	Super Thermal	Power
			Project		
[a] Name and address of the	e Customer		At: Tandwa		· · · · ·
		·	Dist- Chatra		
		.:	Jharkhand- 825		·
[b] Details of Sample		 	Ambient Air Quality k		M Q 57 :
[c] Sample Collected by	· : : :		SHIVA TEST HOUS		
[d] Sampling Location	<u> </u>	<u> </u>	Collected from Near as a		Mate Plane)
[e] Method of Sampling			1S 11255 (Part-1,2,3 &		<u> </u>
[f] Sampling Environment		<u> </u>	Temp: (°C)	19 Humidity	(%) 70
gl.: No. & Type of Contain	er	<u>:</u>	One poly Jar	<u></u>	٠
[h] Instrument ID	1,15	:	RBS-2 FPM-2	<u> </u>	1.:
[i] Sample Quantity	. :	. ** *:	30 ml x 6 fóréach (f	40 ₂ , \$0 ₂ , NH ₃)	
[j] Sample Code	• ::	.: .	A-5890	::: .	. ''
[k] Sample Condition on R	eceipi 🦠		Fit for Analysis	- 0	
[1] Items required to be tes	ted	٠.	As per contract	. :	
[m] Whether any specific N	lethed of To	st bas	Na :		1000
been suggested by the			No		
[n] Date of receiving the sa			28.01.23	··':	yr :
[o] Analysis Start Date / A		pletion Date	28.01.23/30.01:23		
The James and Control	1::	Limit as per	16.41.416	Sampling Sta	tion / Résult
Parameters	Unit	NAAOS	Method of	Near at the top	of Time Office
生产的 医二氏试验性多点	: `:::	2009	Test	ં (Mainil	
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	1 : 1.73.	
2 Particulate Matter	1	1 1 1 3 74 1	CPCB	119 41 11 122	7
(PM _{2.5})	μg / m ⁵ :	60	(GMAAP Vol. 1)	41.	7 11, 1
3. Sulphur Dioxide as SO ₂	μ g / m³	eo .	IS 5182 (Part-2)	17.	2
Nitrogen Dioxide as NO ₂		60	IS 5182 (Part-6)	36.	
is. Lead (Pb)	μg/m ^y	1	IS 5182 (Part-22)		4':
6. Ammonia as NH ₃	.μg / m³	400	IS 5182 (Part-5)	· 2: 1.2: 15.0	1
7. Ozone (O ₃)	ug/m³	180	IS 5182 (Part-9)	17.	
1. Ozore (O3138	L MARIE III	100	NO C TOP (FORPO)		,



Verified by: Technical Manager



Shreyasee) Prasad

Digitally signed by Shreyasee Prasad Bale: 2023-02-02 15:78-07:+05'30'

Authorized Signatory, Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is impact to invoked amount

Test Report endorsed only the leats and not the product carafficite.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Ansthu. Road No. 5A, Putliputta Colony, Pates - 800-013 (Bihar)

Mob.: +918676886249; +919431047908 stheame 1/24 about on in ; info@ship

Website: www.shinatest.com , www.shinatesthou

Page 1 of 1

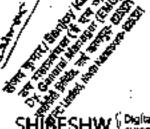


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DERTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BINAR AND BUILD STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	STH/TR/22-23/5890(A)	Dt: ⊕2 .	02.2423 Yo	r Work Order No. 4000			
[a]	Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b]	Details of Sample			Ambieni Air Qua	lity Monitor	ing (As per NAA)	25)
[0]	Sample Collected by			SHIVA TEST HO	USE on 27.	01.23	⋰.
[6]	Sampling Location	: .		Collected from Near	at the top of	Time Office (Main P	land)
(c)	Method of Sampling			IS 11255 (Part-1,2,	3-8-7)		
ίĐ	Sampling Environmenta	Temp. (°C).	19	Humidity (%)	1, .70		
3]	No. & Type of Contains	г		One poly Jar		-	· .
(h)	Instrument.ID	.:.		RDS-2, FPM-2		: -	
· <u>10 </u>	Sample Quantity - 3		:	30 ml x 6 for each (NO ₂ , \$O ₂ , NH ₃)			
[i]	Sample Code	:		A-5890			
(k)	Sample Condition on Re	ceipt	•	Fit for Analysis			
ſŊ	Items required to be test			As per contract			
[m]	Whether any specific Mo been suggested by the pr		st has	No			
[n]	Date of receiving the sar		••	28.01.23			
[6]	Analysis Start Date / An		pletion Date	28.01.23/30.01.23	٠.		
		:	Limk as per	Method of	Samp	ing Station / Re	sult
	Parameters	Unit '	NAAQS 2009		Near at the top of Time Office (Main Plant)		Office
1. Cart	on Monoxide (CO)	· mg / m³	4 .	IS 5182 (Part-10)		0.23	
2. Ben	zene (C _t H _t)	μg / m³	5 .	IS 5182 (Part-11)		0.04	
	zo(a) Pyrene	ng / m³	. 1	IS:5182 (Part-12)	: :	0.16	
	enic (As)	AAS Method 0.14			'		
	celas Ni	ng/m³ ng/m³	20	AAS Method		4.20	. ::
6. Men	cury (Hg) 🙀	μg / m ^s	Not Specified	US EPA (Method IO-5)	: ::	0.16	



Chigitally signed by SHIBESHWAR PRASAD Day 2023,02.02 AR PRASAD 15:07:03 +05'30'

Verified by: Technical Manager



Prasad

Shreyasee | Digitally signed by Shreyasee Presad Date: 2023.02.02 15:18:26 +05:30

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate,

Test Report can not be reproduced partially or full for legal/court purpose without senten permission of the Laboratory.

Page 1 of 1

Contact us :

172-C, Aastha, Road No. SA, Padiputta Colony, Fana - 300 013 (Bihat)

3406: +911676436249 , +919431047908

sibeutra kölynbos co.in , jojotõisti meesi com Website . Www.shitemest.com ; www.shivetestholest

- END OF TEST REPORT



VA TEST HOUSE



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INCUSTRY, FORESTS & ENVIRONMENT, GOVY, OF SHAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. 5TH/TR/22-23/5928	Dt: \$4.02	2023 Your Wor	k Order No. 400028504			
[a] Name and address of the	he Custome	: .	North Karanpura At: Tandwa Dist- Chatra Tharkhand- 825 3	Super Thermal Power Project		
[b] Details of Sample			Ambient Air Quality	Monitoring (As per NAAQS)		
[c] Sample Collected by	· · ·		SHIVA TEST HOU			
[d] Sampling Location	· .	· · · · · ·	Collected from Near at	the top of Time Office (Main Plant)		
[e] Method of Sampling			IS 11255 (Part-1,2,3	& 7) · · · ·		
[f] .Sampling Environment	ral Conditio	n .: · .	Temp. (°C)	19 : Mumidity (%) :70 ::		
[g] No. & Type of Contain	let :		One poly Jar			
[b] Instrument ID	: '		RDS-1, FPM-1			
[i] Sample Quantity	'		30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)		
[j] Sample Code	· ··	· · · · · ·	A-5928	· · · · · · · · · · · · · · · · · · ·		
.[k]. Sample Condition on F	Receipt		Fit for Analysis			
[i] Items required to be to	eted		As per contract			
[m] Whether any specific heen suggested by the		est has	No			
[n] Date of receiving the s		•	01.02.23 .:	:		
[o] Analysis Start Date / A	nalysis Con	npletion Date	01:02:23/04:02:23	····		
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)		
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	75.8		
Particulate Matter (PM ₂₅)	μÿ/m³	···60	CPCB (GMAAP Vol. I):	43,0		
3. Sulphur Dioxide as SO ₂	μg / m³	90	IS 5182 (Part-2)	13/1		
4. Nitrogen Dioxide as NO2		80	IS 5182 (Part-6)	35.3		
). Lead (Pb)	μg/m³	1	IS 5182 (Part-22)	9.08		
6.: Aimmonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	6.5		
7. Ozone (O ₃) // ₂ :::	μg/m³	180	IS 5182 (Part-9)	21.6		

Digitally signed by SHBESHIWAR PRASAD Bate: 2023.02.04 ... 15:27:37 +05:50

Ventled by : **Technical Manager**



Prasad

Digitally signed by Shreyasee Prasad Date: 2023-02-04 13:47:10 +06'30' Authorized Signatory Quality Manager -

-- END OF TEST REPORT

This report applies only to sample tested as above:
Total Lieblity of our Laboratory is finited to invoiced amount.
Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Caborson

Contact us :

122-C, Aastrá, Road No. 5A, Patliputra Colony, Patra - \$00 013 (Bihar)

Mob.: +918676846249 ; +919431017908

Website: www.shivatear.com; www.shivatesthouse.com

saturana i (2) yahoo co.m ; info@eshiyayest.cog

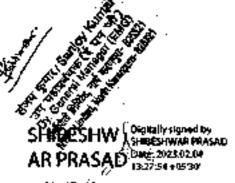
Page 1 of 1



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MICEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SHAR AND SHAR STATE POLLUTION CONTROL BOARD

<u>TEST REPORT</u>

Ref. No. S	TH/TR/22-23/5928(A)	Dt: 04.47	2.2023 Your W	ork Order No. 400028	5067-437-1019 Dt : 31.07.2022		
[a] Na	a] Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Tharkhand- 825 321		
[b] De	stails of Sample				lity Monitoring (As per NAAQS).		
	inple Collected by	•			USE on 30.01.23		
	mpling Location		•	Collected from Near	at the top of Time Office (Main Plant)		
	ethod of Sampling			IS 11255 (Part-1,2	,3 & 7)		
	mpling Environmenta	l Condition		Temp. (°C)	19 Humidity (%) 71		
. [g] No	& Type of Containe	it.		One poly Jan			
	strument ID			RDS-2, FPM-2	· · · · · · · · · · · · · · · · · · ·		
	mple Quantity			30 m) x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Śa	mple Code	•		A-5928			
	mple Condition on Re			Fit for Analysis			
	ans required to be test			As per contract			
	bether any specific Mo on suggested by the pa		et paz	No			
[n] Da	ite of receiving the sai	mple		01.02.23			
[6] An	ialysis Start Date / An	alysis Com	détion Date	01.02.23 / 04.02.2			
Р	arameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)		
1. Carbon	Monoxide (CO)	mg/m³	4	IS 5162 (Part-10)	0.34		
2. Benzer	2. Benzene (CeHe) μg / m ³ 5			IS 5182 (Part-11)	0.10		
3. Benzo(a) Pyrene ng / m³ 1			1	IS 5182 (Part-12)	0,20		
4. Arsenio	4. Arsenic (As) ng / m³ 6			AAS Method	0.37		
5. Nickel	as NI	ng/m³	20	AAS Method	1.40		
J. Mercury	(Hg)	ng/m³	Not Specified	US EPA (Method IO-5)	0.23		



Verified by : Technical Manager



Shreyasee Prasad

Digetally signed by Shreyasae Prasad Date: 2023.02:04 13:47:28 +05:30* Authorized Signatory Quality Manager

END OF TEST REPORT -

This report applies only to sample isolad as above.

Total Liability of our Laboratory is limited to involced amount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for laguificant purpose without written permission of the Laboratory.

Contact us:

122-C, Aasthe, Road No. SA, Pattiputta Colony, Plana - 200 (£3 (Binar))

Mob.: +918676836249 ; +919431047908

Website: www.shivatest.com; www.shivatesthouse.com

stipalna lélyakon co.in . na forgistá vanas com



RECOGNISED AS EXYRONAMENTAL LABORATORY BY MOSFCC, GOVT. OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5933	Dt: 04.0	2.2023 Your V	Vork Otder No. 4040288	067-03	7-1019 Dt: 31.07.2022			
(a) Name and address of th	c Customes		North Karanpura Super Thermal Power Project At: Tandwa					
(4)	о фационис	•	Dist- Chatra					
			Jharkhand- 825 3					
[b] Details of Sample			Ambient Air Quality					
[c] Sample Collected by	•		SHIVA TEST HOU					
[d] Sampling Location					of Trace Office (Main Plant)			
[e] Method of Sampling			IS 11255 (Part-1,2,3					
[f] Sampling Environments		П	Temp. (°C)	19	Humidity (%) 70			
[g] No. & Type of Contains	<u>*</u>		One poly Jar					
[h] Instrument ID			RD\$-2, FPM-2					
	Sample Quantity				O2, NHs)			
112	Sample Code				A-5933			
[k] Sample Condition on Re			Fit for Analysis					
[f] Items required to be test			As per contract					
(an) Whether any specific M		est has	No ·					
been suggested by the p								
[n] Date of receiving the sa			01.02.23					
[o] Analysis Start Date / Ar	udysis Con	upletion Date	01.02.23 / 04.02.23					
l		Limit as per	Method of		mpling Station / Result			
Parameters	Unit	NAAGS 2009	Test	Near	at the tep of Time Office (Main Plant)			
1. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)		74.4			
Particulate Matter (PM ₂₅)	. Particulate Matter un / m² er		CPCB (GMAAP Vol. I)		42.1			
3. Sulphur Dioxide as SO ₂	μ g / m³	80	IS 5182 (Part-2)		18:2			
 Nitrogen Dioxide as NO₂ 	μg / m³	8.0	IS 5182 (Part-6)		35.8			
Lead (Pb)	μg / m³	1	IS 5182 (Part-22)		0.11			
6. Ammonia as NH ₂	μg/m³	400	IS 5182 (Part-5)		5.2			
7. Ozone (O ₂)	μg / m³	180	IS 5182 (Part-9)		17 7			

Digitally signed by SHIBESHWAR PRASAD Dage: 2023.02.04 13:30:44 +05'30"

Verified by : Technical Manager



🖷 reger is 🌽 residence

Shreyasee Prasad

Digitally signed by Shrevasee Presed Daty: 2023.02.04 13:49:49 +05'30"

Authorized Signatory Quality Manager

- END OF TEST REPORT -This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endursed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact as:

172-C, Aastha, Road No. 5A, Parliputta Colony, Paina – \$00 013 (Bilan).

Mob.: +918676816249; +919431047908 stimates i givation com ; info@shivatest.com

Website . www.shipstest.com ; www.shipstesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF IMPUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/5933(A)	Di: 🗱	1.02.2023 Your	Work Order No. 40002	285067-037-1019 . Dt : 31:07.202		
				North Karanpura	Super Thermal Power Project		
		<u> </u>		At: Tandwa			
(a)	Name and address of th	e Customer		Dist- Chatra			
		: .	:	Jharkhand- 825	321		
[b] ·	Details of Sample				ity Monitoring (As per NAAQS).		
[c]	Sample Collected by	٠.		SHIVA TEST HO			
[d] ·	Sampling Location		· .	. Collected from Negr	et the top of Time Office (Math Plant)		
[e]	Method of Sampling			IS 11255 (Part-1,2)			
[1]	Sampling Environment	al Condition		Temp. (%C)	19 Humidity (%) :: 70		
[g]	No. & Type of Contains			One poly Jar	1.10		
[h]	Instrument [D]	::	. "	RDS-2, FPM-2			
[i]	Sample Quantity			1130 ml x 6 for each	(NO ₂ , SO ₂ , NH ₃)		
[i]	Sample Code		· ·. ·	A-5933			
[k]	Sample Condition on Re	eccipt -	:	Fit for Analysis			
ſΠ .	Items required to be test			: . As per contract :			
[m]	Whether any specific M	lethed of Te	st has	No			
·	been suggested by the p			NO.			
п	Date of receiving the sa	mple ·		01.02.23			
[o] ·	Analysis Stan Date / Ar	nalysis Com	pletion Date	01.02.23 / 04.02.2	3		
		1		Method of	Sampling Station / Result		
	Parameters	Unit	Limit as per NAAQS 2009	Test	Near at the top of Time Office		
	•	- :	1977/03/2009	: 1034	(Main Plant)		
1. Carb	on Monoxide (CO)	mg/m³	. 4	IS 6182 (Part-10)	0.46		
2. Beni	zene (C _s H _s)	μ g / m³	5	IS 5182 (Part-11)	0.05		
_	zo(a) Pyrene	ng/m³	1	IS 5162 (Part-12)	0.17		
	enic (As)	ng/m²	· 6 ·	AAS Method	0.21		
	el as Ni	ng/m³	20	AAS Method	2.80		
. Merc	cury (Hg)	րց/ա	Not Specified	US EPA (Method IO-5)	0.25		

SHIBESHW SHIBESHWAR PRASAD

AR PRASAD 13:90:57 +05:30*

Verified by : Technical Manager



Shreyasee Prasad

Olgitally signed by Shreyasee Prasad Date: 2023,02,04 13:50:07 +05'30'

Authorized Signatory.

Quality Manager

This report applies only to comple tested as above:

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the lests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122/C, Aastka, Kood No. SA, Pathiputra Colcoy, Patris – 800 013 (Bihar

-Meb., +912676886249, +919431647968 ... Email: - <u>#instruct Granden.co.in</u> .info@shivmess.com

Website : <u>www.siavaoss.com ; www.sharatesthopse.com</u>

(Biliar)





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BRIAN AND BRIAN STAYE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5249	n : 13.61.20	923 Your Work (Order No. 4000285087-0	37-1019 Dt : 31.07.2022			
[a] Name and address of the	Customer		North Karanpura Project At: Tandwa Dist- Chatra Jharkhand- 825	a Super Thermal Power			
[b] Details of Sample			Aniblem Att Quality &	donitoring (As per NAAQS):			
[e] Sample Collected by			SHIVA TEST HOUS	E on 05.01.23			
[d] Sampling Location			. Collected from New at a	the top of DM Flood			
[e] Method of Sampling			IS 11255 (Part-1,2,3 6	t 7)			
[f] Sampling Environmental	Condition	•	Temp. (℃)	15 Hurridity (%) 76			
g] No. & Type of Container	Г		One poly Jar				
[h] Instrument ID			RD\$-3, FPM-3				
[i] Sample Quantity			30 ml x 6 for each (f	NO2, SO2, NH5)			
[j] Sample Code		:	A-5249	<u> </u>			
[k] Sample Condition on Re			Fit for Analysis				
[1] Items required to be teste		•	As per confract				
[m] Whether any specific Me been suggested by the pa		st has"'	No				
[n] Date of receiving the san			07.01.23				
[o] Analysis Start Date / An	alysis Com		07.01.23 / 09.01.23	. "			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant			
i. Particulate Maftèr (PM₁₀)	μg∜ m³	· 100 ·	IS 5182 (Part-23)	70.3			
2. Particulate Matter (PM ₂₄)	µ g / m³	60	CPCB (GMAAP Vol. I)	40.1			
3. Sulphur Dioxide as SO₂	μg/m³	∵ 80	IS 5182 (Part-2):	13.8			
4. Nitrogen Dioxide as NO ₂ .	μg / m ^a	:80	IS 5182 (Part-6)	34.3			
Lead (Pb)	·μg / m³	'4	IS 5182 (Part-22)	0.17			
s: Ammonia as NH ₃	μg-/m³	400	(S 5182 (Part-5).	4.3.			
7. Ozone (O ₃)	μg / m³	. 180	IS 5182 (Part-9)	17.0			

Vérified by : Technical Manager



END OF TEST REPORT

Shreyaseev Shreyasee Prasad
Dracad Date: 2023.07.13 Prasad

13:36:47 +05'30"

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Lisbility of our Laboratory is limited to invoiced emount.

Test Report endorsed only the tests, and not the product certificate.

Test Report cen not be reproduced partially or full for legal/court pulpose without written permission of the Laboratory.

Page I of I

Combact us :

122-C, Aastha, Road No. 5A, Pallipuine Colony, Police – 500 013 (Bifter)

Mob: +918676686249 . +919431047904

athorital @tohoo.co.in , info@shivatest.com

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOVT. OF MICHA, LINDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BINAR AND BINAR STATE POLIZITION CONTROL BOARD

TEST REPORT

Ref. N	o. <i>STH/TR/22-23/</i> 5249(A)	Di: 13.0	1.2023 Your W	ork Order No. 400028	5067-03 7-1	1019 Dt : 31.0	7. 26 2
[a]	Name and address of th		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Details of Sample			Ambient Air Quai	lity Monitor	Hing (As per NAAQ	IS)
[c]	Sample Collected by			SHIVA TEST HO			
[4]	Sampling Location			Collected from Near	at the top of	DM Plant	
[¢]	Method of Sampling			IS 11255 (Part-1,2,	3 & 7)		
rg	Sampling Environmenta	al Condition		Temp. (°C)	15	Humidity (%)	75
.31	No. & Type of Contains	क्ष		Oné poly Jar			
ᇟ.	Instrument ID			RDS-3, FPM-3			
(i)	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₈)			
(i)_	Sample Code			A-5249			
[k]	Sample Condition on Re	eceipt		Fit for Analysis			
	Items required to be test	ted		As per contract			
[111]	Whather any specific M been suggested by the p		st has	No.			
[n] .	Date of receiving the sa			07.01.23			
[0]	Analysis Start Date / Ar	nalysis Com	pletion Date	07.01.23 / 09.01.23			
	Parameters	Unit	Limit as per	Method of		ding Station / Res	
			NAAQS 2009	Test	Near a	it the top of DM P	1261
	rbon Monoxide (CO)	mg/m³	4	IS 5182 (Parl-10) 0.46			
2. Benzene (C _s H _k) μg / m ³ 5				IS 5182 (Part-11)		0.09	
3. Benzo(a) Pyrene ng / m³ 1				. I\$.5182 (Part-12) 0.16			
4. Arsenic (As) ng / m ³ 5				AAS Method 0.40			
5. <u>Nic</u>	kel as Ni	ng/m³	20	AAS Method		2.93	
Me	roury (Hg)	ng/m³	Not Specified	US EPA (Mothod IC-6)		0.49	



Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.01.13 13:37:04 +05'30'

Authorized Signatory Quality Manager

END OF TEST REPORT -

This report applies only to cample tested at above.

Total Disbility of our Laboratory is limited to invoiced emount:...
Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced peritally or full for legal/court purpose without written permitsion of the Laboratory.

Contact us:

122-C, Aasaha, Read No. 5A, Parlippine Colony, Perms - 800 013 (Balgar)

Mob.: +918676886249; +919431047908 silipama i šįvaboo co m.; (misėjishimiesi com

Website: www.shivatest.com; www.shivatesthorse.com

■ 49 F 7 (20 10 10 K)





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORPCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTIONS ACT 1805, DEPUT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF SHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5277	Di : 13.6	1.2923 Your Wo	rk Order No. 400028506	7-037-1019 Dt: 31,67.202	
[a] Name and address of the	Customer	· . [.	North Karanpura Project At: Tandwa Dist- Chatra Jharkhand- 825	a Super Thermal Power	
[b] Details of Sample	•	· .		fonitoring (As per NAAQS)	
[c] Sample Collected by			SHIVA TEST HOUS		
[d] Sampling Location			Collected from New at (the top of DM Plant.	
[e] Method of Sampling	•		IS 11255 (Part-1,2.3 &	η	
f] Sampling Environmenta	l Condition	·	Temp. (°C)	18 Humidity (%) 72:	
g] No. & Type of Containe		• "	One poly Jar	·	
h] Instrument ID			RDS-3 FPM-3		
i] Sample Quantity		· .	30 ml x 6 for each (f	NO2, SO2, NH3)	
j] Sample Code		· ·	A-5277	• • • • • • • • • • • • • • • • • • • •	
k Sample Condition on Re	ceipt		Fit for Analysis		
 Items required to be tests 	ed :		As per contract	·· · ·	
m] Whether any specific Mo been suggested by the pa		st has	No		
n] Date of receiving the sar			07.01.23		
o] Analysis Start Date / An	alysis Com	pletion Date	07.01.23 / 09.01.23	1.0	
Parameters	Unit .	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant	
. Particulate Matter (PM ₁₀)	pg / m ^a	100	IS 5182 (Part-23)	72.6	
Particulate Matter (PM _{2,6})	µg / m³	60	CPCB (GMAAP Vol. I)	40.9	
Sulphur Dioxide as SO ₂	μg /·m ³	80	18 5182 (Part-2)	17.9	
Nitrogen Dioxide as NO ₂	յոց / m³ .	80:	IS 5182 (Part-8)	35.1	
Lead (Pb)	- μ g / m 3 :	4 ·	IS 5182 (Part-22)	0.18	
Ammonia as NH ₃	μg/m³ l	400	IS 5182 (Part-5)	4,8	
Ozone (O ₃)	,µg / m³	.180	IS 5182 (Part-9)	16.4	

. Olgitally signed by SHIBESHWAR PRASAD Dage: 2023.01.13

Vehilled by : Technical Manager



Shreyasee § Prasad

Digitally sighed by Shreyasee Prased Butg: 2023.01.13 13.41 57 +0530

Authorized Signatory Quality Manager

This report applies only to sample lested as above

Total Liebility of our Laboratory is limited to invoiced amount.

Yest Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C, Assika, Road No. SA, Palipute Colony, Par ea. → 800 013 (**S**ihear).

Mob. +918676486249 (+919431047908

Weltsite: prove shiristest.com; prove shiv aresthouse con

Page 1 of 1



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTL OF MOUSTRY, FORESTS & ENVIRONMENT, GOVE OF REMARKAND BEHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5277(A) Dt: 13.6	11.2023 Your W	ork Order No. 400028	5067-037-	1019 Dt: 31.	07-2922			
[a] Name and address of	a] Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample			Ambient Air Qual	lav Montio	ring (As per NAAQ	(S)			
[c] Sample Collected by			SHIVA TEST HO			•			
[d] Sampling Location			Collected from New	at the top of	DM Plant				
[e] Method of Sampling		•	IS 11255 (Pan-1,2,						
[f] Sampling Environme	ntal Condition		Temp: (°C)	18.	Humidity (%)	72			
l No. & Type of Conta	iner		One poly Jar						
[h] Instrument ID			RDS-3, FPM-3						
[i] Sample Quantity :			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)						
[i] Sample Code			A-5277						
[k] Sample Condition on	Receipt		Fit for Analysis						
[1] Items required to be t	tested		As per contract						
[m] Whether any specific been suggested by the		st has .	No						
[n] Date of receiving the			07.01.23						
[o] Analysis Start Date /	Analysis Com	pletion Date	07 01 23 / 09.01.2	23					
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		oling Station / Res at the top of DM P				
1. Carbon Monoxide (CO)	mg/m³	- 4	(\$ 5182 (Part-10)		0.46				
2. Benzene (CeHe)				0.06					
3. Benzo(a) Pyrene	IS 5182 (Part-11) IS 5182 (Part-12)								
4. Arsenic (As)	AAS Method 0.43								
5 Nickel as Ni	ng / m³ ng / m³	20	AAS Method 5.59						
Mercury (Hg)	ing / m ³	Not Specified	US EPA (Method IO-6)		0.25				

SHIBESHIWAR PRASAD AR PRASAD DAY 2003.01.13 13:3633 +05'30

> Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Pracad Date: 2023.01.13 13;42:11 +05'30' Authorized Signatory

Quality Manager

END OF TEST: REPORT

This report applies only to sample tested so above.

Total Liability of our Laboratory is finished to invoiced amount,

Test Report endorsed only the lests and not the product certificate.

Test Report can not be seproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Assilia, Road No. SA, Philippina Colony, Patrie - 200 013 (Billian)

Mob.: +918676886249 ; +919431047908 strumna lajjerskoo eo in ; inforjishi varezu eo er

Website: www.shivates.com; www.shivaesthouse.com





(Serving since 1948)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1908, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHIAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5397	Dt: 21.0	1.2023 Your Wo	rk Order No. 400028500	67-037-1019 Dt.: 31.07.2022			
· · · · ·			North Karanpur	a Super Thermal Power			
1 9.0	•		Project				
[a] Name and address of the	Customer	41 124	At: Tandwa				
d Direction	٠.		Dist-Chatra				
		· , : :	Jharkhand- 825				
[b] Details of Sample	:			Monnöring (As per NAAQS)			
[c] Sample Collected by	<u> </u>	: :	SHIVA TEST HOUS				
[d] Sampling Location			Collected from Near at	the top of DM Plant			
[e] Method of Sampling	: '.	<u>. </u>	IS 11255 (Pert-1,2.3				
[1] Sampling Environments		<u> </u>	Temp. (°C)	14 " Humidity (%) 75			
[] No. & Type of Containe	г.		One poly Jar				
[h] Instrument [D	: '	.: :	RD8-3, FPM-3				
- [f] Sample Quantity			30.ml x 6 for each (NO2, SO2, NH3)			
[j] Sample Code			A-5397	. : : : :			
[k] Sample Condition on Re	ceipt		Fit for Analysis	•			
[I] Items required to be test	ed .	:	As per contract				
[m] Whether any specific Me	ethod of Te	st has	No .	· · · · · · · · · · · · · · · · · · ·			
been suggested by the pa	erty		NO	<u> </u>			
[n] Date of receiving the sar	nple		12.01.23				
[0] Analysis Start Date J. An	alysis Com	plotion Date	12.01.23 / 14.01.23				
Parameters	Unit	Limit as per	Method of	Sampling Station / Result			
Falanietets		NAAQS 2009	Test	Near at the top of DM Plant			
1. Particulate Matter (PM ₍₀₎)	μg / m³	. 100	IS 5182 (Part-23)	70.5			
2. Particulate Matter (PM _{2.5})		.60	CPGB	40.5			
2 Particulate Matter (PM23)	μg/m³	} .00 .	(GMAAP Vol. I)	40.5			
 Sulphur Dioxide as SO₂ 	μg / m³	}: 80 ·	IS 5182 (Part-2)	. 13.3			
4. Nitrogen Dioxide as NO ₂	. μ g / m³	80	IS 5182 (Part-6)	494. Gr. 34.2 (in ii)			
Lead (Pb)	μg/m³	1 : 1 :	IS 5182 (Part-22)	0.16			
j*6. Ammonia as NH₃	μg/m³	400	IS 5182 (Part-5)	4.4"			
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	19.2			
	Pg						

Digitally signed by SHIBLSHWAR PRASAD Date: 2023:01.21 1655,06 +0530

· Verified by : Technical Manager



D OF TEST REPOR

Shreyasee) Prasad

Digitally signed by Shreyasee Prasad Date: 2023.01.21 17:02:12 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Elebility of our Laboratory it limited to involved amount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for legal/pourt purpose without written permission of the Laboratory

172-C, Afeibá, Road No. 5A, Pátlipura Colony, Pann - 800-013 (Biliar)

Mob: +918676486249 ; +919431047908

<u>сФести (Фун4-со со на наподел7чиех сот</u>

Wellelië : <u>www.shinklest.com</u> ; <u>www.shinutesthouse.co</u>



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1886, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SHIAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5397(A)	D1 : 21.θ	1.2923 Your W	ork Order No. 400028	5067-037-1	079 Dt.: 31.0	7.2022
[a] Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
(b) Details of Sample			Ambient Air Qua	lity Monitor	ing (As per NAAQ	(5): .
[c] : Sample Collected by			SHIVA TEST HO			
[d] Sampling Location			Collected from Near	at the sup of l	his Plant	
[e] Method of Sampling			1S 11255 (Part-1,2,	,3 & 7)		
Jf] Sampling Environments	d Condition		Теттр, (⁴С).	14	Humidity (%)	75
 No. & Type of Containe 			One poly Jar			
[h] Instrument ID			RDS-3, FPM-3			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-5397			
[k] Sample Condition on Re	sceipt		Fit for Analysis			
[I] Items required to be test	ed :		As per contract			
[m] Whether any specific M been suggested by the p.		st has	No			
[n] Date of receiving the san			12.01.23			
[o] Analysis Start Date / An	alysis Çom	pletion Date	12.01.23 / 14.01.	23		
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		ting Station / Res t the top of DM P	
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)		0.34	
2. Benzene (C _e H _e)	μg/m³	5	IS 5182 (Part-11)	0.18		
3. Benzo(a) Pyrene	IS 5182 (Part-12) 0.15					
4. Arsenic (As)	AAS Method 0.38					
5. Nickel as Ni	AAS Method 1.47					
Mercury (Hg)	ng/m ⁵ ng/m ³	Not Specified	US EPA (Method IO-6)-		0.53	



Verified by : Technical Manager



END OF TEST REPORT -

Prasad

Shreyasee Shreyasee Praised Date 2023.01.21 17:02:24 +05:30 Authorized Signatory

Quality Manager

Title report app8es only to example lessed as above.

Total Liability of our Laboratory is limited to involved amount.

Test Report endorsed only like tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without writern permission of the Laboratory.

Contact us 7

122-C, Austin, Road No. 5A, Pathjoria Colony, Paris - 200 013 (Bater)

Mob., +918676486249 , +919431047908

#Books | Washoo to, in ; infe@shlastest.com

Website: www.shrvaiesi.dom; www.shrvaiesihoese.co

Page 1 of 1





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD.

TEST REPORT

Ref. No. STH/TR/22-23/5437 Dt	: 23.01.2023	Your Wo	rk Order No. 400028506	7-037-1019 Dt: 3L07.2022
	:			Super Thermal Power
		··::	Project	
(a) Name and address of the Cust	tomer		At: Tandwa	
	: .		Dist- Chatre	and the second of the second
		i i	Jharkhand- 825	321
[b] Details of Sample	· · ·	1111	-	fonitoring (As per NAAQS)
[c] Sample Collected by		·	SHIVA:TEST HOUS	
d Sampling Location	::	:	Collected from Near at a	tie top of DM Plant
e] Method of Sampling			IS 11255 (Part-1,2,3 &	27) . "
Sampling Environmental Con	idition :	· .: '	Temp. (°C)	17 Humidity (%) 73
[3] No. & Type of Container			: One poly Jar ::	
h] .: lustrument lD .:	·· · : ii·	: :	RDS-3, FPM-3	. :: .
i] Sample Quantity		.: '	30 ml x 6 for each (f	NO2, SO2, NH3)
j] Sample Code 🗀 🖖		.::	A-5 43 7	
[k] Sample Condition on Receipt	r ".		Fit for Analysia	
ltems required to be tested	. % .		· As.per.contract	r '+
[m] Whether any specific Method	of Test has	.: '	No.	1.54
been suggested by the party		·"	140	
n] Date of receiving the sample	` .ii .	_	14.01.23	
[o] Aijalysis Start Date / Aijalysis	s Completies	a Datë	14.01.23./ 16.01.23	
· iii.		nit as per	Method of	. Sampling Station / Result
Parameters	"NA/	4QS 2009	Test : "	Near at the top of DM Plant:
i. Particulate Matter (PM ₁₀) pg	7 m ⁸ .	100 ·	IS 5182 (Part-23)	: 72.8 ·
	:		: CPCB	400
2. Particulate Matter (PM2.s) µg	/m³	··60	(GMAAP Vol. I)	40.9 L D. 1
Sulphur Dioxide as SO ₂ µg	7 m ^o	80	IS 5182 (Part-2)	16.8
i. Nitrogen Dioxide as NO₂ μg	/ m³	80	IS 5182 (Part-6)	34.6
	/ m³.	"1 ·	IS 5182 (Part-22)	.T . 0.18 T .T.
Lead (Pb)				
	/ m ³	400	: IS 5182 (Part-6)	4.8

SHIBESHWAR PRASAC AR PRASAD Puge 202301.21 16.59.57 +05'30'

Verified by : Technical Manager



Shreyasee Prasad

Date: 2023.01.21 17:13:42 +05:30

Apthorized Signatory Quality Manager

Test Report endorsed only the lests and not the product certificate.

Test Report can not be reproduced pertially or full for legal/court purpose without written permission of the Laborator

122/C; Aastha, Road No. SA, Papilpuna Colony, Paum - 800 013 (Billian)

athesian i Systems co in ; infe@shiretes Mob.: +918676886249 ; +91943 1047908

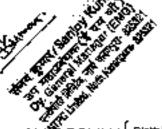
Page Loft



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFOC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOYT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/3437(A)	Dt: 21.0	1.2023 Your W	ork Order No. 400028	5067-037-1	1019 Dt : 31.6	7.2022	
[a] Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321						
[b] Details of Sample			Ambient Air Qua	lity Monitor	ing (As per NAAQ	(S)	
(c) Sample Collected by			SHIVA TEST HO	USE on 13.	01.23		
[d] Sampling Location			Callected from New	at the top of I	OM Plans		
[e] Method of Sampling			IS 11255 (Part-1,2,	3&7)			
[f] Sampling Environments	I Condition		Temp. (°C)	17	Humidity (%)	73	
 No. & Type of Contains 			One poly Jar				
[h] Instrument [D			RD\$-3, FPM-3				
[i] Sample Quantity			30 ml × 6 for each (NO _{21,} SO ₂₁ NH ₃)				
[j] Sample Code			A-5437				
[k] Sample Condition on R	eceipt		Fit for Analysis				
[1] Items required to be test	led		As per contract				
[m] Whether any specific M been suggested by the p		st has	No				
[n] Date of receiving the sa			14.01.23				
[o] Analysis Start Date/ At	udysis Com	pletion Date	14.01.23 / 16.01	23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		ling Station / Res the top of DM P		
1. Carbon Monoxide (CO)	mg/m³	4	(\$ 5182 (Part-10)	0.45			
2. Benzene (CeHs)			IS 5182 (Part-11)	0.06			
3. Benzo(a) Pyrene	IS 5182 (Part-12)	0.17					
4. Arsenic (As)	AAS Method						
5. Nickel as Ni	ng/m³ ng/m³	20	AAS Method 5.59				
Mercury (Hg)	ng/m³	Not Specified	LID EDA				



. Digitally signed by SMBESHWAR PRASAD Duge: 2023 01.21 17:00:14 +0530

Verified by : **Technical Manager**



Shreyasee Prasad

(Pigitally signed by Shapyasan Prasad _Date 2023.01.21 17:11:54 +05:30

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to eample tessed as above.

Total Liability of our Laboratory is limited to involced amoust.

Test Report endorsed only the lesis and not the product certificate.

Test Report can not be reproduced partiety or full for legal/count purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Rose No. 5A, Patlipeara Colony, Panta – 8(0 til 3 (Bihar)

Mob : +918676886249 ; +919431047908 Email :

Website: new.shiretest.com; www.shiretesthouse.com

stipema i divateo co in ; missistivates: com

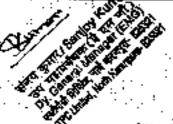


(Serving since 1988)

ENTAL LABORATORY BY MORFOC, GOVT, OF MOM, UNDER ENVIRONMENT (PROTECTION) ACT 1906, DEPTY. RECOGNISED AS ENVIROND OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SHAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5886	Dt: 82.92.2	<i>1923</i> • Your Worl	k Order No. 4000285067	-037-1019 Dt	31.97.2022		
				a Super Thermal F			
	: '		Project		T. T		
[a] Name and address of the	Customer	· · · ·	At: Tandwa				
	. :		Dist- Chatra		: :,		
	. :	· ".	Jharkhand- 825	321	:		
[b] Details of Sample	···:		Ambient Air Quality)	donttoring (As per NAA	QSJ. ↔		
[c] Sample Collected by		"" :	SHIVA TËST HOUS	E on 25:01:23			
[d] Sampling Location	:	•	Collected from Near as	the top of DM Mans	•		
[e] Method of Sampling			IS 1,1255 (Part-1,2,3 &	£'7) :			
[f] Sampling Environmenta	I Condition	· · · · · · · · ·	Temp_(°C)	19 Humidity (%)	71		
g] No. & Type of Containe		·	One poly Jar :	: : : : : : : : :	: :.		
îh] Instrument ID	···.	: .	RDS-3, FPM-3	:			
[i] Sample Quantity			30.ml x 6 for each (i	NO2, SO2, NH3)	·. :::		
[j] Sample Code		1 1 1 1 1 1	A-5886	.:' '	:		
[k] Sample Condition on Re	ceipt :		Fit for Analysis	1 11/11/11	:		
[1] Items required to be test		· : ·	As per confract				
[m] Whether any specific M	sthod of Te	st has	M21 (3 15)				
been suggested by the pe	irty .		No	:			
[n] Date of receiving the san	aple 🗀		28.01.23	: ::			
[o] Analysis Start Date / An	alysis Com	piction Date	28.01.237.30.01.23				
Demostere	· · · · · · · · · · · · · · · · · · ·	Limit as per	: Method of	Sampling Statio	n / Result		
Parameters	Unit	NAAQS 2009	Test :	Near at the top of			
1. Particulate Matter (PM ₁₀).	μg / m³	100	18.5182 (Part-23)	72.3			
			CPCB				
2. Particulate Matter (PM2s)	μg/m³	: .60	(GMAAP Vol. I)	42.2	· · .		
3. Sulphur Dioxide as SO ₂	μg / m²	: 80 :	IS 5182 (Part-2):	:: 14,3	٠. :		
4. Nilrogen Dioxide as NO ₂	· µg / m³	: 80	IS 5182 (Part-6)	35.2	i :i		
1. Lead (Pb)	µg / m³	. 1 .	IS 5182 (Part-22)	0.16	• 1. :		
s. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	. 5.1	·		
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	19.8			
- 1 1 1 C	P. P424 F 417	. 144	10.0:02 (1.020)		-::		



SHIBESHWA Bute 2023.02.02 R PRASAD.

Verified by : Technical Manager



Shreyasee Prasad

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Lisbilly of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permussion of the Laboratory

122-C. Assisa, Road No. SA. Pallipura Colony, Page - 800 013 (Ellia)

Website: www.shirutest.com , y

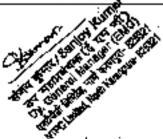


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT.
OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	. STH/TR/22-23/5886(A)	Dt: #2,6	2.2023 Your '	Work Order No. 40002	85067-037	-1019 Dt : 31.	07,2022	
[a]	Name and address of the		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
ы	Details of Sample	· .				ing (As per NAAQ	is)	
[0]	Sample Collected by			SHIVA TEST HOL				
[d]	Sampling Location			Collected from Near	et the top of i	DM Plant		
[e]	Method of Sampling			I\$ 11255 (Par+1,2,1	3 & 7)			
հվ	Sampling Environments	ol Condition	•	Temp. (°C)	19	Humidity (%)	71	
!. l	No. & Type of Contains	×		One poly Jar				
[h]	Instrument (D			RD\$-3, FPM-3				
(i)	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[i]	Sample Code	·	•	A-5886				
[k]	Sample Condition on Re			Fit for Analysis				
M	Items required to be test	ted		As per contract				
(m)	Whether any specific M heen suggested by the p		si has	No ··				
[n]	Date of receiving the sai			28.01.23				
্ থ	Analysis Start Date / Ar	valysis Comp	pletion Date	28.01.23 / 30.01.23				
	Parameters	Unit	Limit as per	Method of	Şamp	ling Station / Res	şu jt	
	Fai at Helets	Offic	NAAQS 2009	Test	Near a	the top of DM P	last	
1. Car	bon Monoxide (CQ)	mg/m³	4	(\$ 5182 (Part-10)	0.46			
2. Ber	rzene (C ₆ H ₆)	5	IS 5182 (Part-11)					
	nzo(a) Pyrene	: 1 ·	(\$ 5182 (Part-12)	\$ 5182 (Part-12) 0.16				
4. Ars	enic (As)	6	AAS Method 0.40					
<u>5</u> . Nic	kel as Ni	ng/m³.	. 20	AAS Method 2.93				
Mer	roury (Hg) 🔒	ng / m³	Not Specified	UŚ EPA (Method IO-5):		0.52		



SHIBESHW SHIBESHWAR PRASAD
AR PRASAD DOME: 2023.02.02
15.01:05 - 405'30'

Verified by : Technical Manager



Shreyasee Prasad

| | Digetally regardedly Systyle at | Travel |- Care 1887 at at 1847 by 1859 by

Authorized Signatory
Quality Manager

- END OF TEST REPORT

This report applies only to cample tested as above.

Total Liability of our Laboratory is limited to invoiced emount.
 Test Report endorsed only the tests and not the product certificate.

Left unbout employed only the cases and not the building detailers.

Test Report can not be reproduced partially or full for legal/count purpose without written permission of the Caboratory.

Contact us :

122-C, Aastha, Road No. 5A, Patilputra Colony, Penna – 800 0∏ (Bitter)

Mob +91867686249; +919431047905 Email ahparent@vahoo.co.m; in@@shiwsest.com

Website : news.shimatest.com ; news.shivmesthouse.com

andrealistanoo.com ; intogenes





(Serving stace 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF LINDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF INDUSTRY, FORESTS & EDOTROHAMNY, GOVY, OF BINAN AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5891	Dt: 02	42.2023 Your	Work Order No. 4000288	5017-037-1019 Dt : 32.07.2022
:		•	North Karanpur	a:Super Thermal Power
		.:. :	Project :	
[a] Name and address of the	Customer	··.	At: Tandwa	
* 1.* 1 *1			Dist-Chatra	e de la companya de l
	•		Jharkhand÷ 825	321
[b] Details of Sample	<i>.:</i> .	. :	Ambient Air Quality I	donitoring (As per NAAQS)
[c] Sample Collected by	;	• •	SHIVA TEST HOUS	E on 27.01:23
[d] Sampling Location	٠		Collected from New at	the top of DM Plant
[e] Method of Sampling			IS 11255 (Part-1,2,3 &	ž ⁻ 7)
[f] Sampling Environmental	Condition	· ·	Temp. (°C)	19 Humidity (%) 70
gl No. & Type of Container			One poly Jar	
[h] Instrument ID	-7:		RD8-3, FPM-3	:
[i] Sample Quantity			30 ml x 6 for each (t	NO2, SO2, NH3)
[]] Sample Code	:		A-5891	42.5
[k] Sample Condition on Re	ceipt		Fit for Analysis	
[I] Items required to be teste	:d		As per contract	· . · · · · · · · · · · · · · · · · · ·
[m] Whether any specific Me	sthod of Te	st has	NA	:
been suggested by the pa	irty :		. No	<u> </u>
[n] Date of receiving the san			28.01.23 :: .	•
[o] Analysis Start Date / Ana	alysis Com	pletion Date	28.01.23/30.01.23	• . •
. Parameters	Unit .	Limit as per	Method of	Sampling Station / Result
. Parameters	ÇIIC.	NAAQS 2009	Test	Near at the top of DM Plant
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)···	75,3
a. Destinate Motter (OM 1)		. 60	CPCB	39.7
2. Particulate Matter (PM _{2.8})	μg/m³	. 60	. (GMAAP Vol. I)	39.1
 Sulphur Dioxide as \$O₂ 	μ g / m³	. 80 .	:: IS 5182 (Part-2) ::	19.9
4. Nitrogen Dioxide as NO ₂ ::	μg / m³	80	18 5182 (Pari-6)	38.1
Lead (Pb)	μ ig / m³	1	IS 5182 (Part-22)	0.07
6. Ammonia as NH ₂	μg / m³	400	IS 5182 (Part-5)	4.6
7. Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	15.2

Date: 2023,02.02 AR PRASAD

> Veniled by : Technical Manager



Shreyasee) Prasad

Digitally signed by Shreyasee Prasad Dete: 2023.02.02 15:18:53 +05'30'

Authorized Signalory Quality Manager

- END OF TEST REPORT

This report applies only to sample bested as above.

Total Elability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced portieity or full for legaticours purpose without written permission of the Laborationy.

Contact us:

122-C. Azqita, Road No. SA, Pathygina Catony, Pater - 100(013 (Bittur)

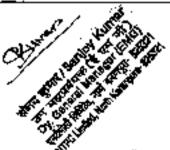
Mob.: +912676826249 , +919431047908



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MINEFOC, GOVT. OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. N	o. STH/TR/22-23/3892 (A)	De: #20	02-2023 Your	Work Order No. 40002	85067-03	741019 Dt: 31.0	7.202
[8]	Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[6]	Details of Sample			Ambient Air Quali	tv Monito	ring (As per NAA)	38)
[c]	Sample Collected by			SHIVA TEST HOU			
[d]	Sampling Location			Collected from Near a			
[8]	Method of Sampling		_	IS 11255 (Part-1,2,3	& 7)		
រៀ	Sampling Environment	al Condition		Temp. (°C)	19	Humidity (%)	70
:1	No. & Type of Contain	er .		One poly Jan			_
[h]	Instrument ID.		-	RDS-3, FPM-3	::		
<u> </u>	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
j)	Sample Code			A-5891			
[k]	Sample Condition on R	eceipt		Fil for Analysis			
<u> </u>	Itoms required to be tes			As per contract			
[HI]	Whether any specific Notes been suggested by the p		si has	No .			
<u>[1]</u>	Date of receiving the sa			28.01,23			
ં	Analysis Start Date / A	nalysis Com	pletion Date	28.01.23/30 01.23		•	
	Parameters	Unit	Limit as per	Method of	Samp	ding Station / Re	sult
	radibibib	OHE	NAAQS 2009	Test	Nears	of the top of DM I	Plant
ı. Car	rbon Monoxide (CO)	mg / m ³	4	IS 5182 (Part-10)		0.34	
. Be	nzene (C ₆ H ₆)	μg / m³	.5	IS 5182 (Part-11)			
3. Benzo(a) Pyrene ng / m³ 1				IS 5182 (Part-12) 0.16			
. Ars	senic (As)	ng/m³	6	AAS Method 0.07			
, Nic	kel as Ni	ing/m³.	20	AAS Method 1.47			•
Me	roury (Hg)	ng/m³	Not Specified	US EPA (Method IQ-6)		0.24	



SHIBESHW Shipeshwan PRASAD AR PRASAD 1416: 2023.02.02 15/07/10 +05/30

Verified by : **Technical Manager**



Shreyasee Prasad

Shreyesco Prosed Date: 3023,02.02 15/19/14 +05/30 Authorized Signatory Quality Manager

Digitally agned by

- END OF TEST REPORT

This report applies only to comple tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the lests and not the product certificals.

Test Report can not be reproduced partially or full for legat/court purpose without written permission of the Laboratory.

Contact us:

1,72-C, Aastha, Road No. SA, Padiputra Colony, Patra – 100 013 (Biliag)

Mob.: #918676886249 (+919431047908 salpatra i dipratico eo m ; unito@afrivitata.com

Website: www.shivatest.com; www.shivatesthouse.com

Page 1 of 1





(Serving since 1988)

MENTAL LABORATORY BY MUEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTE. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BINAR AND SMAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5929	Dt: 04.02.	2023 Your Wo	rk Order No. 400028506	7-037-1019 Dt: 31.07.2022			
[a] Name and address of the	Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
(b) Details of Sample			Ambient Air Quality	Androving (As per NAAQS).			
[c] Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location			Collected Store Near at a				
[e] Method of Sampling			. IS 11255 (Part-1,2,3 &				
[f] Sampling Environmenta	Condition		Temp. (⁹ C)	19 : Humidity (%) 71			
[g] No. & Type of Container	r ·		One poly Jar				
(h) Instrument LD	.::		RDS-3 FPM-3	· · · · · · · · · · · · · · · · · · ·			
[i] Sample Quantity			30.ml x 6 for each (f	VO2, SO2, NH2)			
[j] Sample Code	·.		A-5929	1 / 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
[k] Sample Condition on Re	céi pt	•	Fit for Analysis				
[l]. Items required to be lest	:d		As per contract				
[m] Whether any specific Me been suggested by the pa		st has .	No	4			
[n] Date of receiving the sar	nple		01.02.23				
[6] Analysis Stari Date / An	alysis Com	pletion Date	01.02.23 / 04.02.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant			
1. Particulate Matter (PM ₁₆)	μg/m³/		. IS 5182 (Part-23):	73.2			
2. Particulate Matter (PM _{2.8})	μg / m³	60	CPCB (GMAAP, Vol. I)	44.3			
3. Sulphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2)	14,8			
4. Nitrogen Dioxide as NO ₂	∙µg / m³	. 80	IS 5182 (Part-8)	34.2			
5. Lead (Pb)	. µg / m³։	· 1,	IS 5182 (Part-22)	0.13			
. Ammonia as NH ₃	μg / m ³	400	IS 5182 (Part-5)	5.7			
7. Ozone (O ₁)	μg/m³	180	IS 5182 (Part-9)	17.3			

Digitally signed by SHIBESHWAR PRASAD Dete: 2023.02.04 13:28:09 +05'30' AR PRASA

Verified by : Technical Manager



Shreyasee Prasad

Oigitally signed by Sheriyasan Prasad Oute: 2023-02-04 13:47:43 +05'50' Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to cample tested as above.

Total Liability of our Laboratory is limited to involced amount, Test Report endorsed only the lesis and not the product cartificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aestha, Roas No. 5A, Padiputra Cology, Pauta - 800-013 (Bihar)

Mob +918676886249 ; +919431047945 · Email :

Website: www.shivatest.com; www.shivatesthouse.com

subperma i digivativo co. in ; perfo@strivatess com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MCEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1566, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVY, OF SHAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5929(A)	D1: 04.	●2.2023 You	Work Order No. 4000	285067-0	37-10-10 Dt : 31.	07.200			
[a] Name and address of th	Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa				
[a] Name and address of di									
			Jharkhand- 825 .	321					
(b) Details of Sample		<u> </u>			ring (As per NAAQ	<i>S</i>)			
[c] Sample Collected by			SHIVA TEST HO	JSE on 30	0.01.23	·			
[d] Sampling Location			Collected from Near	at the top of	DM Plant .				
[e] Method of Sampling	•		IS 11255 (Part-1,2,)	3 & 7)					
	Sampling Environmental Condition				Humidity (%)	71			
[g] No. & Type of Contains	er er	-	One poly Jar						
h) Instrument ID			RDS-3, FPM-3						
[i] Sample Quantity	Sample Quantity				30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-5929						
[k] Sample Condition on R.	eceipt		Fit for Analysis						
[l] <u>Rems</u> required to be tes	æď		As per contract						
[m] Whether any specific M	lethod of Te	st has	No						
been suggested by the p	arty								
[n] Date of receiving the sa			01.02.23						
[o] Analysis Start Date / Ar	nalysis Com	pletion Date	01.02.23 / 04.02.23						
Parameters	Unit	Limit as per	Method of	Sam	pling Station / Rec	sult <u> </u>			
	- O.I.I.	NAAQS 2009	Test	Near:	at the top of DM P	اعظ			
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Pert-10)		0.46				
2. Benzene (C ₆ H ₆)	μg / m³	5	IS 5182 (Pert-11)		0.17				
3. Benzo(a) Pyrene					0.18				
4. Arsenic (As)	AAS Method	0.34							
5. Nickel as Ni	ng/m³	20 .	AAS Method 1,47						
i. Mercury (Hg)	ng / m³	Not Specified	US EPA (Melhod IQ-5)		0.28				

Cigitally signed by SHIBESHWAR PRASAD SHIBESHW Daty: 2025.02.04 AR PRASAD 13:28:55 +05'30"

Verified by : Technical Manager



Shreyasee Prasad

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to impoised emount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. SA, Padiputta Colony, Plana - 400 013 (Bihar)

e400. +913676846349 ; +919431047908 Email : : situatra i divatro co la : enfedistrivaca com

Website: www.shivntest.com; www.shivatesshore



RECOGNISED AS ENVIRONMENTAL LABORATORY BY INVEFCC, GOVT. OF MDIA, UNDER ENVIRONMENT (PROTECTIONS ACT 1888, DEPTT. OF INDUSTRY, PORESTS & ENVIRONMENT, GOVT, OF SHAR AND BHAR STATE POLLLITION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5	934 Dt: 04J	12-2013 Your W	ork Order No. 40002850	067-03	7-4019 Dt:	31.07.2022		
[a] Name and address	s of the Customer		North Karenpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b] Details of Sample	· · · · ·		Ambient Air Quality I	Monitori	ing (As per NAAQS	7		
[c] Sample Collected			SHIVA TEST HOUS					
[d] Sampling Location	ָ מּוּ	•	Collected from Near at	фе юр с	y DM Plans			
[e] Method of Sampl	ing		18 11255 (Part-1,2,3 &	t 7)				
	renental Condition		Temp. (⁰ C)	19	Humidity (%)	70		
[g] No. & Type of Co	ontainer		One poly Jar					
[h] Instrument ID			RDS-3, FPM-3					
[i] Sample Quantity			30 ml x 6 for each (I	NO ₂ , S	O ₂ , NH ₃)			
(j) Sample Code			A-5934					
[k] Sample Condition	ı on Receipt		Fit for Analysis					
[I] Items required to			As per contract					
[m] Whether any spec been suggested by	rific Method of Te y the party	st has	No					
[n] Date of receiving	the sample		01.02.23					
[o] Analysis Start Da	te / Analysis Com	pletion Date	01.02.23 / 04.02.23					
Parametera	Unit	Limit as per NAAQS 2009	Method of Test		mpling Station . or at the top of I			
1. Particulate Matter (PI	M ₁₀) дд / m ³	100	IS 5182 (Part-23)		77.0			
2. Particulate Matter (P		60	CPCB (GMAAP Vol. I)		41.4			
 Sulphur Dioxide as S 	3O ₂ μg/m ³	80	IS 5182 (Part-2)		21.2			
4. Nitrogen Dioxide as		80	IS 5182 (Part-6) 38.6					
5. Lead (Pb)	μġ / m³	1	IS 5182 (Part-22) 0.11					
. Ammonia as NH ₂	μg / m ³	400	IS 5182 (Part-5)		1 4.7			
7. Ozone (Os) 2	μg / m³	180	IS 5182 (Part-9)		15.8			

ESHW (Digitally signed by SHIRESHWAR PRASAD D-044: 2023-02:04 13:31:11 +05'30"

Verified by : Technical Manager



Shreyasee) Prasad

Digitally signed by Shreyasee Prasad Date: 2023,02.04 13:50:29 +05:30*

Page I of I

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample toxied as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legalicount purpose without written permission of the Laboratory.

Contact us:

122°C, Assita. Road No. SA, Pulipura Colony, Page - 800 (ri 3 (Bihar)

b6ab. +918676886249 , +91943(01790\$

Webset: www.shr/stest.com; www.shipmesthouse.com

stinetost (diveloc.co.in ; mitodos vates), com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MARFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT.
OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. N	o. STH/TR/22-23/5934(A)	Dt ; 04.0)2.2023 Your \	Work Order No. 40002	88067-037-0	1019 Dt . 31.	07.202	
[a]	Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321:				
[b]	Details of Sample	•		Ambient Air Qua		ng (As per NAAC)	S).	
[0]	Sample Collected by			SHIVA TEST HO			•	
[d] .	Sampling Location	•		Collected from Near	at the top of D	M Plant		
[e]	Method of Sampling			JS 11255 (Part-1,2,				
[1]	Sampling Environmenta	d Condition		Temp. (°C)	19	Humidity (%)	70	
[g]	No.: & Type of Contains	?r ·	:	One poly Jar		•		
[h]	Instrument ID			RDS-3, FPM-3				
[i]	Sample Quantity	. •		30 ml x 6 for each (NO₂, SO₂, NH₂)				
[i]	Sample Code	•	•	A-5934				
[k]	Sample Condition on R	ecempt		Fit for Analysis				
	Items required to be test			. As per contract				
[m]	Whether any specific M been suggested by the p		st has	No				
[1]	Date of receiving the sa	mple		01.02.23				
[0]	Analysis Start Date / Ar	ialysis Com	pletion Date	01,02.23 / 04.02.2	3	"		
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test		ing Station / Res the top of DM P		
. Car	bon Monoxide (CO)	mg/,m³.	4	IS 5182 (Part-10)		0.11		
	nzene (C ₆ H ₆)	µg/m³	5	IS 5182 (Part-11)		0.05		
3. Benzo(a) Pyrene ng / m³ 1				IS 6182 (Part-12)		0.17		
4. Arsenic (As) ng / m³ 6				AAS Method 0.14				
s. Nickel as Ni ng / m³ 20				AAS Method		2.93		
	roury (Hg)	ng / m³	Not Specified	US EPA (Method IO-5)		0.32		

Charter and the state of the st

SHIBESHW ASHBESHWAR PRASAD DISE 2023.02.04
AR PRASAD DISE 2023.02.04
19:51:24 +05:30

Verified by : Technical Manager



END OF TEST REPORT

Shreyasee Prasad i Digitally signed by A Shreyasee Prasad Date: 2023.02.04 13:30:49 +05:30

Authorized Signatory

Quality Manager

This report applies only to cample feeted as above.

Total Liability of our Laboratory is limited to invoiced emount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Alistia, Road No. 5A, Philiputre Colony, Patrie - 800 013 (Biliar)

Mob.: +916676866249 (+919431047908 Email : sthestnat/glosphoc.co.is : Infor/Estimates Long

Website - www.shiyatesr.com ; www.shlyates@oute.com

. 2.33

Page Loff.

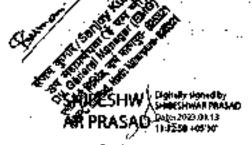




RECOGNISCO AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF MONA, UNDER ENVIRONMENT (PROTECTION) ACT 1965, DEPTT, OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BREAK AND BREAK SYATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5250	Dt : 15.01.	2029 Your Work	k Order No. 400028506	7-037-1019 Dt : 31.07.2022			
: [a] Name and address of th	e Customer	· .	North Karanpur Project At: Tandwa Dist- Chatra Jharkhand- 82	ra Super Thermal Power 5 321			
[b] Details of Sample			_	Monitoring (As per NAAQS)			
[e] Sample Collected by			SHIVA TEST HOU				
[d] Sampling Location		•	. Collected from New a	t the top of Switch Yard Office Building			
[e] . Method of Sampling	:.		IS 11255 (Part-1,2,3				
[f] Sampling Environments	al Condition	n .	Temp. (ºC)	15 Humidity (%) 75			
g No. & Type of Contains	et .		One poly Jar	· · · · · · · · · · · · · · · · · · ·			
[h] Instrument TD			RDS-4, FPM-4				
(i) Sample Quantity			30 ml x 8 for each	(NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code	٠.		A-5250				
[k] Sample Condition on R	eccipt		Fit for Analysis				
[l] Items required to be test	red ::		As per contract				
[in] Whether any specific M been suggested by the p			No				
[n] Date of receiving the sa			07.01,23				
[o] Analysis Start Date / An		npletion Date	07.01.23709.01.23				
· · · · · · · · · · · · · · · · · · ·	<u> </u>		handhad ad	Sampling Station / Result			
Parametéra ,	Unit	.Limil as per NAAQS 2009	Method of Test	Near at the top of Switch Yard Office Building			
1. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	73.3			
Particulate Matter (PM _{2.5})	μg / m ^{3].}	60	CPCB (GMAAP Vol. I)	412			
3. Sulphur Dioxide as SO ₂	μ ο / m 3	80	IS 5182 (Part-2)	14,2			
Nitrogen Dloxide as NO ₂	μ g / m³	. 80	IS 5182 (Part-6)	. : 36.0			
i 5. Lead (Pb)	μg / m³	1 :	IS 5182 (Part-22)	0.16			
8. Ammonia as NH ₂	μg / m ³	400	IS 5182 (Part-5)	5.0			
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	22.5			



Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date 2028-01.13 13:37:24 +05'30'

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is fimilied to invoiced amount.

Test Report endorsed only the tests and not the product certificate:

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laborate

Contact us:

122-C, Austre, Road No. 5A, Pulliputre Colony, Petra - 400 di 5 (Blur).

Mub. +918676886249;+919431047904

Page 1 of I

ç.,

RECOGNISES AS ENVIRONMENTAL LABORATORY BY MOEPCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1905, DEPT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5250(A	De: 13.0	91.2023 Your V	Vork Order No. 40002	85007-037-1019 Di: 31.07.2022		
[a] Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
(b) Details of Sample			Ambient Air Qua	lity Monitoring (As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HO			
[d] Sampling Location			Collected from Near	at the top of Switch Vard Office Building		
[e] Method of Sampling			IS 11255 (Part-1,2,	3 & 7)		
[f] Sampling Environment	al Condition	•	Temp. (^p C):	16 Humidity (%) 76		
[No. & Type of Contain	ल .		One poly Jar			
[b] Instrument ID			RDS-4, FPM-4			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-5250			
[k] Sample Condition on R	eccipt		Fit for Analysis			
[1] Items required to be les	ted		As per contract			
[m] Whether any specific M been suggested by the p		st häis	No .	• •		
[n] Date of receiving the sa			:07.01.23			
[6] Analysis Start Date / A	nalysis Com	pletion Date	07.01,23 / 09.01.23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Building		
1. Carbon Monoxide (CO)	∷rng / m³	4	IS 6182 (Part-10)	0.23		
2. Benzene (C ₆ H ₆)	μg/m³	5	IS 5182 (Part-11) 0.11			
3. Benzo(a) Pyrene ng / m³ 1			IS:5182 (Part-12) . 0.20			
Arsenic (As)	ng / m³	-6	AAS Method 0.40 ·····			
Nickel as Ni	ng/m³	20	AAS Method 1.43			
6. Mercury (Hg)	ng/m³	Not Specified	IIA EBA			



Prasad

Shreyasee Li Digitally signed by Shreyasee Prasad Date: 2023.01.13 13:37:40 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample lested as above.

Technical Manager

Total Liability of our Laboratory is limited to involced emout;

Test Report endorsed only the lests and not the product certificate.

Test Report can not be reproduced partially or full for regulational purpose without written permasten of the Laboratory.

Contact us:

172-C, Assila, Road No. SA, Padipura Colony, Pana - 800 bi 3 (Bihar)

Mob., +918676186249 ; +919431047908 Emnil :

Website: www.shirvatest.com; www.shirvatestholize.co

sitinginal divideos co in : jafodostrurtesr.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEPCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT, OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5278	Di: 13.01	.2023 Your We	ork Order No. 40002860	67-037-1019 Dt: 32.07.2022			
(a) Name and address of th	e Customer	r	North Karanputa Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample				Monitoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOU				
[4] Sampling Location			Collected from Near a	the top of Switch Yard Office Building			
[e] Method of Sampling			1\$ 11255 (Part-1,2,3	& 7)			
[f] Sampling Environments	al Condition	r	Temp. (°C)	18 Humidity (%) 72			
§] No. & Type of Contains			One poly Jar				
[h] Instrument ID			RDS-4, FPM-4	·			
(i) Sample Quantity	•		30 ml x 6 for eac	h (NO ₂ , SO _{2,} NH ₃)			
(j) Sample Code			A-5278				
(k) Sample Condition on R	eceipt		Fit for Analysis				
[1] Items required to be test	ted	•	As per contract				
[m] Whether any specific M been suggested by the p		est has	No				
[n] Date of receiving the sa		· ·	07.01.23				
[o] Analysis Start Date / Ar	alysis Con	npletion Date	07.01.23 / 09.01.23	,			
		Limit as per	Method of	Sampling Station / Result .			
Parameters	Unit	NAAQS 2009	Test	Near at the top of Switch Yard Office Building			
1. Particulate Matter (PM ₁₀)	μig / m³	100	IS 6182 (Part-23)	73.1			
Particulate Matter (PM _{2.5})	μg/m³	60	CPCB (GMAAP Vol. I)	39.7			
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	16.8			
Nitrogen Dioxide as NO ₂	μġ/m³	80	(S 5162 (Part-6)	36.8			
s. Lead (Pb)	μg/m³	1	(S 5182 (Part-22)	0.14			
6. Ammonia es NH ₃	μg/m³	400	IS 5182 (Part-5)	3.8			
7. Ozone (O ₃) &	μg/m³	180	IS 5182 (Part-9)	14.6			





- END OF TEST: REPORT

Prasad

Shreyasee \ Shreyasee Practed Digitally signed by DMg 2023.01.13 13:42:26 +05'30'

> Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Lisblity of our Laboratory is finished to invoiced amount.

Test Report endorsed only the leafs and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

172-C, Assika, Road No. SA, Pulliputta Colony, Patna - \$00 (1)3 (Bihor).

Mob.: +912676236249 ; +919431047908

Website: www.shivalest.com; www.shivalesthouse.

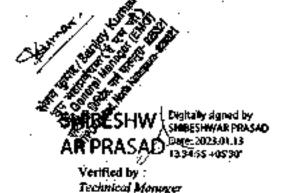
Sthates Layeboo.co.in . infe@strivatest.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MACFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1906, DEPTT.
OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BINAR AND SINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-24/\$278(A)	Dt: 13.6	1.2023 Your W	ork Order No. 400028	5047-037	-1019 Dt : 31.	07.202			
(a) Name and address of th					North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample					oring (As per NAAQ	XS)			
[c] Sample Collected by			SHIVA TEST HO	USE on 0	6.01.23				
[d] Sampling Location					Soutch Yard Office Ru	of distance			
[e] Method of Sampling			IS 11255 (Part-12,	3 & 7)					
[f] Sampling Environments	al Condition		Temp. (°C)	18	Humidity (%)	72			
3] No. & Type of Contains	er .		One poly Jar						
[h] Instrument ID			RD\$-4, FPM-4						
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)						
jj) Šample Code			A-5278						
(k) Sample Condition on R	eceipt		Eti for Analysis						
[l] Items required to be test	ted .		As per contract						
[m] Whether any specific M been suggested by the p		st has :	No						
(n) Date of receiving the sa			07.01.23						
[o] Analysis Start Date / Ar	ialysis Com	pletion Date	07.01.23 / 09.01.23						
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		pling Station / Re- it the top of Switch Office Building				
Carbon Monoxide (CO)	rng / m³	. 4 . :	35 5182 (Part-10)	0.68					
2. Benzene (C ₆ H ₆).				1S 5182 (Part-11) 0.04					
s. Benzo(a) Pyrehe ng / m³ 1			3S 5182 (Part-12) 0.18						
Arsenic (As) ing / m ³ 6			AAS Method 0.07						
Nickel as Ni					AAS Method 5.87				
8. Mercury (Hg)	μgi/tm³	Not Specified	US EPA (Mathod IO-5)	٠.	0.32				





Shreyase Prasad Digitally signed by Shreyasee Presed Date: 2023:01:13 13:42:44 + 05:30

Authorized Signatory
Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.
 Test Report endorsed only the tests and not the product certificate.

Tast Report can not be reproduced partially or full for legal/bount purpose without written permission of the Laboratory.

Contact us:

122-C, Assite, Road No. 5A, Pallippire Colony, Patra - 400 0)3 (Biton)

Mob.: +912674824249 ; +91943⊺047908 Extell: <u>sthoutes (@releo.co.in.; infa@shivetest.com</u>

Website: www.shivetest.com; www.shivatesthouse.com



VA TEST HOUSE

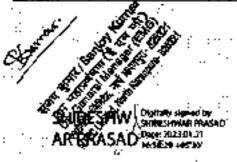


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFOO, GOVT. OF MICH. LINDER ENVIRONMENT (PROTECTION) ACT 1985; DEPTY. OF INDUSTRY, PORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5398	Di : 21.01.	2023 Your Worl	Order No. 400028506	7-037-1019 Dt: 31.07.2022			
		. :		a Super Thermal Power			
[a] Name and address of the	e Customer		At: Tandwa				
			Dist- Chatra				
[<u>.</u> .: · .: .	٠.	· :	Jharkhand- 825	5 32 l			
[b] Details of Sample	. '	: " "	Ambient Ali Quality.	Monitoring (As per NAAQS) · · · · · · · ·			
[c] Sample Collected by		· - ····	SHIVA TEST HOU	SE on 11.01.23			
[d] Sampling Location	:		. Collected from Near at	the top of Switch Yard Office Building			
[e] Method of Sampling			IS 1.1255 (Part-1,2,3	& 7)			
[f] Sampling Environments	al Condition	. ::::::	Temp. (°C)	14 Humidity (%) 75			
[] No. & Type of Contains		•	. One poly Jan .				
[h] Instrument ID			RD\$4, FPM-4				
	. <u>.</u>		30 ml x 6 for each i	NO2, 8O2, NH3)			
[j] Sample Code		· · · · · · · · · · · · · · · · · · ·	A-5398	· · · · · · · ·			
[k] Sample Condition on R	eceipt		Fit for Analysis				
[I] Items required to be test	ted		As per contract				
[m] Whether any specific M been suggested by the p		est has	No				
[n] Date of receiving the sa			12 01.23				
[o] Analysis Start Date / Ar		uplotion Date	12 01:23 / 14:01:23				
i	:		A de Laboratorio	Sampling Station / Result			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at the top of Switch Yard Office Building			
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	73.4			
2. Particulate Matter (PM ₂₅)	μg/m³.	60	:: CPCB ::: (GMAAP Vol. I)	39.9			
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)				
Nitrogen Dioxide as NO ₂	μ ς / <u>m</u> ³	80	IS 5182 (Part-6)	35.9			
a Lead (Pb)	μ g / m³	1 1	IS 5182 (Part-22)	0.16			
8. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	5.1			



Verified by : Technical Manager



END OF TEST REPORT

Prasad

Shreyasee (Olgitally signed by Shreyasee Prasad Date: 2023.01.21 17:02:37 +05:30* Authorized Signatory

Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to Invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/count purpose without written permission of the Laboratory

Contact us :

122-C, Aastha, Head No. 5A, Pathiphara Colony, Panas - 800 bi 3 (Buhar)

Mob: +918676886249; +919431047908

Website: www.shiristest.prim; www.shirvatesthouse



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5398(A) Dt : 21.0	61.2023 Your V	Vork Order No. 40002	85067-037	-1019 Dt : 31.	07.2822			
[a] Name and address of th) Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825-321				
(b) Details of Sample			Ambient Air Qua	lity Monito	ring (As per NAAQ	151			
[c] Sample Collected by			SHIVA TEST HO			•			
[d] Sampling Location			Collected from Near	of the top of	Switch Yard Office Bu	liding			
[e] Method of Sampling			18 11255 (Part-1,2,						
[f] Sampling Environment	al Condition		Temp. (^Q C)	14	Humidity (%)	75			
No. & Type of Contain			One poly Jar			_			
[h] Instrument ID			RDS-4, FPM-4		•				
[i] Sample Quantity			30 ml x 5 for each (NO ₂ , SO ₂ , NH ₃)						
[j] Sample Code			A-5398						
[k] Sample Condition on R	eceipt		Fit for Analysis						
[I] Items required to be tes	ted	i	As per contract						
[m] Whether any specific N been suggested by the		st has	No						
[n] Date of receiving the sa			12.01.23						
[o] Analysis Start Date / A	nalysis Com	pletion Date	12.01.23 / 14.01.23						
Parameters	Unit	Līmā as per NAAQS 2009	. Method of Test		pling Station / Res the top of Switch Office Building				
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Park-10)	; 0.11					
2. Benzene (C₀H₀)	μg / m³	. 5	(\$ 5182 (Part-11) 0.10						
3. Benzo(a) Pyrene	IS 5182 (Part-12) 0.21								
4. Arsenic (As)	ng / m ³	6	AAS Method 0.40						
Nickel as Ni	ng / m³	20	AAS Method 2.86						
6. Mercury (Hg)	ed US EPA 0.16								



800013

Prasad

Shreyasee Prasad Date: 2023.01.21 17:02:56 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to eample fested as above.

Total Liability of cor Laboratory is limited to invoices amount.

Test Report endorsed only the least and not the product cirtificate.

Test Report can not be reproduced partially or full for legislicourt purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Road No. SA, Puliperta Colony, Paris - 600 013 (Bihar)

b60b. +918676886249, +919431047908 sthortostrávehoc.co.in; jurístávátvacez com

Website www.shivatesu.com; www.shivatesthouse.com



TEST HOUSE

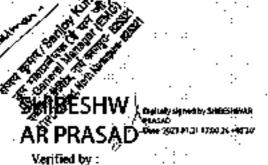


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY McEFGG, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1988, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOV'L OF WHAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

				** * * * * * * * * * * * * * * * * * * *		
Ref. No. STH/TR/22-23/5438	Dt : 21.01.	2023 Your Wo	rk Order No. 40002850			
		·		a Super Thermal Power		
	:,*** .		Project	to the second control of the second control		
[a] Name and address of th	e Customer	t i i i i i	At: Tandwa			
	• "	<i>:</i>	Dist-Chatra			
<u> </u>			Jharkhand-82			
	:: <u>"</u>	-:: -::::::::::::::::::::::::::::::::::		Monkoring (As: per NAAQS)		
[c] Sample Collected by		٠.	SHIVA TEST HOU			
[d] Sampling Location	: :			the top of Switch Yord Office Building		
[e] Method of Sampling			IS 11255 (Part-1,2,3			
[f] Sampling Environments	d Condition	ų :	Temp: (°C)	17" Humbilty (%) 73"		
No. & Type of Contains	êr :	· · · · · · · · · · · · · · · · · · ·	One poly Jan			
in instrument (D		:	RDS-4, FPM-4			
[i] Sample Quantity			30 ml x.6 for each ((NO ₂ , SO ₂ , NH ₃)		
[j] Sample Code	. '		A-5438			
[k] Sample Condition on R	eceipt		Fit for Analysis As per contract			
[1] Items required to be test	ted					
[m] Whether any specific M		est has				
been suggested by the p	arty		No .	<u>i ja </u>		
[n] Date of receiving the sa	mple		14.01.23	:		
[o] Analysis Start Date / Ar	nálýsis Con	npletion Date	14.01.23 / 16.01.23	• 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	. :	Limit as per	Method of	Sampling Station / Result		
: Parameters ::	Unit	NAAQS 2009	Test	Near at the top of Switch Yard		
<u>.</u>	<u> </u>	MAAQS 2008	1631	Office Building		
1. Particulate Matter (PM ₁₀).	jug / m²	100	IS 6182 (Part-23)	74.2		
2. Particulate Matter		: 60	· CPC8	39.7		
(PM ₂₅)	hã / thịs	. 90	(GMAAP Vol. I)	39,7 ::		
3. Sulphur Dioxide as SO ₂	μ̈g / m³	80	IS 5182 (Part-2)	18.5		
Nitrogen Dioxide as NO₂	д д / m³ -	80	tS 5182 (Part-6)	37.4		
5. Lead (Pb)	μg/m³	. 1	(S.5182 (Part-22)	0.04		
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	4.2		
7. Ozone (Q ₃) (a	μg/m³	180	IS 5182 (Part-9)	15.8		
	P432 7 1 1	15,5				



Patra

Prasad

Digitally signed by Shreyasee Prasad Date: 2023/01/21 17:14:07 +0530 Authorized Signatory Quality Manager

Technical Manager

This report applies only to comple tested as above.

Total Liability of our Laboratory is finited to invoiced amount.

Test Report endersed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose.

122-C, Aastha, Road No. SA, Pathygins Colony, Patra - 800 013 (Bahar)

Mob: +918676486249; +919431647908

Page Lof L

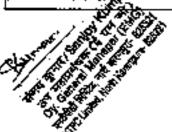


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5438(A)	Dt : 38.6	3.2023 Your	Work Order No. 4000	85067-037-	1018 De: 31	07.2022	
[a] Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321						
[b] Details of Sample			Aribient Air Qua	lity Monitor	ing (As per NAAC)S)	
[c] Sample Collected by			SHIVA TEST HO	USE on 13.0	21.23		
[d] Sampling Location			Cellected from New	as the top of S	witch Yard Office Bu	dding	
(e) Method of Sampling			TS 11255 (Part-1,2,	3 & 7)			
[f] Sampling Environments	al Condition		Temp. (⁰ €)	17	Humidity (%)	73	
[] No. & Type of Contains	a r · ·	· .	One poly Jer				
[[h] Instrument ID			ROS-4, FPM-4				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-5438				
[k] Sample Condition on Re	eceipt		Fit for Analysis				
[I] Items required to be test			As per contract				
(m) Whether any specific M been suggested by the p		st has	No				
[n] Date of receiving the sa			14.01.23				
[0] Analysis Start Date / Ar	ralysis Com	pletion Date	14.01.23 / 16.01.23				
		Limit as per	Method of	Sampl	ing Station / Re	eu i t :	
Parameters	Unit	NAAQS 2009	Test		he top of Switch Mice Building	Yard	
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	0.11			
2. Benzene (C ₈ H ₈)	1 / 4			IS 5182 (Part-11) 0.05			
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12) 0;17				
Arsenic (As)				AAS Method 0.14			
Nickel as Ni				AAS Method 4.40			
8. Mercury (Hg)	US EPA (Method (0-5)		0,11.				



SHIBESHW SHIBESHWAR PRASAD AR PRASAD 17:0036 +0330

Verified by : Technical Manager

Shreyasee y Prasad

Shreyasse Prasad Date: 2023 01 31 17:14:20 +05'30'

Authorized Signatory Quality Manager

- END OF TEST AERORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoced amount.

Test Report endorsed only the tests and not the product certificate.

4... Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aasthe, Road No. 5A, Patiputta Colony, Patra - 800 013 (Bilian)

Mob., +918676886249 ; 1919431047908

Website: www.shivenes.com , www.shivenes@cose.com

Page 1 of 1





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY NAMEFOC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTE OF BIDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF GRIAR AND BHAR STATE POLLUTION CONTROL BOARD

<u>test report</u>

Ref. No. STH/TR/22-23/5887 I	X: 02.02.2	223 Your Wor	k Order No. 400028506	7-037-1019 Dt : 31.07.2022		
(a) Name and address of the	.: :. Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra			
Date in Accounts	.: :		Jharkhand- 829			
[b] Details of Sample		• •	SHIVA TEST HOU	Monitoring (As per NAAQS)		
[c] Sample Collected by [d] Sampling Location				the top of Switch Yard Office Building		
[d] Sampling Location [e] Method of Sampling	- · · ; · - ,		[\$ 11255 (Part-1,2;3			
[f] Sampling Environmenta	L Condition		Temp. (%C)	19 Humidity (%) 71		
3 No. & Type of Containe		 	One poly Jar	1 to thinning (w) / //		
[h] Instrument ID	: :		RDS-4 FPM-4	- :		
[i] Sample Quantity		· . · ·	30 ml x 6 for each (NOs SOs NHs)		
[i] Sample Code	:	· :	A-5887			
[k] Sample Condition on Re	ceipt		Fit for Analysis			
[l] Items required to be test		· · · · · ·	As per contract No			
[m] Whether any specific Mobeen suggested by the pr	thed of T	est has				
[n] Date of receiving the sar			28.01.23	- :		
[o] Analysis Start Date / An		pletion Date	28.01.23 / 30.01.23			
		Limit as per	Mathadad	Sampling Station / Result		
Parameters	Unit	NAAQS 2009	Method of Test	Near at the top of Switch Yard Office Building		
1. Particulate Matter (PM ₁₀)	μg/m³	100	18 5182 (Part-23)	75.2		
Particulate Matter: (PM ₂₈)	hð ý úy _a	60	CPCB (GMAAP Vol. I)	41.2		
3. Sulphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Pärt-2)	15.4		
Nitrogen Dioxide as NO ₂	μg (m)	80	IS 5182 (Part-6)	36.5		
5. Lead (Pb)	μg / m³	1	IS:5182 (Part-22)	Q:1 6 .		
g. Ammonia as NH,	μg / m³	400 .	(S 5182 (Part-5)	6.1		
7. Ozone (O ₃)	μg/m³	180	(S 5182 (Part-9)	22,5		

Digitally signed by SHIBESHIVAR PRASAD Date:2023.02.02 15:05:31 +05'30'

Verified by : Technical Manager



- END OF TEST REPORT

Shreyasee Prasad

Digitally signed by Streyesee Prased Date: 2023.02.02 15:15:49 +05'30'

Authorized Signatory Quality Manager

This report applies only to stimple tested as above.

Total Listelly of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court pulpose without written permission of the Laboratory

Contact us :

122-C. Auptio, Road No. SA. Palipsera Colony, Pater - 800-013 (Bilber)

Mob +918676886249 +91943104790\$

athostná l@vahoo.co.fn ; huloší blavateti.com

Website: www.shivateis.com; www.shivatesthouse.com



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOBFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5887(A)	Dt: 02.6	2.2023 Your V	Work Order No. 40002	85047-037-	1019 Dt. 3	.07.2022	
[a] Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321						
[b] Details of Sample			Ambiens Air Quai	lity Monitor	ing (As per NAA)	Q\$)	
[c] Sample Collected by			SHIVA TEST HO	USE on 25.	01.23		
[d] Sampling Location			Cellected from New	of the top of S	livitch Yard Office B	uilding	
[e] Method of Sampling			IS 11255 (Part-1,2,	3 & 7)			
[f] Sampling Environments	al Condition		Temp. (°C)	19	Humidity (%)	. 71	
. No. & Type of Contains	er ·		One poly Jar		:		
[h] Instrument ID			RDS-4, FPM-4				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-5887				
[k] Sample Condition on Re	eceipt		Fit for Analysis				
[f] Items required to be test			As per contract				
[m] Whether any specific M been suggested by the p		st has	No .				
[n] Date of receiving the sa			28.01.23				
[o] Analysis Start Date / Ar		pletion Date	28.01.23 / 30.01.23				
	Γ	Limit às per	Method of	Samp	ling Station / Re	:sult	
Parameters	Unit	NAAQS 2009	Test		the top of Switch Office Building	ı Yard	
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)				
2. Benzene (C ₆ H ₆)				IS 5182 (Part-11) 0.11			
3. Benzo(a) Pyrene	IS 5182 (Part-12) 0.22						
4. Arsenic (As)				AAS Method 0.39			
Nickel as Ni	ng / m³	20	AAS Method 1.43				
6. Mercury (Hg)					0.08		



Verified by : Technical Manager



-- END OF TEST REPORT -

Shreyasee Prasad

Authorized Signatory Quality Manager

This report applies only to eample leated as shows.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Mob., +918676486249 ; +919431047908

Test Report can not be reproduced partially or full for legal/count pulpose without written permission of the Laboratory.

Contact us: 172-C, Aastha, Road No. \$A, Palilpetra Colony, Panca - 800 013 (Bihar)

Website: union shiratest com; www.shivatesthouse

sthoutus káteratoo co.in c mřekátet rogest com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, LINCER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BRIAR STATE POLLUTION CONTROL BOARD

test report

Ref. No. STH/TT/22-23/5892	Dt : 02.0	02.2023 Your	Work Only No. 400025	6067-037-1019 Dt : 3	ti 07 2022		
[a] Name and address of th				ra Super Thermal Po			
[b] Details of Sample				Monitoring (As per NAAQ	Ġī .		
[c] Sample Collected by:	:		SHIVA TEST HOU		<u> </u>		
[d] Sampling Location		<u>-</u>		t the top of Switch Yard Offic	e Building		
[e] Method of Sampling			IS 1,1255 (Part-1,2,3				
[f] Sampling Environment	al Conditio	n : "	Temp (⁰ C)	19 Humidity (%)	70		
t] No. & Type of Contain	e r .:	•	One poly Jar				
[[h] Instrument ID	:		RDS-4, FPM-4				
[i] Sample Quantity			30 ml x 6 for eac	h (NO ₂ , SO ₂ ; NH ₃)			
[j] Sample Code			A-5892		·::		
(k) Sample Condition on R	eceipt		Fil for Analysis				
[f] [tems required to be test	ted		As per contract				
[m] Whether any specific M been suggested by the p		est bas	No				
[n] Date of receiving the sa			28.01.23				
[o] Analysis Start Date / Ar	aalysis Con	npletion Date	28.01.23 / 30.01.23	*	٠. '		
11.	٠.	1 200 4 4 4 4 4 4	Method of	Sampling Station	/Result		
Parameters	Unit	Limit as per NAAQS 2009	Test	Near at the top of Sw Office Ballill			
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	76.0			
2. Particulate Matter (PM ₂₅)	μg / τ⊜³	60	CPCB (GMAAP Vol. I) [:]	39.1			
3. Sulphur Dioxide as SO ₂	յաց / m³ դ	.80	IS 6182 (Part-2)	17.8			
Nitrogen Dioxide as NO ₂	μ <u>α</u> / m²	80	IS 5182 (Part-6)	: 38.0			
ಕ. Lead (Pb)	$\mu g / m^3$	1	IS 5182 (Part-22)	. 0.07			
6. Ammonia as NH ₃	µg/m³	400	18 5182 (Part-5)	5.1			
7. Ozone (Ox	μg / m³	180	(\$ 5182 (Part-9)	16.4			
4. 2. 2. A.	:						

Digitally signed by AR PRASAD Poly 2023 0202

Verified by ; **Technical Manager**



Shreyasee Prasad

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partiely or full for teget/court purpose without written permission of the Laboratory.

132-C, Austin, Rood No. SA, Palilputte Colony, Page - 490 013 (Biller)

Mobi: 4918676436249 ; +919431047908

Website: www.shinutest.com; www.shinutesthiouse.com



Page 1 of 1



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1906, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5692(A) Dt: 02.0	2.2023 Your	Work Order No. 4000	285067-037-1019 Dr. 31.07.2022		
[a] Name and address of the	he Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Apibient Air Qua	lity Monitoring (As per NAAQS)		
[c] Sample Collected by .	.:			USE on 27.01.23		
[d] Sampling Location			Collected from Near	at the sup of Switch Yord Office Building		
[e] Method of Sampling			I\$ 11255 (Part-1,2,	3 & 7) ·		
[f] Sampling Environmen	tal Condition		Temp. (°C)	19 Humidity (%) 70		
 No. & Type of Contain 	r e r	•	One poly Jar			
[h] Instrument ID			RDS-4, FPM-4	:		
(i) Sample Quantity		•	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₈)			
[j] Sample Code			A-5892			
[k] Sample Condition on F	Receipt		Fit for Analysis			
(I) Items required to be to	sted		As per contract			
(m) Whether any specific heen suggested by the		st has	No :			
[n] Date of receiving the s			26.01.23			
[o] Analysis Start Date / A		pletion Date	28.01.23 / 30.01.23			
Parameters	Unit	Limit as per NAAQS 2009	Method of ∵ Test	Sampling Station / Result Near at the top of Switch Yard Office Building		
Carbon Monoxide (CO)		(S 5182 (Part-10)	0.57			
2. Bertzene (C ₆ H ₆) μg / m ³ 5		(\$ 5182 (Part-11)	0.04			
3. Benzo(a) Pyrene ng / m³ 1		(S-5182 (Part-12)	0.14			
4. Arsenic (As) ng / m³ 6			AAS Method	0.07		
Nickel as Ni	rig / m³	20	AAS Method	5.1		
6. Mercury (Hg)	μ g / m³	Not Specified	U5 EPA (Method IO-5)	0.08		



Patra BDÓÓIS

Shreyasee Prasad

. Digitally signed by Shreyasee Prasad .Date: 2023-02-02 15:19:46 +05:30° Authorized Signatory

Quality: Manager

END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endomed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permeaten of the Laboratory.

Contact as:

172-C, Aastha, Road No. SA. Patipeere Golony, Patra - 800-013 (Bihay)

\$400...+918676286249;;+919431047908 sthootast@vahoc.co.in; prio@davatest.com

Website: www.shinbtest.com (www.shinatesthouse.com

Page 1 of 1 :





(Serving since 1988)

RECOGINSED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT, OF INDUSTRY, FORESTS & SHAVRONIMENT, GOVT, OF SHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	o. STH/TB/22-23/5930	Dt: 04.02	.2023 Your W	ork Order No: 4000285	867-037-1019 Dt : 31.07,2022			
[8]	Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Details of Sample			Ambient Air Quality	Monitoring (As per NAAQS)			
િ	Sample Collected by			SHIVA TEST HOU				
[d]:	Sampling Location		•	Collected from Near at	the top of Switch Tard Office Building			
[e]	Method of Sampling			: IS 11255 (Part-1,2;3	食 7)			
[f]	Sampling Environments	d Condition	n	Temp. (ºC)	19 Humidity (%) 71			
[2]	No. & Type of Contains		;	One poly Jar				
]·[h]	Instrument ID			RDS-4, FPM-4				
(i) (ii)	Sample Quantity		. :	::30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₂)			
ចា –	Sample Code	<u></u>		A-5930				
[k]	Sample Condition on Re	eccipt		Fit for Analysis				
m	Items required to be test			As per contract				
(m)	Whether any specific M been suggested by the p		est has	No	:			
	Date of receiving the sa			01.02.23				
[0]	Analysis Start Date / Ar		opletion Date	01.02.23 / 04.02.23				
				4.4.4.4.4.4	Sampling Station / Result,			
	Parameters	Unit ·	Limit as per NAAQS 2009	Method of Test	Near at the top of Switch Yard Office Building			
1. Par	ticulate Matter (PM ₁₀)	μgi/m³	100	IS 5182 (Part-23)	76,1			
2. Par	rticulate Matter // ₂₅)	μg /·m³	. 6D	CPCB (GMAAP Vol. I)	42.4			
	phur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	14.5			
	rogen Dioxide as NO ₂	:µg / m³	80	IS 5182 (Part-6)	38.3			
	ed (Pb)	μg / m³	1	IS 5182 (Part-22)	0.14			
	monia as NH₃	μg / m³	400	IS 5182 (Part-5)	5.8			
	one (O _y)3	.μg / m³	180	IS 5182 (Part-9)	21.9			

Digitally signed by SHIRESHWAR PRASAD AŘ PRASAĎ: Dale: 2023.02.04 13:29:33 +05'30'

Verified by : Technical Manager



-- END OF TEST REPORT

Prasad

Shreyasee Shreyasee Presed Date: 2023.02.04 13:4815 +0530

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is similed to invoiced emount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Road No. 5A, Patiguate Colony, Paus - 800-013 (Billian).

Mob +918676886249;+919431047948 sthnetnati@vahoo.on.in : jafo@shrvatest.com

Website: www.shirate-shouse





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORPOC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTY. OF (MOUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5930(A	Dt: 04	02.2023 Your	Work Order No. 4000	285067-037-1019 Dt : 31.07.2022		
[a] Name and address of th	e Customer		North Karanpur At: Tandwa Dist- Chatra Jharkhand- 825	a Super Thermal Power Project 321		
[b] Details of Sample			Ambient Air Qua	lity Monitoring (As per NAAQS)		
[c] Sample Collected by				USE on 30.01.23		
[d] Sampling Location			Collected from Near	at the top of Switch Fard Office Building		
[c] Method of Sampling			1S 11235 (Par+1,2,	3 & 7)		
[f] Sampling Environment	al Condition	•	Temp. (⁶ C)	19 Humidity (%) 71		
[g] No. & Type of Contains	я .		One poly Jar			
[h] Instrument ID			RDS-4, FPM-4			
[i] Sample Quantity			30 ml x 6 for éacl	1 (NO2, SO2, NH3)		
[j] Sample Code			A-5930			
[k] Sample Condition on R	eceipl		Fit for Analysis			
[1] Itams required to be tes			As per contract			
(m) Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sa	mple		01.02.23			
[o] Analysis Start Date / Ar	nalysis Com;	plotion Date	01.02.23 / 04.02.23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Building		
Carbon Monoxide (CO)	mg/m³	4	IS 5162 (Part-10)	0.34		
2. Benzene (C ₆ H ₆)	μg / m ^o	5.	IS 5182 (Part-11) 0.13			
3. Benzo(a) Pyrene	ng/m³	1	IS 6182 (Part-12) 0.21			
4. Arsenic (As)	ng / m³	6	AAS Method 0.36			
4. Nickel as Ni	ng/m³	20	AAS Method	2.86		
o. Mercury (Hg)	ng / m³	Not Specified	US EPA . (Method IO-5)	0.12		

SHIBESHW Digitally signed by SHIBESHWAR PRASAD Date: 2023.02.04 AR PRASAD 15 29.46 +05'50"

Verified by: Technical Manager



- END OF TEST REPORT -

Prasad

Shreyasee & Shreyasee Proceed Date: 2023.02.04 13:48:35 +05'30'

> Authorized Signatory Quality Manager

This report applies only to eample lested as above:

Total Liability of our Laboratory is limited to involced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C. Ansthe, Road No. 5A, Pathipetra Colony, Patria - 800 013 (Bihar)

Mob., +913676886149 - +919431047908 sthounal divahouco.in , missibilitares.com

Website: www.shivatesi.com; www.shrvatesthouse.com

Page 1 of 1



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEFET OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. N	o. STH/TR/22-23/5935	Dr: 04.02.	2023 Your Wo	rk Order No. 40002850 0	87-037-	1019 Dt : 31.07.2022		
[a]	Name and address of th	e Customer	•	North Karanpura Super Thermal Power Project At; Tandwa Dist- Chatra Pharkhand- 825 321				
[b]	Details of Sample	•		Ambient Air Quality	Monitor	ing (As per NAAQS)		
[c]	Sample Collected by			SHIVA TEST HOU				
[4]	Sampling Location			Cultected from Near a	the up	of Switch Yard Office Building		
[e]	Method of Sampling	•		IS 11255 (Part-1,2,3				
ĮΉ	Sampling Environments	al Condition	n .	Temp. (°C)	19:	Humidity (%) 70		
[8]	No. & Type of Contains			One poly Jer				
<u>, [h]</u>	Instrument ID	•		RDS-4, FPM-4		•		
(ii)	Sample Quantity			<u>30 ml</u> x 6 for each	h (NO ₂ ,	, \$Ô₂, NH₃}		
[i)	Şampte Code			A-5935				
[k]	Sample Condition on Re	eceipt		Fit for Analysis				
[J]	Items required to be test	leq .		As per contract				
(m)	Whether any specific M been suggested by the p		est has	No				
[n]	Date of receiving the sa			01.02.23				
[0]	Analysis Start Date / Ar	nalysis Con	pletion Date	01.02.23/04.02.23				
				Method of	Sa	mpling Station / Result		
	Parameters	Unit	Limit as per NAAQS 2009	Test		at the top of Switch Yard Office Building		
1, Par	ticulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)		74.9		
	rticulate Matter M ₂₀)	μg / m³	60	CPC8 (GMAAP Vol. II)		40,3		
3. Su	Iphur Dioxide as SO ₂	μg / m³	· 60	IS 5182 (Part-2)		18.5		
4. Nii	rogen Dioxide as NO ₂	60	IS 5182 (Part-6)					
	ad (Pb)	μg / m ³ μg / m ³	1	IS 5182 (Part-22)		0.04		
la Aw	ocenia es NH.	μg / m³	400	IS 5182 (Part-5)		4.7		
1.0	one (O ₃)	μg / m³	180	IS 5182 (Part-9)		16.7		

Digitally signed by SHIBESHWAR PRASAD Date: 2023.02.04 13:31:38 +05'30'

> Verified by : Technical Manager



Digitally signed by Shreyasee Prasad Shreyasee Prasad Bate: 2023.02.04 13:51:13 #05'30' Authorized Signatory Quality Manager

END OF TEST REPORT -

This report applies only to sample lested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the leats and not the product cartificate.

Test Report can not be reproduced partially or full for legislicourt purpose without written permission of the Laboratory.

Contact us:

132-C, Aastha, Road No. SA, Pathiputta Colony, Patrix - 300 013 (Bihar)

Mob.: +9| \$676\$\$6249 ; +9|943|047908 stheside | edyshoo.co.in | info@chivness.com Emall:

Website: www.shiwitest.com; www.shivatesthouse.com





(Serving-since 1988)

ABORATORY BY MoRFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. RECOGNISED AS EMMRON OF INDUSTRY, PORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/8935(A)	Dt : 04.0	2.2023 Your V	Vork Order No. 40002	95067-037-4019 Dt : 31:07.2022		
			North Karanpur	a Super Thermal Power Project		
[a] Name and address of the	Customer		At: Tandwa Dist- Chatra			
*			Jharkhand- 825	321		
[b] Details of Sample				lity Monitoring (As per NAAQS).		
[c] Sample Collected by			SHIVA TEST HO	USE on 31.01.23		
(d) Sampling Location			Call intel from Near	at the top of Switch Yard Office Building		
[e] Method of Sampling			1S 11255 (Part-1,2,			
[f] Sampling Environments	d Condition		Temp. (*C)	19 Humidity (%) 170		
[g] No. & Type of Containe	x ·		One poly Jar			
[h] Instrument [D		•	"RDS-4, FPM-4"			
[i] Sample Quantity			30 ml.x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-5935			
[k] : Sample Condition on Re			Fit for Analysis			
[l] <u>Items required to be test</u>			As per contract			
[m] Whether any specific M been suggested by the p		st has	No	<u>. j. j</u>		
[n] Date of receiving the sa	mple ≕		01.02.23	::		
[6] Analysis Start Date / An	ustysis Com	pletion Date	01.02.23 / 04.02.2	3		
		Limit as per	Method of	Sampling Station / Result		
Parametera	Unit	NAAQS 2009	Test	Near at the top of Switch Yard Office Building		
1. Carbon Monoxide (CO)	mg/m³	4 .	IS 5182 (Part-10)	0.68		
2. Benzene (C ₄ H ₆) µg / m ³ 5			15 5182 (Part-11)	0.05		
3. Benzo(a) Pyrene	ng/m³	1	IS 6182 (Part-12)	0.15		
4. Arsenic (As)	ng / m³	6	AAS Method	" ; 0:06		
5. Nickel as Ni	ng/m³	20	AAS Method	2.86		
: Mercury (Hg)	μg / m³	Not Specified	US EPA (Method Ю-5)	0,16		

Digitally signed by SHIBESHWAR PRASAD AR PRASAD DHE 2023.02.04

Verified by : Technical Manager.



Shreyasee) Prasad

Digitally signed by Shveyasee Prased Bate: 2023.02.04 13:51:34 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample leaded as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endersed only the lests and not the product cartilicate.

Test Report can not be reproduced partially or full for legal/court purpose without when permission of the Laboratory

Contact us:

1,22-C; Adsilia, Road No. 5A, Patliputta Colony, Partia — 800 013 (Biliai)

Mob.: +912676286249 (+91943)047908 Email:

Page 1 of 1



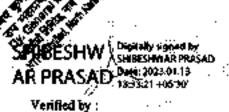


(Serving since 1988)

RECOGNOED AS ENVIRONMENTAL LABORATORY BY MOSPCC, GOVT, OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF BIOUSTRY, FORESTS & ENVIRONMENT, GOVE OF THIMM AND BEHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

North Karampura Super Thermal Power Project		Di. 114	1 4042 - 3/ 3//-		67-037-1019 Dt: 37.07.2022			
Project At: Tandwa Dist: Chatra Jharkhand- 825 321 Details of Sample Ambient Air Quality Monitoring (As per NAAQS) C Sample Collected by SHIVA TEST HOUSE on 05.07.23 Collected from Near at the top of Tejasoni Building (Township) Sampling Location Is 11255 (Part-1.2,3 & 7) Sampling Environmental Condition Temp. (PC) 15 Huntidity (%) 75 No. & Type of Container One poly Jar In Instrument ID RDS-1, FPM-1 Il Sample Quantity 30 mt x8 for each (NO2, SO2, NHs) Sample Condition on Receipt Fit for Analysis Il Items required to be tested As per contract Im Whether any specific Method of Test has been suggested by the party No Date of receiving the sample O7.01.23 / O9.01.23 Or Analysis Start Date / Analysis Completion Date O7.01.23 / O9.01.23 Parameters Unit Limit as per NAAQS 2009 Test Rest at the top of Tejasovi Building (Township) 1. Particulate Matter µg / m³ 60 (S 5182 (Part-23) 73.8 Particulate Matter µg / m³ 60 (S 5182 (Part-2) 12.1 Nitrogen Dioxide as SO2 µg / m³ 80 IS 5182 (Part-2) 0.16	Ref. No. 8111/11/22-23/5251	DC: 33.01	7.2023 10UF WG					
Dist-Chatra Jharkhand-825 321	1	•						
Dist Chatra Jharkhand	[a] Name and address of the	: Customer		At: Tandwa				
Details of Sample Ambient Air Quality Monitoring (As per NAQS) C Sample Collected by SHIVA TEST HOUSE on 05.07.23 Id Sampling Location Collected from Near at the top of Tejasoni Building (Treenship) Is Sampling Environmental Condition Termp. (°C) 15 Humidity (%) 75 No. & Type of Container One poly Jan Instrument ID RDS-1, FPM-1 Id Sample Quantity 30 ml x 8 for each (NO₂, SO₂, NH₃) Iii Sample Code A-5251 Ik Sample Condition on Receipt Fit for Analysis Il Items required to be tested As per contract Whether any specific Method of Test has been suggested by the party In Date of receiving the sample O7.01.23 Io Analysis Start Date / Analysis Completion Date O7.01.23 / O9.01.23 Parameters Unit Limit as per NAAQS 2009 Test Reall Method of Test has been suggested by the party 1. Particulate Matter (PM₁s) µg / m³ 100 IS 5182 (Part-23) 73.8 2. Particulate Matter µg / m³ 60 (GMAAP Vol. 1) 39.3 3. Sulphur Dioxide as SO₂ µg / m³ 80 IS 5182 (Part-2) 12.1 Nitrogen Dioxide as NO₂ µg / m³ 80 IS 5182 (Part-2) 0.15		: .	•	Dist- Chatra	· · · · · · · · · · · · · · · · · · ·			
C Sample Collected by	l'	. : .		Jharkhand- 825	321			
Collected prior Near at the top of Tejasani Bullaing (Township)	[b] Details of Sample	٠	.: .	Ambient Air Quality I	Monitoring (As per NAAQS)			
[e] Method of Sampling [f] Sampling Environmental Condition [f] Sampling Environmental Condition [h] Instrument ID [h] Instrument ID [i] Sample Quantity [ii] Sample Quantity [iii] Sample Condition on Receipt [iii] Sample Condition on Receipt [iii] Items required to be tested [ivited any specific Method of Test has been suggested by the party [in] Date of receiving the sample [io] Analysis Start Date / Analysis Completion Date Parameters Unit Limit as per NAAQS 2009 1. Particulate Matter (PM₁e) μg / m³ 100 2. Particulate Matter (PM₁e) μg / m³ 100 3. Sulphur Dioxide as SO₂ μg / m³ 80 3. Sulphur Dioxide as SO₂ μg / m³ 80 3. Sulphur Dioxide as SO₂ μg / m³ 80 3. Sulphur Dioxide as NO₂ μg / m³ 80 4. Sulphur Dioxide as NO₂ μg / m³ 80 4. Sampling Station / Result Near at the top of Tejasavi Building (Township) 7. CPCB (GMAAP Vol. I) 8. Sulphur Dioxide as SO₂ μg / m³ 80 8. Sulphur Dioxide as NO₂ μg / m³ 80 9. Lead (Pb) μg / m³ 1 IS 5182 (Part-2) 9. Lead (Pb) μg / m³ 1 IS 5182 (Part-22) 9. 16	[c] Sample Collected by		·	SHIVA TEST HOUS	SE on 05.01.23			
Sampling Environmental Condition Temp. (°C) 15 Humidity (%) 75 No. & Type of Container One poly Jar Instrument ID RDS-1, FPM-1 Sample Quantity 30 ml x 8 for each (NO ₂ , SO ₂ , NH ₃) Sample Code A-5251 Sample Condition on Receipt Fit for Analysis Items required to be tested As per contract Image: As per contract No Whether any specific Nethod of Test has been suggested by the party In Date of receiving the sample O7.01.23 O Analysis Start Date / Analysis Completion Date Parameters Unit Limit as per Nethod of Test has been suggested by the party In Particulate Matter (PM ₁₉) μg / m³ 100 IS 5182 (Part-23) Sampling Station / Result Near at the top of Tejasavi Bailding (Township) Particulate Matter (PM ₁₉) μg / m³ 60 (GMAAP Vol. I) Sampling Station / Result Near at the top of Tejasavi Runtidity (No. 2009 Sampling Station / Result Near at the top of Tejasavi Runtidity (No. 2009 Sampling Station / Result Near at the top of Tejasavi Runtidity (No. 2009 Sampling Station / Result Runtidity (No. 2009	[d] Sampling Location			Collected from Near as	the top of Telasavi Building (Township)			
Sampling Environmental Condition Temp. (°C) 15 Humidity (%) 75 No. & Type of Container One poly dar Instrument ID RDS-1, FPM-1 Sample Quantity 30 ml x 8 for each (NO ₂ , SO ₂ , NH ₃) Sample Code A-5251 Sample Condition on Receipt Fit for Analysis Items required to be tested As per contract Whether any specific Method of Test has been suggested by the party In Date of receiving the sample O7.01.23 O Analysis Start Date / Analysis Completion Date Parameters Unit Limit as per NAAQS 2009 Method of Test to Bailding (Township) 1. Particulate Matter (PM ₁₉) μg / m³ 100 IS 5182 (Part-23) Sampling Station / Result Near at the top of Tejasavi Bailding (Township) 2. Particulate Matter (PM ₂₅) μg / m³ 60 (GMAAP Vol. 1) 39.3 3. Sulphur Dioxide as SO ₂ μg / m³ 80 IS 5182 (Part-2) 12.1 Nitrogen Dioxide as NO ₇ μg / m³ 80 IS 5182 (Part-6) 34.1 5. Lead (Pb) μg / m³ 1 IS 5182 (Part-6) 0.16	[e] Method of Sampling			IS 11255 (Part-1,2,3 &	9.7)			
No. & Type of Container		d Condition	n ::::::::::::::::::::::::::::::::::::	Temp. (°C)	15 Humidity (%) 75			
Instrument ID	t] No. & Type of Containe	¥		One poly Jar				
		· · ·	· · · :		• .			
Sample Code A-5251 R				30 ml x 6 for each (i	NO ₂ , SO ₂ , NH ₃)			
Sample Condition on Receipt Fit for Analysis It Items required to be tested As per contract Im Whether any specific Method of Test has been suggested by the party In Date of receiving the sample O7.01.23		.:			'			
[I] Items required to be tested [m] Whether any specific Method of Test has been suggested by the party [n] Date of receiving the sample [o] Analysis Start Date / Analysis Completion Date Parameters Unit Limit as per NAAQS 2009 Test Sampling Station / Result Near at the top of Tejasavi Building (Township) 1. Particulate Matter (PM ₁₉) μg / m ³ 100 IS 5182 (Part-23) 73.8 2. Particulate Matter μg / m ³ 60 (GMAAP Vol. I) 3. Sulphur Dioxide as SO ₂ μg / m ³ 80 IS 5182 (Part-2) 12.1 Nitrogen Dioxide as NO ₇ μg / m ³ 80 IS 5182 (Part-6) 34.1 5. Lead (Pb) μg / m ³ 1 IS 5182 (Part-22) 0.15		ecemt	:	Fit for Analysis				
Method of Test has been suggested by the party Date of receiving the sample 07.01.23				As per comtract				
[n] Date of receiving the sample [o] Analysis Start Date / Analysis Completion Date Parameters Unit Limit as per NAAQS 2009 Limit as per NAAQS 2009 Test Method of Test Sampling Station / Result Near at the top of Tejasavi Building (Township) 1. Particulate Matter (PM₁s) μg / m³ 100 (S 5182 (Part-23) 73.8 2. Particulate Matter μg / m³ 60 (GMAAP Vol. I) 3. Sulphur Dioxide as SO₂ μg / m³ 80 (S 5182 (Part-2) 12.1 Nitrogen Dioxide as NO₂ μg / m³ 80 (S 5182 (Part-2) 34.1 5. Lead (Pb) μg / m³ 1 (S 5182 (Part-22) 0.16	[m] Whether any specific M	ethod of T	est has	No T.E				
[o] Analysis Start Date / Analysis Completion Date Parameters Unit Unit Limit as per NAAQS 2009 1. Particulate Matter (PM is) μg / m³ 100 (S 5182 (Part-23)) 2. Particulate Matter μg / m³ 60 (GMAAP Vol. f) 3. Sulphur Dioxide as SO ₂ μg / m³ 80 (S 5182 (Part-2)) Nitrogen Dioxide as NO ₇ μg / m³ 80 (S 5182 (Part-6)) 3. Lead (Pb) 4. Imit as per Method of Test (Part-10 (07.01.23	·			
Parameters Unit Limit as per Method of Test Near at the top of Tejasavi Building (Township)			npletion Date	07.01.23 / 09.01.23	·			
Parameters		. :		A CAST AND AND A	Sampling Station / Result			
1. Particulate Matter (PM μg / m³ 100 (S 5182 (Part-23) 73.8 2. Particulate Matter (PM μg / m³ 60 (GMAAP Vol. I) 39.3 3. Sulphur Dioxide as SO ₂ μg / m³ 80 (S 5182 (Part-2) 12.1 Nitrogen Dioxide as NO ₇ μg / m³ 80 (S 5182 (Part-6) 34.1 3. Lead (Pb) μg / m³ 1 (S 5182 (Part-22) 0.16	Parameters	Unit						
1. Particulate Matter (PM ₁₈) μg / m³ 100 (S 5182 (Part-23) 73.8 2. Particulate Matter (PM _{2.6}) 60 CPCB (GMAAP Vol. I) 39.3 3. Sulphur Dioxide as SO ₂ μg / m³ 80 (S 5182 (Part-2) 12.1 Nitrogen Dioxide as NO ₇ μg / m³ 80 (S 5182 (Part-6) 34.1 5. Lead (Pb) μg / m³ 1 (S 5182 (Part-22) 0.16	1 1 1	: "	MAAQS 2009	lest				
2. Particulate Matter (PM _{2,6}) μg / m³ 60 CPCB (GMAAP Vol. I) 39.3 3. Sulphur Dioxide as SO ₂ μg / m³ 80 (S 5182 (Part-2) 12.1 Nitrogen Dioxide as NO ₇ μg / m³ 80 (S 5182 (Part-6) 34.1 5. Lead (Pb) μg / m³ 1 (S 5182 (Part-22) 0.16	1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)				
(SMAAP Vol. 1) 3. Sulphur Dioxide as SO ₂ μg / m ³ 80 IS 5182 (Part-2) 12.1 Nitrogen Dioxide as NO ₇ μg / m ³ 80 IS 5182 (Part-6) 34.1 5. Lead (Pb) μg / m ³ 1 IS 5182 (Part-22) 0.16			60	CPCB	20.2			
Nitrogen Dioxide as NO ₂ μg / m ³ 80 (\$ 5182 (Part-6) 34.1 5 Lead (Pb) μg / m ³ 1 (\$ 5182 (Part-22) 0.16	(PM _{2.6})	μg / m"։	- 80	(GMAAP Vol. I)	38.3			
Nitrogen Dioxide as NO _? μg / m³ 89 IS 5182 (Part-6) 34.1 5 Lead (Pb) μg / m³ 1 IS 5182 (Part-22) 0.16	3. Sulphur Dioxide as SO ₂ .	μg / m³	80	(S 5182 (Part-2)	12.1			
5: Lead (Pb) μg / m³ 1 (S 5182 (Part-22) 0.16	Nitrogen Dioxide as NO		80	(\$ 5182 (Part-6)	· 34.1			
	s. Lead (Pb)		1	(S 5182 (Part-22)	0.15			
<u>lo minis</u> ipa de juras : pg / m	6. Ammonia as NHs	μg/m³	400 .	IS 5182 (Part-5)	5.4			
7. Ozone (O ₃) μg /m³ 180 IS 5182 (Part-9) 19.8	7. Ozone (O ₃) (\$\delta\$)	ug/m³	180		19.8			



END OF TEST REPORT

Patria 800013

> Shreyasee Prasad

Digitally signed by Shreyacea Prased Date: 2029.01.13 13:37:55 +05:30 Authorized Signatory:

Quality Manager

Technical Manager

This report applies only to sample tested as above.

Total Elability of our Laboratory is limited to involced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legaricoun purpose without written permission of the Laboratory.

Contact us:

122-C, Assilia, Road No. SA, Padilpetra Colony, Panna – 800 013 (Billian)

Mob.: +918676886249 , +9 | 943 | 047906

sther the Light have on in the light his seest com-

Website : www/shivetest.com ; gover/shivetesthouse.com



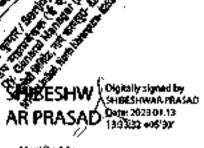


(Serving stace 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF BIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5251(A)	Dt: /3.6	1.2025 Your W	ork Order No. 400028 3			
[a] Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b] Details of Sample					ring (As per NAAQ	(\$)
[c] Sample Collected by		•	SHIVA TEST HOU			
[d] Sampling Location			Collected from New A	d the top of	Tejesovi Ballilay (Ter	easthip
[e] Method of Sampling			IS 1125\$ (Part-1.2,3			
[f] Sampling Environment	el Conditton		Temp. (°C)	16	Humidity (%)	76
g] No. & Type of Contains	ar.		One poly Jar			
[h] Instrument [D		•	RDS-1, FPM-1			
[i] Sample Quantity			30 mt x 6 for each (NO ₂ , SO ₂ , NH ₂)			
[j] Sample Code			A-5251			
[k] Sample Condition on R			Fit for Analysis			
 Items required to be test 			As per contract			
[m] Whether any specific M been suggested by the p		st hais	No			
[n] Date of receiving the sa			07.01.23			
[o] Analysis Start Date / Ar	nalysis Com	pletion Date	07.01,23 / 09.01.23			
•	ļ .	Limit as per	Method of	Şam	pling Station / Res	su¥t .
Parameters	Unit	NAAQS 2009	Test		at the top of Tejac uilding (Township)	
 Carbon Monoxide (CO) 	mg/m³	. 4	IS 6182 (Part-10)		0.34	
2. Benzene (C₀H₅)					0.06	
3. Benzo(a) Pyrene :	IS 5182 (Part-12)		0.15			
4. Arsenic (As)	AAS Method 0.45					
. Nickel as Ni	<u>r</u> g/m³	20	AAS Method		2.84	
8. Mercury (Hg)	ng/m³	Not Specified	US EPA (Marked IO-5)		0.22	



Verified by a Technical Manager



Präsad

Shreyasee 1 Olightally signed by Shreyasee Presad Date: 2023.01.13 13:38:08 +05'30' Authorized Signatory

Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is smiled to involved amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or fell for legal/court purpose without written permission of the Laboratory.

Contact us :

122-U. Aastra, Road No. 5A, Parliggita Colony, Para - 800 013 (Bahan)

Mob.: +918676886249 , +919431047908 sinamo i Semboo so in : info@ishivenca com

Website: www.shiveess.com., www.shiveesthoute.com

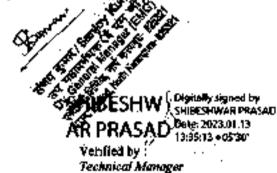




RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFOC, GOVT, OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTY. OF MOUSTRY, FORESTS & EXPERIMENT, GOVE OF GRIAR AND BHAR STATE POLLUTION CONTROL BOAJID.

TEST REPORT

Ref. N	o. 5TH/TR/22-23/5279	Dt : 13.01.2	1923 Your Worl	(Order No. 4000285067				
[a]	Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
ľЫ	Details of Sample			Ambient Air Quality	Monttoring (As per HAAQS)			
[c]	Sample Collected by			SHIVA TEST HOUS	SE on 96.01.23			
[बी	Sampling Location	_		Collected from Near at	the cap of Tejasoni Bullding (Torreship)			
[0]	Method of Sampling			IS 11255 (Part-1,2,3 8	£ 7)			
[f]	Sampling Environments	d Condition	ı	Temp: (°C)	18 Humidity (%) 72			
:1	No. & Type of Contains	ж ·		One poly Jar				
(h)	Instrument ID	•	•	RDS-1, FPM-1	:			
[i]	Sample Quantity			30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₃)			
[]]	Sample Code			A-5279				
(k]	Sample Condition on Re	eceipt		Fit for Analysis				
111	ltems required to be test	ed '		As per contract				
[m]	Whether any specific M been suggested by the p		est has	No				
[n]	Date of receiving the say			07.01.23 07.01.23 / 09.01.23				
[6]	Analysis Start Date / Ar	rálysis Con	rpletion Date					
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi Building (Tewnship)			
1. Par	rticulate Matter (PM ₁₀)	μg / m³	∴100	IS 5182 (Pa(t-23)				
2. Pa	rticulate Matter Mas)	μg / m³	60	CPCB (GMAAP Vol. I)	39,1			
	lphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2)	18.3			
	rogen Dioxide as NO ₂ :	μġ/m³	80	IS 5182 (Part-6)	35.3			
	ad (Pb)	μg/m³	1	IS 5182 (Part-22)	0.11			
	nmonia as NHs	μg/m³	400	IS 5182 (Part-5)	4.6			
	one (O₃) ,	μg/m³	180	IS 5182 (Part-9)	15.5			





Prasad

Shrayaçee Pracad Bate: 2029.01.13 13/43.07 +05/30

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legaticourt purpose without whaten permission of the Laboratory

Comtact Us:

122-C, Aastha, Road No. 54, Pathipetra Celony, Patro - 300 013 (Bilgar)

Mob.: +918676886249 , +919431017908 salusane (all values co.in ; mfo/deshi/valest com Estail:

Website: www.shivarest.com , www.shivaresthouse.com

Page 1 of 1



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF MOIA, UNDER ENVIRONMENT (PROTECTION ACT 1966, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. N	o. <i>STH/TR/</i> 22-23/5279(A)	Dt: <i>13.8.</i>	<i>l.2023</i> Your W	ork Order No. 4000285	067-037-1019	Dt : 31.67.262		
[a]	Name and address of the	: he Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Details of Sample			Ambient Air Quali		per NAAOS)		
[6]	Sample Collected by	•	''	SHIVA TEST HOU				
[4]	Sampling Location			Cottessed from Near a	the up of Tejeseri.	Balling (Tamakip		
[e]	Method of Sampling			IS 11255 (Part-1,2,3	&7).	•		
M	Sampling Environment	al Condition	• .	Temp. (°C)	18 Hum	idity (%) 72		
[4]	No. & Type of Contain	ਰ		One poly Jar	•			
[h]·	Instrument ID	•		RDS-1, FPM-1		•		
(i)	Sample Quantity		:	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₅)				
Ú)	Sample Code			A-5279				
[k]	Sample Condition on R	eccipt	•	Fit for Analysis				
[1]	Items required to be tes			As per contract No				
(m)	Whether any specific N been suggested by the p		si has :					
[n]	Date of receiving the sa	ample		07.01.23				
િ	Analysis Start Date / A	natyșis Com	pletion; Date	07.01.23 / 09.01.23				
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at the to	ation / Result up of Tefasavi Township)		
1. Cal	rban Monoxide (CO)	/mg/m³	4	IS 5182 (Part-10)		11		
	2. Benzene (C _s H _s) μg / m ³ 5			IS 5182 (Part-11)	0.	10		
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12) 0.15		15			
4. Arsenic (As) ng / m ³ 6			AAS Method 0.07		07			
Nickel as Ni ng / m³ 20			AAS Method	. 8.	59			
6. Me	roury (Hg)	ng≀m³	Not Specified	US EPA (Method KI-5)		25		



Patria

Shreyasee Prasad

Digitally signed by Shregatae Pracad Date: 2023.01,13 13:43:23 +05'30'

Authorized Signatory Quality Manager

END OF TEST REPORT This report applies only to earnple tested as above.

Total Clability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory:

Contact us: 122-C, Austia, Road No. SA. Pudipum Colony, Prins - 800-013 (Billar).

MON +918676886299 , +91943104790\$ stinetas i Ovahoo, co in ; priosistans test, com

Website: www.shivatest.com , www.shivatesthouse.com

Page 1 of 1



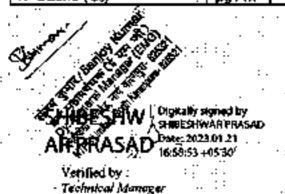


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL L'ABORATORY BY MOÉFICO, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY.
OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.: STH/TR/22-23/5399	· Dt : 21.0	7.2023 Your We	ork Order No. 40002850	67-037-1019 Dt: 31.67.2022			
[a] Name and address of th	e Oustomer	· . #.	Project At: Tandwa	a Super Thermal Power			
	:	:	Dist- Chatra	201			
[b] Details of Sample	· ·	<u>.</u>	Jharkhand- 825	Monitoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location	·:	· · ·		the top of Tojasavi Bullding (Township)			
[e] Method of Sampling			IS 11255 (Part-1,2,3				
[f] Sampling Environment	al Conditio	D + 1 + 2 1 1	Temp. (°C)	14 Humidity (%) 75			
i) No. & Type of Contain			One poly Jar				
[h] Instrument ID	· · · · .::	·. ·	RDS-1, FPM-1				
[i] Sample Quantity		i.	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[i] Sample Code	· · ::		A-5399	·			
[k] Sample Condition on R	tecerpt		Fit for Analysis As per contract No				
[l] Items required to be tes	led	•					
[m] Whether any specific M been suggested by the p	(ethad of To party	est has					
[n] : Date of receiving the sa			12.01.23				
[o] Analysis Start Date / A	nalysis Con	npletion Date	12.01.23 / 14.01.23	i i i i i i i i i i i i i i i i i i i			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi Building (Township)			
1. Particulate Matter (PM ₁₀):	μġ/m³	100	IS 5182 (Part-23)	Fe() F1 74 (
2 Particulate Matter (PM ₂₃)	μg / m³	60	CPCB (GMAAP Vol. I)	39.7			
3. Sulphur Dioxide as SO2	μg/m³	80	IS 5182 (Part-2)	11.8			
Nitrogen Dioxide as NO ₂		80	IS 5182 (Pan-6)	33.6			
s. Lead (Pb)	μg/m³:	1	IS 5182 (Part-22)	0.16			
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Pari-5)	5.5			
7. Ozone (Q ₃)	μg/m³	180	IS 5182 (Part-9)	20.4			





Shreyasee Prasad

Digitally signed by Shreyesee Prased
Date: 2023.01.21
17:03:10 +05'30'

Authorized Signatory

Quality Manager

BND OF TEST REPORT

This report applies only to sample lested as above.

Total Liability of our Leboratory is limited to invoiced amount;

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legationart purpose without written permission of the Laboratory.

Co**et**ect es :

122-C, Azetha, Road Np. SA, Patliputa; Colony, Potra — 800 013 (Bilsar)

Mob...+91\$676\$36249 .+919431047906 Emell <u>salnoweal@cultro.co.do</u> ; <u>Info@chitosest.com</u>

Website: www.shirintest.com; www.shivatesthouse.com

* ;; * ; * ; · · · · · ·

Page | of 1



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5399(A)	Dt: 21.0	1.3023 Your W	ork Order No. 400028			
[8] Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
(b) Details of Sample			Amblent Air Quai	iny Monitoring (A.	s per NAAQS)	
[c] Sample Collected by			SHIVA TEST HO		-	
[d] Sampling Location	:		Collected from Near	et the top of Tejarati	Building (Township)	
[o] Method of Sampling			IS 11255 (Part-1,2,)	3 & 7)	•	
fl Sampling Environment	d Condition		Temp. (⁹ C)	14 Hun	nidity (%) 75	
] No. & Type of Contains		-	One poly Jar			
[h] Instrument ID			RDS-1, FPM-1			
[i] Sample Quantity			30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₃)		
[j] Sample Code			A-5399			
[k] Sample Condition on R	sceipt		Fit for Analysis			
[]] Items required to be tea	ted		As per contract			
[m] Whether any specific M been suggested by the p		st has	No 12.01.23			
[n] Date of receiving the sa						
[o] Analysis Start Date / Ar	aalysis Com	pletion Date	12 01 23 / 14.01 23			
•		1	Method of	Şampling S	lation / Result	
Parameterş	Unit	Limit as per NAAOS 2009	Test		op of Tejasavi (Township)	
Carbon Monoxide (CO)	4	(\$ 5182 (Part-10)	0	.23		
1. Carbon Monoxide (CO) mg / m³ 4 2. Benzene (C ₆ H ₆) μg / m³ 5 3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-11)	. 0	.08 -	
3. Benzo(a) Pyrene	1	(S 5182 (Part-12)	0	.16		
4. Arsenic (As)	· 6	AAS Method 0.38				
4. Arsenic (As)			AAS Method	. 1	.42	
6. Mercury (Hg)	Not Specified	US EPA (Method IO-5)	. 0	.20		



Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Exte. 2023.01.21 17:12:43 +05'30'

Authorized Signatory Quality Manager

END OF TEST REPORT --

This report applies only to sample letted as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

That Report can not be reproduced partially or full for legat/court purpose without written permission of the Laboratory.

Page 1 of 1

Contact us:

122-C, Assika, Road No. 5A, Pattiputra Colony, Patpa = 209 ()13 (Bakar).

Meb.: +918676486249 ; +919431047908

salpana i @yahoo.co m ; infu@shiwacsi.com

Website: www.sbivistest.com; www.sbivatesthouse.com



TEST HOUSE

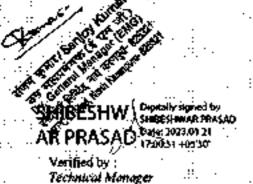


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORPGC, GOVE OF INDIA; UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BOYAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. 1	No. STH/TR/22-23/5439	DI: 31.01	.2023 Your W	ork Ordér No. 40002850	67-037-1019	Dt: 32.97,2022	
[a]	Name and address of th	•	•	North Karanpur Project At: Tandwa Dist- Chatra Jharkhand- 825			
[b]	Details of Sample			Ambient Air Quality I	Monitoring (As per 1	MAAQS) ::::	
[d]	Sample Collected by Sampling Location	.		SHIVA TEST HOUS Collected from Near at		ullaina (Taunshin)	
[0]	Method of Sampling	•		IS 11255 (Part-1,2,3'8			
Til —	Sampling Environments		n '':-	Temp. (*C)	17 Humidity	(%) 73	
(jti) (jti)	No. & Type of Contains Instrument ID	<u> </u>		One poly Jar :: RDS-1, FPM-1	···	· · · · · · · · · · · · · · · · · · ·	
ſij	Sample Quantity	∴	<u> </u>	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[k] :	Sample Code Sample Condition on Re	eceint :	· - · · ·	A-5439 Fit for Analysis		: .	
m	Items required to be test	ted	<u>:</u>	As per contract			
[m]	Whether any specific M been suggested by the p		est has	No	· ·	. ' '	
ſnì.	Date of receiving the sa		. :.	14.01.23		• •	
[0]	Analysis Start Date / Ar	iaTysis Con	npletion Date	14 01, 23 / 16,01 23			
. :	Parameters :	Unit	Limit as per NAAOS 2009	Method of Test	Near at the to	ition / Result ip of Tejasavi Fewnskip)	
	rticulate Matter (PM ₁₀)	μg / m³ `	100	(\$ 5182 (Part-23)	71	.1	
(P)	rticulate Matter V ₂₅)	μ g / m 3 .	- 60	GMAAP Vol. ()	39). 7 · .	
	phur Dioxide as SQ ₂	μα/m³	. 80	IS 5182 (Part-2)	, 16		
_	rogen Dioxide as NÖ ₂	ug/m³	80	IS 5182 (Part-6)	33		
	ed (Pb)	ug/m³	. 1 ::	(8 5182 (Part-22)		04 [:]	
-	monia as NH ₃	μg / m³	400	(S 5182 (Part-5)	· ·. 4,		
7. UZ	one (O_3)	μ <u>α / m</u> ,	. 180	(S 5182 (Part-9)	17	i.1 ·	



Pares 200013

Prasad

Shreyasee Colgitally signed by Shreyasee Prasad Date: 2023.01.21 17:14:32 +05'30"

Authorized Signstory Quality Manager

This report applies only to earnple tested as altoye, Total Lisbility of our Laboratory is limited to invoiced amount.

Test Report endorsed only the lests and not the product certificate.

Test Report can not be reproduced partiety or full for legal/court purpose without written permission of the Laboratory.

Contact as:

122-C; Asstite, Road No. 5A, Palliputus Colony, Pama - 800 013 (Bjhjar)

Mob.: +918676866249 ; +919431047906

Website: www.shivistest.com; news.shiv.resthioge

ancimal@vanco.co.in / info@sticsiusi.com



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF MDIA, UNDER ENVIRONMENT (PROTECTIONS ACT 1986, DEPTT. OF ENDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5439(A)	Di: 21.4	1.2023 Your V	Vork Order No. 400028	8067-037-	1019 Dt : 31.	07,2022	
[a] Name and address of th	a] Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Quali	ity Monitor	ing (As per NAAC)\$7 ·	
[c] Sample Collected by	•		SHIVA TEST HOL				
[d] Sampling Location			Collected from Near's	u the top of 1	Tejesavi Building (To	wuship)	
[e] Method of Sampling			IS 11255 (Part-1,2,3				
[f] Sampling Environment	al Condition		Temp. (°C)	17	Humidity (%)	. 73	
] No. & Type of Contain			One poly Jar				
[h] Instrument ID			ROS-1, FPM-1				
[i] Sample Quantity	-		30 m) x 6 for each (NO ₂ , SO ₂ , NH ₃)				
(j) Sample Code			A-5439				
[k] Sample Condition on R	eceipi		Fit for Analysis				
[I] Items required to be tes	ted		As per contract				
[m] Whether any specific M been suggested by the p		st has	No				
[n] Date of receiving the sa			14.01.23				
[o] Analysis Start Date / A	nalysis Com	pletion Date	14.01.23 / 16.01.23				
Parametera	Unit	Limit as per NAAQS 2009	Method of Test	Near a	ing Station / Re at the top of Teja ading (Township	Savi	
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	0.34			
2. Benzene (C ₆ H ₈)	μ̃g / m³	5	IS 5182 (Part-11)				
Benzo(a) Pyrene	IS 5182 (Part-12)						
4. Arsenic (As)	ng/m³	. 6	AAS Method	0.07			
Nickel as Ni	ng / m³	20	AAS Method 2.84				
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Method IO-6)		0.33.		



Shreyasee Prasad

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above,

Technical Manager

Total Liability of our Laboratory is imitted to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced parallely or full for legal/coun purpose without withen permission of the Laboratory.

Contact us:

172-C, Assitu, Road No. 5A. Pallaporta Colony, Petra - 500 013 (Bihar)

Mub. #918676886249 . #91943104790\$

Website: www.shimalest.com; www.shimalesthoure.com

Page I of I

athpatrial@yabea.co.in ; info@dhivatest.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORPCC, GOVT. OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT OF BEJUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5	888 Dt: 02.92	2023: Your Wo	ork Order No. 40002869	67-037-1019 Dt: 31.07.2022			
[a] Name and address	of the Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample	·	• • •		Monitoring (As per NAAQS)			
(c) Sample Collected	by		SHIVA TEST HOUS				
[d] Sampling Location	п		· Collected from Near at	the top of Tejasavi Building (Township)			
[e] Method of Sampli	மத்	· · · · · · · · · · · · · · · · · · ·	IS 11255 (Part-1,2,3)	& 7)			
(f) Sampling Environ	mental Condition	п .:	Temp, (°C);;	19 Humidity (%) 71			
g]. No. & Type of Co	ntainer		One poly Jar				
[h] Instrument ID			ROS-1, FPM-1	: ·:			
(i) Sample Quantity	<u> </u>		30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-5888				
[k] Sample Condition	on Receipt		Fit for Analysis				
[f] [tems required to l	be tested.	·	As per contract				
[m] Whether any spec been suggested by		est has	No				
[n] Date of receiving		; ·	28.01.23				
[o] Analysis Start Dat	ie / Analysis Con	pletion Date	28.01.23/30.01.23	11. In the state of the state o			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi Building (Township)			
1. Particulate Matter (Pi	M ₁₀) μg/m³	100	tS 5182 (Part-23)	76.6			
Particulate Matter (PM ₂₅)	μg/m³-	60	CPCB (GMAAP Vol. I)	41.0			
 Sulphur Dioxide as S 	O ₂ μg/m³	80	(S 5182 (Part-2)	12.9			
Nitrogen Dioxide as I		- 89	(S 5182 (Part-6)	34.6			
5. Lead (Pb)	ng/m³	1	18:5182 (Part-22)	0.46			
8. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	6.1			
7. Ozone (O ₃)	µg/m³	180	(\$ 5182 (Part-9)	21.0			





END OF TEST REPORT

Shreyasee Prasad

Digitally signed by Dolg: 2023-02.02 15:16:17 +05'30'

Authorized Signatory. Quality Manager

This report applies only to sample leated as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product conficuse...

Fest Report can not be reproduced pertially or full for legalicourt purpose without written permission of the Laborator

122-C, Aastha, Road Ho. 3A, Pathjutes Colony, Patrix - 800 013 (Bihari

Mob.: 4918676886249 , 4919431047908

Email: <u>athoranal allestero codo , imforgativenesi com</u>

Website: www.shihttest.com; www.shinateshouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEFTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5888(A)	Di : <i>02.0</i> 2.	.2023 Your W	ork Order No. 4000285	067-037-1	019 Dt : 31.0	7.2022	
(a) Name and address of th	e Custom er		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample	· .		Ambient Äir Quali	ny Monttor	ing (As per NAAO	♡	
(c) Sample Collected by	'		SHIVA TEST HOU				
[d] Sampling Location			Collected from Near a	t the top of 3	ejasavi Building (Tor	vashio)	
[e] Method of Sampling			IS 11255 (Part-1,2,3	& 7)			
[f] Sampling Environments	d Condition	:	Temp. (°C)	19	Humidity (%)	.71	
 No. & Type of Contains 	or .		One poly Jar				
(h) Instrument ID			RDS-1, FPM-1				
(i) Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-5888				
[k] Sample Condition on R	eceipt		Fit for Analysis				
[1] Items required to be test			As per contract				
[m] Whether any specific M	ethod of Te	st has	No				
been suggested by the p	arty						
[n] Date of receiving the sa			28.01.23				
[o] Analysis Start Date / Ai	ialysis Com	pletion Date	28.01.23/30.01.23				
	1	Lîmit as per	Method of	Samp	ing Station / Rec	zult	
Parameters	Unit "	NAAQS 2009	Test		it the top of Tejas		
				Bui	iding (Township)	i	
Carbon Monoxide (CO)	ing/m³	4	IS 5182 (Part-10)	. 0.34			
2. Benzene (C ₆ H ₆)	μgr/ m ²	5 ·	IS 5182 (Part-11)	-11) 0.10			
3. Benzo(a) Pyrene	ng/m³	1	IS 5182 (Part-12) 0.16				
4. Arsenič (As)	ng/m³	. 6	AAS Method 0.39				
Nickel as Ni	ng/m³	20	AAS Method 2.84				
6. Mercury (Hg)	US EPA (Method NJ-5)		0.21				



Palna

Shreyasee Prasad

Digitally signed by Shieyasee Prasad Date: 2023.02.02 15:16:32 +05'30"

Authorized Signatory Quality Manager

 END OF TEST REPORT -This report applies only to sample tested as above.

Total Liability of our Enboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for legal/court purpose without written parmission of the Laboratory.

Contact us: 122-C, Aastita, Rood No. \$A, Pathipetra Colony, Prena - \$00 013 (Bihari:

MSb. +918676486249 ; +919431047908 Email:

stitutual divalences in ; info@thirettett.com

Website: www.shrvalesu.com; www.shrvalesuhouse.com

Page 1 of 1

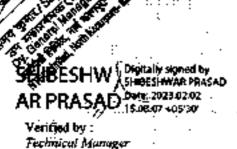




RECOGNISEO AS ENVIRONMENTAL LABORATORY BY MOSPICC, GOVT, OF MOIA, UNDER SANIROHMENT (PROTECTION) ACT 1988, DEP OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BINAR AND BINAR STATE POLLETION CONTROL BOARD

TEST REPORT

<u></u>		<u> </u>		<u> </u>			
Ref. No. STH/TR/22-23/5893 D	t : 0 2.02.20.	23 Your Work	Order No. 4000285087-				
	•	.: :	North Karanpura Project	a Super Thermal Power			
[a] Name and address of the	Oustomer	::	At: Tandwa	•			
(a) realic and address of the	Chacille.		:Dist- Chatra				
			Jharkhand- 825	321			
[b] Details of Sample		· · · · · ·		fonlioring (As per HAAQS)			
[c] Sample Collected by		• • • • •	SHIVA TEST HOUS				
[d] Sampling Location		·:	·	the top of Tejasavi Building (Township)			
[e] Method of Sampling			IS 11255 (Part-1,2,3 &				
[f] Sampling Environmenta	Condition		Temp. (%)	19 Humidity (%) 70			
g) No. & Type of Containe		·	One poly Jan				
[h] Instrument ID	: : .		RDS-1, FPM-1	· : : :			
[i] Sample Quantity	•	. ::	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code		:	A-5893				
[k] Sample Condition on Re	cerpt		Fit for Analysis				
[1] Items required to be teste	ed :	·	As per contract	· · · .			
[m] Whether any specific Me been suggested by the pr		st has	No				
[n] Date of receiving the san		·. · · · · · · · · · · · · · · · · · ·	28.01.23				
[0] Analysis Start Date / An		nlation Date	28 01:23 / 30:01:23				
[0] Analysis State Date / All	arysis Com	DISTROIT LANCE	2001,23730.01,23	Sampling Station / Result			
Parameters	Unit 1	Limit as per	Method of	Near at the top of Tejasavi			
:		NAAQS 2009	Test	Building (Township)			
1. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	71.1			
2. Particulate Matter (PM ₂₆)	μg / m³	60	CPCB:::(GMAAP Vol.:))::	38.3			
3. Sulphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2)	17.1			
4. Nitrogen Dioxide as NO ₂	ag/m³	80	IS 5182 (Part-6)	33.6			
5. Lead (Pb)	μg/m³	1	IS 5182 (Part-22)	· 0.03			
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	4.9			



Potab ROODLI

END OF TEST REPORT

Shreyasee Prásad

Digitally signed by Shreyasee Prasad Bate 2023.02.02 15:20:11 +05:30"

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endursed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legalicount purpose without written permission of the Leboratory

Contact us :

122-C, Apptles, Road No. 5A, Poliginia Colony, Paters = 800 (1) (Bilter)

Mob.: 4918676886249; +919431647908

Stroma (@yalko co.in ; info@shivarist com

Page Lof. I



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1988, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5893(A)	Dt : 42.02	2023 Your W	ork Order No. 400028	5067-037-	1019 Di: 31.07.2022	
[a] Name and address of the	o Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Qual	itv Montto,	ring (As per NAAQS)	
[c] Sample Collected by	•	•	SHIVA TEST HOU			
(d) Sampling Location			Collected from Near a	u the top of	Tejetari Bididing (Terenship)	
[e] Method of Sampling			1S 11255 (Pert-1,2,3	& 7)		
[f] Sampling Environments			Temp. (°C)	19	Humidity (%) 70	
No. & Type of Contains	г		One poly Jar			
k] No. & Type of Contains [h] Instrument ID .		•	RDS-1, FPM-1			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH₂)			
[j] Sample Code .			A-5893			
[k] Sample Condition on Re	eceipt		Fit for Analysis			
[i] Items required to be test			As per contract			
[m] Whether any specific M been suggested by the p		st has	No :			
[n] Date of receiving the sai		•	28.01.23			
[o] Analysis Start Date / An	ialysis Com	pletion Date	28.01.23 / 30.01.23			
. :	Ι΄	Limit as per	Method of	Samp	oling Station / Result.	
Parametera	Unit	NAAQS 2009	Test		at the top of Tejasavi ilding (Township)	
Carbon: Monoxide (CO)	mg / m³	4	(S 5182 (Part-10)	0.56		
2. Benzene (C ₆ H ₆)	μg/m³	5	IS 5182 (Párt-11)	0,04		
3. Benzo(a) Pyrene				0.15		
4. Arsenic (As)	ng / m³	6	AAS Method	(Part-12) 0.15 Method 0.21		
Mickel as Ni	ng / m³	20	AAS Melhod	4.9		
6. Mercury (Hg)	Not Specified	US EPA (Method IO-5)		0.08		

Digitally signed by SHIBESHWAR PRASAD Date: 2023.02.02 AR PRASA 15:08:21 +05'30'.

Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.02.02 15:20:30+05:30

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involved amount.

Test Report endorsed only the tests and not the product certificate,

Test Report can not be reproduced partially or full for legal/court purpose willbout written permission of the Laboratory.

Contact us:

172-C, Assidia, Rosal No. 5A, Padiputra Colony, Patria – 100 013 (Bates)

Mob.: +91\$676886249 ; +919431047908

Website: www.shipmest.com; www.shipmesthouse

sabanana la estado co la . Infestigativases: cons





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MINEFOC, GOVY, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOYT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5931	Dr 94.0	2.2023 Your W	/ork Order No. 40002850	087-037-1010 Dt: 31.07.2022			
[a] Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825-321				
[b] Details of Sample	· · · · · · · · · · · · · · · · · · ·		Ambient Air Quality I	Monitoring (As per NAAQS)			
[c] Sample Collected by	•		SHIVA TEST HOUS	SE on 30.01.23			
[d]· Sampling Location			Collected from Near at	the top of Telasari Building (Terreship)			
[e] Method of Sampling			IS 11255 (Part-1,2,3 &	೬ 7)			
[f] Sampling Environment	at Condition	n	Temp: (ºC}	19 Humidity (%) 71			
[g] No. & Type of Contain			One poly Jar				
[h] Instrument ID			RDS-1, FPM-1	1.11			
[i] Sample Quantity		•	30 ml x 6 for each (I	NO2, SO2, NH3)			
[j] Sample Code	.'		A-5931				
[k] : Sample Condition on R	ecerpt		Fit for Arialysis				
[1] Items required to be tes	ted		As per contract				
[m] Whether any specific M been suggested by the p		est has	No				
[n] Date of receiving the sa			01.02.23				
[6] Analysis Start Date / A		npletion Date	01.02.23 / 04.02.23				
··· · · ·	. :			Sampling Station / Result			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at the top of Tejasavi Building (Township)			
1. Particulate Matter (PM ₁₀)	µg / m³	100	IS 5182 (Part-23)	77.1			
Particulate Matter (PM _{2.5})	jug / m³	60	CPCB (GMAAP Vol. I)	40.1			
3. Sulphur Dioxide as SO ₂			1S 5182 (Part-2)	12.1			
4. Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6) 34.0				
Lead (Pb)	μg/m³	1 ·	IS 5182 (Part-22) 0.13				
8. Ammonia as NHs.	μg/m³	400	IS 5182 (Part-5)	6.4			
7. Ozone (Os)	μg / m³	180	IS 5182 (Part-9)	22.2			

Digitally signed by SHIBESHWAR PRASAD Date: 2023.02.04 13:29:58 +05'30'

Verifled by : Technical Monager



- END OF TEST REPORT

Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.02.04 13:48:54 +05'30'

Authorized Signatory. **Quality Manager**

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C. Aastha, Road No. SA. Patiguetra Colony, Patra - \$00 013 (Bihar)

Mdb: 4918676886249 : +919431047908 simpointalis@varios.co in : imfo@stitrateiss.com

Website: www.shivatesi.com; www.shivatesihouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MAEFCC, GOVT, OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY, OF INDUSTRY, FORESTS & ENVIRONMENT, GOV'T OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/5931(A)	Dt: 04.	02.2023 Your	Work Order No. 40002	286067-037-1019 Dt: 31.07.202		
[a]	Name and address of th	e Customer		North Karanpurz Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825-321			
[b]	Details of Sample				lity Monitoring (As per NAAQS)		
[c]	Sample Collected by	•		SHIVA TEST HO			
वि	Sampling Location				at the top of Telesari Building (Township)		
[e]	Method of Sampling			IS 11255 (Part-1,2,			
[f]	Sampling Environments	al Condition		Temp. (%C).	19 Humidity (%) 71		
	No. & Type of Contains	s i்.	•	One poly Jar			
[h]	Instrument ID			RDS-1, FPM-1			
<u> [i]</u>	Sample Quantity		-	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[]	Sample Code			A-5931			
[k]	Sample Condition on Re	ecempt		Fit for Analysis			
ſij	Items required to be test			As per contract			
[m]	Whether any specific M been suggested by the p		st bas	Na			
(n)	Date of receiving the sa			01.02.23			
[<u>0</u>]	Analysis Start Date / Ar	nalysis Com	pletion Date	01.02.23 / 04.02.23			
	Parameters	Unit	Limit es per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi Building (Township)		
1. Cart	on Monoxide (CO)	mig / m ³	4	IS 5182 (Palt-10)	0.23		
2. Ben:	zene (CdHs)	μg / m³	5	IS 6182 (Part-11)	0,11		
a. Bena	zo(a) Pyrene	ng / m ³	1	IS 5182 (Part-12)	0.19		
4. Arse	nic (As)	ng / m³	6	AAS Method	0.37		
5. Nick	el as Ni	ng / m³	20	AAS Method 4.26			
o. Merc	ury (Hg)	ng/m³	Not Specified	U\$ EPA (Welhod 10-5)	0.18		

Digitally signed by SHIDESHWAR PRASAD Gute: 2023/02/04 13:30:14 +05301

Verified by : Technical Manager



END OF TEST REPORT -

Shreyasee Prasad

Dere (1993-1940) de 1966:12-**46739**

Authorized Signatory Quality Manager

This report applies trily to sample tested as above.

Total Eability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legaticount purpose without written permission of the Laboratory.

Contact us:

122-C, Additio, Road No. 5A. Pallipoint Colony, Pates - 800-013 (Bilbar)

Mob: +918676886249; +9194310479xt sthottast@tvahoo.co.in ; info@shipotest.com

Website: www.shilviten.com; www.shilvatesthouse.com



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5936	Dt : 04.0	2.2023 Your V	Vork Order No. 40402850	067-03	7-1019 Dt : 3	1.07.2022	
(a) Name and address of th	e Customer	·	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
(b) Details of Sample			Ambient Air Quality I	domitori	ing (As per NAAOS)		
[c] Sample Collected by		•	SHIVA TEST HOUS				
[d] Sampling Location		-	Collected from Near at .	the top o	Tojasavi Zaliding (Fouraskip)	
[c] Method of Sampling		•	IS 11255 (Part-1,2,3 &				
Sampling Environment	al Condition	<u>0</u>	Temp. (⁴ C)	19	Humidity (%)	70	
[g] No. & Type of Contains			One poly Jar				
[h] Instrument LD			RDS-1, FPM-1	•	•		
[i] Sample Quantity			30 ml x 6 for each	(NO ₂ ,	SO ₂ , NH ₃)		
[j] Sample Code			A-5936				
[k] Sample Condition on R.	eceipt		Fit for Analysis				
[l] Items required to be tes	ted		As per contract				
[m] Whether any specific M been suggested by the p		est has	No				
[n] Date of receiving the sa			01.02.23				
[o] Analysis Start Date / Ar		npletion Date	01.02.23 / 04.02.23				
	•	J Inside an asse	Method of	Sampling Station / Result		Result	
Parameters	Unit	Limit as per NAAQS 2009	Test	Nez	ir at the top of To Building (Towasi	jasavi	
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)		73.2		
Particulate Matter (PM _{2.5})	μġ / m ^a	60	CPCB. (GMAAP Vol. II)		37.2		
3. Sulphur Dioxide as SO ₂	IS 5182 (Part-2)	17.5					
4. Nitrogen Dioxide as NO ₂	IS 5182 (Part-6) 33.8						
Lead (Pb)	μg/m³ μg/m³	80	IS 5182 (Part-22)		0.03		
s. Ammonia as NHs	μg / m³	400	IS 5182 (Part-5)		5.1		
7. Ożone (Os) .	μg / m³	180	IS 5182 (Part-9) 15.6				

Digitally signed by SHRBESHWAR PRASAD SAD (148 2023 02.04 13:37:07 +05'30' Verified by :



- END OF TEST PEPORT

Shreyasee 🖟 Prasad

Digitally signed by Shreyasee Prasad Date: 2023-02-04 13:52:04 +05'30"

Authorized Signatory -Quality Manager

Technical Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involved emperit

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court pulpose without written permission of the Laboratory.

Contact us:

122-C, Azalla, Road No. 5A, Pathiputra Colony, Pante - \$00 013 (Bahar)

Meb.: +918676386249 (+919431047908 Shorina | Gerden co.in ; in fe@drivates.com

Website: www.shrupes.com; www.shrupeshohee.com



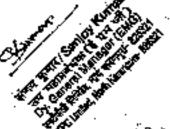


(Serving since 1988).

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT, OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1985, DEFTY. OF INDUSTRY, PORESTS & ENVIRONMENT, GOVE OF BIHAR AND BRIAR STATE POLLUTION CONTROL BOARD

<u>test réport</u>

Ref. No. STH/TR/22-23/5936(A)	Di: 04.	02.2023 Your	Work Order No. 48002	285067-037-1018 Dt : 31.07.2022	
(a) Name and address of th	e Customer	:	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321		
[b] Details of Sample			Ambient Air Qua	lity Monitoring (As per NAAQS)	
[c] Sample Collected by	:			USE on 31.01.23	
[d] Sampling Location			Collected from Near	at the top of Telesari Building (Township)	
[e] Method of Sampling			IS 11255 (Part-1,2,	3 & 7)	
[f] Sampling Environment	al Condition		Temp. (°C)	19 Humidity (%) 70	
[g] No. & Type of Contains	ਹੈਂT		One poly Jar		
[h] Instrument ID			RD8-1, FPM-1	•••	
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)		
[j] Sample Code			A-5936		
[k] Sample Condition on R-	oceipt .		Fit for Analysis		
[1] Itoms required to be test	(ed		As per contract		
[m] Whether any specific M been suggested by the p		st has	No		
n Date of receiving the sa	mple		01,02.23		
[o] Analysis Start Date / Ar	nalysis Com	pletion Date	01.02.23 / 04.02.23		
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi - Building (Tewnship)	
i. Carbon Monoxide (CO)	mg/m³	- 4	IS 5182 (Part-10)	0.68	
2. Benzene (C ₆ H ₆)	μg/m ³	5	IS 5182 (Part-11)	0.03	
3. Benzo(a) Pyrene	ng / m³	1	IS 5182 (Part-12)	0.16	
4. Arsenic (As)	- ng / m²	. 6	AAS Method 0.28		
5. Nickel as Ni	ng / m ^{a.}	20	AAS Method 5.1		
Mercury (Hg)	ng / m³	Not Specified	US EPA (Method KI-5)	0.16	



Digitally agreed by SHIRESHIYAR PRASAD Dags, 2023-02-04 AR PRASA 13:32:27 +05:30

Verified by : Technical Manager



Shreyasee) Prasad

Digitally signed by Shreyasee Presad Date: 2023-02-04 13:52-28 +05'30'

Authorized Signetory Quality Monaget

END OF TEST REPORT

This report applies only to sample lested as above.

Total Liability of our Laboratory is limited to involced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legar/coun purpose without whiten permission of the Laboratory.

Contact us: 1,22-C; Aástia, Road No. 5A, Parlipeira Colony, Petra - 309 013 (Bilipe)

Nath.: +918676886249 ; +91943 | 047908

Website: www.shivatest.com; www.shivatesth.

Page 1 of 1



VA TEST HOUSE

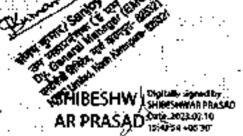


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF LICHA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTE. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5945	Di: 16.02.26	23 Your War	k Order No. 400028506	7-037-1019 Di: 31.07.2022			
				a Super Thermal Power			
(a) Name and address of the	Customer	. i.	At: Tandwa				
	٠.	••••	Dist- Chatra				
·· <u> </u>	٠:		Jharkhand- 829	5 321			
[b] Details of Sample		: '		Monitoring (As per NAAQS).			
[c] Sample Collected by	•.	· · · :	SHÍVÁ TEST HOU	SE on 01.02:23			
[d] Sampling Location			Collected from Near at	the top of Time Office (Main Plant)			
[e] Method of Sampling			IS 11255 (Part-1,2,3)	Δ.T)			
Jt] Sampling Environmenta	Condition	·	Temp. (°C)	22 Humidity (%) 67			
g] No. & Type of Containe	۴ .	:	One poly Jan				
[h] Instrument ID			RDS-2, FPM-2	·. · · · · · · · · · · · · · · · · · ·			
[i] Sample Quantity			30 mil x 6 for each (NO ₂ , \$O ₂ , NH ₃)			
[j] Sample Code	:		A-5945				
[k] Sample Condition on Re	ceipt		. Fit for Analysis				
[1] Items required to be test	ed ···	: .	As per contract				
[m] Whether any specific Me been suggested by the pa		has	No	and the grant of the same			
[n] Date of receiving the sar		: ,	03.02.23				
[o] Analysis Start Date / An	alysis Compl	etion Date	03.02.23 / 06.02.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office			
1. Particulate Matter (PM ₁₀)	μg/m³	100	(S 5182 (Part-23)	(Main Plant) 73.8			
2. Particulate Matter (PM _{2.9})	μ g Am³	60	CPCB .∴ (GMAAP Vol. I). :	42:1			
3. Sulphur Dioxide as SQ ₂ ::::	∍µg/m³	· 80:	IS 5182 (Part-2)	12.3			
* Nitrogen Dioxide as NO ₂	µg/m³	80	IS 5182 (Part-6)	34.4			
s, Lead (Pb)	µgi/km³ ·	1	IS 5182 (Part-22)	0.09			
		400		5.8			
6. Ammonis as NH₃	μg/m ³	400	(S 5162 (Parl-5)	2.8			



Verified by : Technical Manager



Shreyasee Prasad

Authorized Signatory. Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is finited to envolved amount.

Test Report endorsed only the lests and not the product certificate.

Test Report can not be reproduced partially or full for regolacent purpose without unition permission of the Laborator

Contact us:

122-C, Aastha, Road No. 5A, Pattiputta Colony, Patne - 800 913 (Bilgar)

Mob.: +918676816249 ; +919431047908

silmulae (Ghadan so ie : in Rigishi vidibi.com

Website: www.shrvateic.com , www.shivateshouse

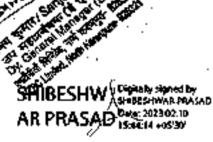




RECOGNISED AS ENVIRONMENTAL LABORATORY BY MISEFEC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BINAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5945(A)	D1: 10.0	2.2023 Your W	ork Order No. 400028				
[a] Name and address of the	Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambiem Air Qua		ig (As per NAAC	5	
[c] Sample Collected by			SHIVA TEST HO				
[d] Sampling Location			Collected from New	at the top of Th	ne Office (Main Ma	me()	
[e] Method of Sampling			IS 11255 (Part-1;2.		·		
[1] Sampling Environments	d Condition		Temp. (⁰C)	22	Humidity (%)	67	
★] No. & Type of Contains	ं ।	•	One poly Jar		•		
[h] Instrument ID			RDS-2, FPM-2				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-5945				
[k] Sample Condition on Re	eceipt-		Fit for Analysis				
[I] Items required to be test			As per contract				
(ni) Whether any specific M been suggested by the p		st has	No				
[n] Date of receiving the sa	mple		03.02.23				
[o] Analysis Start Date / Ar	alysis Com	plotion Date	03.02.23 / 06.02.23				
		Limit as per	Method of	Samplin	ng Station / Rec	sult:	
Parameters	Unit	NAAQS 2009	Test		te top of Time (Main Plant))Mce :	
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)		0.23		
2. Benzene (C ₆ H ₅)	_μ g / m³	. 5	IS 5182 (Part-11)		0.08		
Benzo(a) Pyrene				IS 5182 (Part-12) 0,19			
4. Arsenic (As)	ng/m³	8	AAS Method 0.32				
Nickel as Ni	ng/m³	20	AAS Method 2.80				
6. Mercury (Hg)	ng/m³	Not Specified	US EPA (Method IO-5)	•	0.20		



Verified by : Technical Manager



Shreyasee Prasad

Olgatally signed by Shreyasee Prasad Bate: 2023.02.10 16:2430 +05'30'

Page I of I

Authorized Signatory Quality Manager

END OF TEST REPORT -

This report applies only to sample tested as above.

Total Lightity of our Laboratory is limited to involved amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Ástiha, Rose No. 5A. Patiguera Colony, Paras – 800 013 (Bihar).

Mob 14918676886249 . 4919431047908

sthesmulativehoo co.in ; info@stivatest com

Website : www.shirestest.com; www.shiresesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY INVEFCO, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT: OF BRIAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5957	9t : 16.02.26 2	23 Your Wor	k Order No. 400028505				
[a] Name and address of the C	Eustomer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chaira Jharkhand- 825-321				
[b] Details of Sample	. "		Ambient Air Quality h	Honitoring (As per NAAQS)			
[c] Sample Collected by		· '	SHIVA TËST HOUS	E on 02 02:23			
[d] Sampling Location	. ".		Collected from Near of	the top of Time Office (Main Plant)			
[e] Method of Sampling	· :		IS 11255 (Perc-1,2,3 8				
[f] Sampling Environmental	Condition		Temp. (°C)	22 Humidity (%) 68			
.s] No. & Type of Container		٠.	One poly Jar				
[h] Instrument ID			RD\$-2, FPM-2				
[i] Sample Quantity			30 ml x.6.for each (NO ₁ , SO ₂ , NH ₃)				
[j] Sample Code			A-5957				
[k] Sample Condition on Reco	aipt		Fit for Analysis				
[I] Items required to be tested		•	As per contract				
(m) Whether any specific Met been suggested by the part		ias .	No				
[n] Date of receiving the same			03.02.23	<u> </u>			
[0] Analysis Start Date / Anal		tion Date	03.02.23 / 06.02.23	· · · · · · . · .			
Parameters	: Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)			
Particulate Matter (PM ₁₀)	μg/m³	r · 100	IS 5182 (Part-23)	74.1			
2. Particulate Matter (PM ₂₅)	μ g /m ³	60 -	CPCB (GMAAP Vol. II)	·· 41:3			
3. Sulphur Dioxide as SO ₂	μg / m³	. : 80	IS 5182 (Part-2)	13.5			
Nitrogen Dioxide as NO ₂ pg / m ³ 80			IS 5182 (Part-6)	33.7			
5. Lead (Pb) µg / m³ 1			IS 5182 (Part-22)	0.09			
8. Ammonia as NH ₂ "	.μg/m³	400	IS 5182 (Part-5)	6.1			
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	20.0			

Dabe: 2023.02.10

Verified by : **Technical Manager**



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2025.02.10 16:26:56 +05'30'

Authorized Signatory . Quality Manager

END OF TEST REPORT

This report applies only to sample tasted as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

Contact as:

122-C, Aastla, Road No. SA, Pallapura Colony, Pana - 800 013 (Bihar)

Mob.: +918676186249; +919431047908 sthootnet@withoc.co.in ; info@witheast.com

Website : www.shivatest.com; www.shivatestho

Page I of L.



(Serving since 1968)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DIEFTE. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BRIAR AND BHAR STATE POLLUTION CONTROL BOARD

<u>TEST REPORT</u>

Ref. No. STH/TR/22-23/5957(A)	Dt: 10	02.2023 You	Work Order No. 4000				
[a] Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample				_	oring (As per NAAC	S	
[c] Sample Collected by .			SHIVA TEST HO			•	
[d] Sampling Location					Thus Office (Male Pie	rwe)	
[e] Method of Sampling			IS 11255 (Port-1,2,		. ::		
[f] Sampling Environment	al Condition		Temp. (°C)	22	Humidity (%)	. 68	
[1] No. & Type of Contain	er er	•	One poly Jar		• •		
[h] Instrument ID			RDS-2, FPM-2				
[i] Sample Quantity			30 mt x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-5957				
[k] Sample Condition on R	eceipt		Fit for Analysis				
[l] Items required to be tes	_		As per contract				
[m] Whether any specific M heen suggested by the p		si has	Mo · · ·				
[n] Date of receiving the sa			03.02.23				
[o] Analysis Start Date / A	nalýsis Com	pletion Date	03.02.23 / 06.02.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		ping Station / Re- t the top of Time ((Main Plant)		
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	. 0.34			
2. Bertzene (C ₆ H ₆) µg / m ³ 5			IS 5182 (Part-11)	0.10			
3. Benzo(a) Pyrene ng / m³ 1			IS.5182 (Part-12)				
Arsenic (As)	AAS Method						
Nickel as Ni	AAS Method 1.40						
8. Mercury (Hg)	US EPA (Method IQ-5)		0.21				

SHIBESHW Digitally righted by SHIBESHIWARPRASAD AR PRASAD 1547 20 + 05700

> Verified by: Technical Manager



Prasad

Shreyasee Shreyasee Prasad Bate: 2023.02.10 16:27:12 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT -This report applies only to sample tested as above,

Total Liability of our Laboratory is firnited to involved amount.

Test Report engloreed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legislicouri purpose without written permission of the Laboratory.

Contact us :

122-C. Assito, Road No. 5A, Philiputra Colony, Pains - 800 013 (Biltar)

Mob.: +918676886249 ; +919431047908

Website: www.shivness.com , www.shivstesshoust.com

sthusten liiðvahoo.co.in ; imfelöthustest.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFICE, GOVT. OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6199	Dr: 22.02.	2023 Your Wor	k Order No. 400028505	7-037-1019 Dt: 32.07.2022		
[a] Name and address of th	e Customer	ı	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Quality	Monitoring (As per NAAQS) :		
[c] Sample Collected by			SHIVA TEST HOU			
[d] Sampling Location				the top of Time Office (Main Plant)		
[e] Method of Sampling			IS 11255 (Part-1,2,3.			
[17] Sampling Environment	al Conditio	rl.	Temp. (⁰ C)	23 Humidity (%) 66		
No. & Type of Contain			One poly Jar			
[h] Instrument ID			RDS-1, FPM-1	· · · · · · · · · · · · · · · · · · ·		
[i] Sample Quantity			30 ml x 6 (or each (NO2, \$02, NH3)		
[j] Sample Code			A-6199			
[k] Sample Condition on R	ecerpt		Fit for Analysis			
[i] Items required to be tes	ted		As per contract ::			
[m] Whether any specific M been suggested by the p		est has	No			
[n] Date of receiving the sa			10 02 23			
[o] Analysis Start Date / Ar	nalysis Con	npletion Date	10 02.23/ 13.02.23			
		Limit as per	Method of	Sampling Station / Result		
Parameters	Unit	NAAQS 2009	Test	Near at the top of Time Office (Main Plant)		
1. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	72.9		
Perticulate Matter (PM _{2.5})	2. Particulate Matter 40 (m²) 60			41.3		
3. Sulphur Dioxide as SO ₂ µg/m³ 80			(GMAAP Vol. I) IS 5182 (Pert-2)	10.7		
Nitrogen Dioxide as NO ₂ µg/m³ 80			IS 5182 (Part-6)	346		
5. Lead (Pb) μg / m ³ 1			IS 5182 (Part-22)	0.09		
6. Ammonia as NH ₃				13.7		
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-5) IS 5182 (Part-9)	18.0		

SHIBESHW SHIBESHWAR PRASAD AR PRASAD 1541 #2 +05:30

> Verified by : Technical Monager



END OF TEST REPORT.

Prasad

Shreyasee Shreyasee Brasad Date: 2003.02.23 15:54:18 +05'30" Authorized Signatory

Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laborator

Contact us:

122-C, Adotha, Road No. SA, Pathiputo Colony, Patra - 300 013 (Bilber)

Mob : +918676586249 ; +919431047908 Email:

Website: www.shrvstest.com; www.shrvmosthouso.com

Silbetina Larytheo.co.in ; mfo@strivatest.com

Page 1 of 1.

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFICE, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6299(A)	D1 : 22.00	1.2023 Your We	ork Order No. 400028 0	5067-437-101	19 Dt : 31.	07.202	
[a] Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample			Amhient Air Quai	lity Monitoriy	g (As per NAAC	(2)	
[c] Sample Collected by		- "	SHIVA TEST HO				
[d] Sampling Location			Collected from Near	at the top of Th	m Office (Main Me	9U)	
e Method of Sampling			IS 11255 (Pan-1,2,	3 & 7)			
f] Sampling Environments	al Condition		Temp⊬(°C)	23	Humidity (%)	88	
[g] No. & Type of Contains			One poly Jar	•			
[h] · Instrument ID		·	RDS-2, FPM-2				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)				
[j] Sample Code			A-6199				
[k] Sample Condition on R.	eccipt		Fit for Analysis				
[l] Items required to be test			As per contract				
[m] Whether any specific M been suggested by the p		st has	No 10.02.23				
[n] Date of receiving the sa							
[o] Analysis Start Date / Ar		pletion Date	10.02.23/13.02.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at the	ng Station / Res to top of Time (Main Plant)		
r. Carbon Monoxide (CO)	mg / m³	4	IS 5182 (Part-10)	0.34			
2. Benzene (C₀H₅)				5182 (Part-11) 0.01			
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12) 0.19				
4. Arsenic (As) ng / m³ 6			AAS Method 0.32				
Nickel as Ni	AAS Method 4.20						
6. Mercury (Hg)	US EPA (Method IO-6)		0.20				

SHIBESHW | Digitally signed by | SHIBESHWAR PRASAD AR PRASAD 15:42:04 +05:50

Verified by: Technical Manager



- END OF TEST REPORT

Prasad

Digitally agned by Shreyasee Shreyasee Praised Date: 2023.02.23 15:54:41 +05'30'

> Authorized Signatory Quality Manager

This report applies only to semple leated as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced pastially or full for legal/court purpose without written permission of the Laboratory.

Page 1 of 1

Contact as:

132-C, Aastha, Road No. SA, Padiputta Colony, Patte - \$00 013 (Bilay)

Mob.: +9)3676836249 ; +9|943)047908

stinhama lignation.co.un : infa@shifvalesi.com-

Website: www.shivetest.com; www.shivetesthoise.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MINEFOC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1968, DEPTT. OF IMPUSTRY, FORESTS & ENVIRONMENT, GOVY, OF BRIAR AND SMAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6266	Dt: 22.	02.2025 Your	Work Order No. 400028		2022			
••			North Karanpura Super Thermal Power					
			Project					
[a] Name and address of the	Customer	г	At: Tandwa					
1.7			Dist- Chatra					
			Jharkhand- 829	321				
[b] : Details of Sample				Monitoring (As per NAAQS) 👚 :	·'.•			
[c] Sample Collected by			SHIVA TEST HOU	SE on 11:02.23				
[d] Sampling Location				the top of Time Office (Main Plant)				
[e] Method of Sampling			IS 11255 (Part-1;2,3	& 7) · · · ·				
[f] Sampling Environments		ń	Temp. (⁶ C)	23 .Humidity (%) 66	8			
g) No. & Type of Contains	Ħ	•	One poly Jar					
[h] Instrument LD			ROS-2, FPM-2	•				
[t] Sample Quantity			30 mt x 6 for each (NO ₂ (SO ₂ , NH ₃)	_:			
[j] Sample Code			A-6266	1.1	٠.			
(k) Sample Condition on Re	sceipt		Fit for Analysis					
[1] Items required to be test	ed	·	As per contract					
[m] Whether any specific M	ethod of To	est has	No					
been suggested by the pa	arty		NO .					
[n] Date of receiving the sa	mple "		13 02.23					
[o] Analysis Start Date / An	udysis Con	npletion Date	13.02.23/16.02.23		:-			
•		Limit on our	Method of	Sampling Station / Resu	at :			
Parameters	Unit	Limit as per NAAQS 2009	Test	Near at the top of Time Of	Tice			
		MAMQ5 2008	1 631	(Main Plant)				
Particulate Matter (PM ₁₀)	μg / m³	100	18 5182 (Part-23)	72.9	٠.			
Particulate Matter		60 .	CPCB	40.9	٠.			
(PM ₂₈)	μg / m³		(GMAAP Vol. I)	40,8				
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	13.0	•			
Nitrogen Dioxide as NO ₂	μg / m³	80	IS 5182 (Part-6)	35.0	•••			
iii Lead (Pb)	μg / m³	1	IS 5182 (Part-22)	. 0.08				
6. Ammonia as NH ₅	μg / m³	400	IS 5182 (Part-5)	7.2				
7. Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	·. 21.6				

SAIBESHW Digitally regard by SHIBESHWAI PRASAD AR PRASAD 1544(1) +05'30'

Verified by : Technical Manager



Prasad

Shreyasee Shreyasee Prased Date: 2023.02.23 155835-0530

> Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample lested as above.

Total Liability of our Laboratory is finited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legaticount purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Road No. SA, Pathiputta Colony, Patria - 800 013 (Bahat)

Mob : 4918876886249 ; 4919431047908 siteams i@mileo co in : info@ishivecs com

Website: www.shinotest.com; www.shinotesthouse



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6266(A)	Dt : 22	2.02:2023 You	Work Order No. 4000	285067-03	7-1019 Di: 31.0	67.2022
[a] Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
(b) Details of Sample					ring (As per NAAQ	US)
[c] Sample Collected by			SHIVA TEST HO	USE on 11	.02 23	
[d] Sampling Location			Collected from Near	al the top of	Tirus Office (Maior Pla	-
[e] Method of Sampling			IS 11255 (Part-1,2,			
(<u>(f) Sampling Environment</u>	al Condition		Temp. (°C)	23	Humidity (%)	68
3] No. & Type of Contain	er .		One poly Jar			
[h] Instrument ID			RDS-2, FPM-2			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-6266			
(k) Sample Condition on R	eceipt		Fit for Analysis			
Items required to be tes			As per contract			
[m] Whether any specific M been suggested by the p		st has	No 13.02.23			
[n] Date of receiving the sa	mplé .					
[0] Analysis Start Date / A	nalysis Com	pletion Date	13.02.23/16.02.23			
		Limit as per	Method of	Sami	oling Station / Re-	Sult _
Parameters	Unit	NAAQS 2009	Test	Near a	t the top of Time ((Main Plant)	Office
1. Carbon Monoxide (CO)	mg/m³	4	(\$ 5182 (Part-10)	0.34		
2. Benzene (C _e H _e)	(\$ 5182 (Part-11) 0.18					
3. Benzo(a) Pyrene	IS 5182 (Part-12) 0.17					
4. Arsenic (Ás)	AAS Method 0.27					
Nickel as Ni	AAS Method 1.40					
6. Mercury (Hg)	4 (Method (0.5) 0.18					

SHIBESHW SHIBESHWAR PRASAD AR PRASAD 15#4#1 +0530*

Verified by : Technical Manager



Prasad

Shreyasee (Digitally signed by Shreyasee Presad Date: 2023.02.23 15:58:49 +05'30'

> Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoceed amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Confact us:

122-C. 'Assitu, Road No. SA, Patliputta Colony, Patra - 800 013 (Biftar)

Mob.: +91#6768#6249 , +919431047908 sthoetes (@vahos.co in ; info@dinatest.com

Website: www.shiveresc.com , wowy, shiveresthouse.com

Page i of i

Buch





(Serving since 1988) .

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MIGEFCC, GOYT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1906, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref.	No. STH/TR/22-23/6380	Dt: 23.02.	2023 Your Wor	k Order No. 400028606				
(a)	Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist Chatra Jharkhand- 825 321				
[b]	Details of Sample		:		Monitoring (As per NAAQS)			
[c]	Sample Collected by		11	SHIVA TEST HOU				
[d]	Sampling Location		· :.	Collected from Near a	the top of Time Office (Main Plant)			
[e]	Method of Sampling			IS 11255 (Part-1,2,3	& 7)			
<u>(f)</u>	Sampling Environments	al Condition	и	Temp. (°C)	22 Humidity (%) 68			
'gl	No. & Type of Contains		: .	One poly Jar				
[þ] ·	lustroment ID			:: RDS-1, FPM-1				
<u> </u>	Sample Quantity		.:	30 ml x 6 for each (NO ₂ ,-SO ₂ , NH ₃)				
(i)	Sample Code			A-6360				
[k]	Sample Condition on Re	eceipt	:	Fit for Analysis				
[I]	ltems required to be test	ted ·		As per contract				
[m]	Whether any specific M been suggested by the p		est has	No				
[n] ·	Date of receiving the sa		·:	15.02.23				
[0]	👱 Analysis Start Date / Ar	nalysis Con	pletion Date	16.02.23/ 19.02.23				
: ·	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)			
1, Pa	rticulate Matter (PM ₁₀)	μg / m²	.100	IS 5182 (Part-23)	74.0			
2. P a	rticulate Matter M _{2.5})	h 3 \νώ ₂ ,	60	CPCB (GMAAP Vol. ()	39.2			
a. Şu	Iphur Dioxide as SO ₂	μg / m³	-80	(S 5182 (Part-2)	13.8			
_	rogen Dioxide as NO ₂	μg / m³	- 80	(S 5182 (Part-6)	34.8			
	ad (Pb)	$\mu g / \dot{m}^3$	1	(S 5182 (Part-22)	0.06			
	nmonia as NH ₃	μg / m³	400	(\$ 5182 (Part-5)	6.1			
	tone (Q ₃)	μg/m³	180	IS 5182 (Part-9)	17.1			

ESHW Distributer standed by SHIBESHWAR PRASAD Date-2023-02-23 ar Prasad 14.32x9 +0530

Verified by : Technical Manager,



Shreyasee

Digitally signed by Shreyasee Prasad Date: 2023 02.23

Quality Manager

Prasad 16:43:52 +05'30" **Authorized Signatory**

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the lesis and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastra, Road No. SA, Patilputrá Colony, Petra – 800 013 (Bilgar)

Mob.: +918676886249 ; +919431047908 shpatra i@vshoo.co.in ; im@@shrvatest.com

Website: www.drivttest.com; www.shivutesthouse

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOYT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVE OF SHAR AND BMAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6380(A)	Dt.: 23.00	2.2023 Yout W	ork Order No. 400028				
[a] Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321						
[b] Details of Sample			Ambient Air Qua		g (As per NAAC	(5)	
[c] Sample Collected by			SHIVA TEST HO				
[d] Sampling Location			Collected from Near	at the top of The	ne Office (Madu Ple	out)	
[c] Method of Sampling			IS 11255 (Part-I,2,	3 & 7)			
[40] Sampling Environments	d Condition		Temp. (°C)	22	Humidity (%)	66	
No. & Type of Contains	? [One poly Jar				
[h] Instrument LD			RDS-2, FPM-2				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-6380				
[k] Sample Condition on Re	eceipt		Fit for Analysis				
[1] Items required to be test	led		As per contract				
[m] Whether any specific M been suggested by the p		st has	No				
[n] Date of receiving the sa	mple .		15.02.23				
[o] Analysis Start Date / Ar	ulysis Com	pletion Date	16.02.23/ 19.02.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at th	ig Station / Ref ie top of Time (Male Plant)		
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	0.34			
2. Benzene (C ₆ H ₆)	, , , , , , , , , , , , , , , , , , ,			0.10			
3. Benzo(a) Pyrene ng / m³ 1			I\$ 5182 (Part-12)	0.16			
Arsenic (As)	ng/m³.	6	AAS Method	0.19			
Nickel as NI	ng / m³	20	AAS Method	Method 2.75			
6. Mercury (Hg)	US EPA (Method IQ-5)		0.20				

SHIBESHW SHIBESHWAR PRASAD AR PRASAD 16:37:28 +05:30*

Verified by : Technical Manager



Shreyasee }

Prasad

Digitally signed by Shreyasee Prasad Date: 2023 02.23 16:44:09 +05'30" Authorized Signatory

Quality Monoger

- END OF TEST REPORT This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or Juli for legal/court purpose without written permission of the Laboratory.

Contact us : 122-C, Aastha, Road No. SA. Patliputra Colony, Patra - 800 013 (Bihar)

Mob., +918676886249 , +919431047908 Email: Subpating Lagrathon co.in ; infe@this nest com

Website: www.shmalest.com; www.shmalesthotep.com





(Serving since 1988)

RECOGNISED AS EMPRONMENTAL LABORATORY BY MORFOC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1886, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6467	Dt : 23.	•2.2 023 Your	Work Order No. 400020	85067-037-1019 Dt : 31.07.20			
[a] Name and address of th	e Customer	r	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample			1	Monitoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOU				
[d] Sampling Location			Collected from Near at	the top of Time Office (Main Plant)			
[e] Method of Sampling			IS 11255 (Part-1,2,3				
[f] Sampling Environment	al Conditio	n	Temp. (°C)	24 (Humidity (%) 66			
 No. & Type of Contain 			One poly Jan .				
[h] Instrument ID			RDS-2, FPM-2				
[i] Sample Quantity			30 ml x 6 for each ((NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-6407				
[k] Sample Condition on R	eceipt		Fit for Analysis				
[f] Items required to be tes	ted		As per contract				
[m] Whether any specific M been suggested by the p		est has	No				
[n] Date of receiving the sa			16.02.23				
[0] Analysis Start Date / Ar	nalysis Con	npletion Date	17.02.23/20.02.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office			
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	(Main Plant) 73.2			
2. Particulate Matter μg / m³ 60			CPC8 (GMAAP Vol. I)	38.7			
3. Sulphur Dioxide as SO ₂ µg / m³ 80			IS 5182 (Part-2)	12.8			
Nitrogen Dioxide as NO ₂ µg / m ³ 80			IS 5182 (Part-6)	: 33.8			
6. Leed (Pb) μg / m ³ 1			IS 5182 (Part-22)				
6. Ammonia as NH ₂	μg / m³	400	JS 5182 (Part-5)	5.6			
7. Ozone (O ₂)	μg / m³	180	IS 5182 (Part-9)	18.0			

Digitally signed by SHIBESHWAR PRASAD AR PRASAD (0a19, 2023,02.23) 16:35:72 405'30'

Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Bug: 2023.02.23 16:40:00 +05'30'

Authorized Signatory Quality Manager

END OF TEST REPORT --

This report applies only to sample tested as above,

Total Liability of our Leboratory is fimilied to involced amount.

Test Report endorses only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permasten of the Laboratory.

Contact us :

122-C, Aastito, Road No. 5A, Palipum Colony, Patra - 300 013 (Bibar)

Mob., +918676886249 , +919431047908 sthoetrist@tvehoe.co.in ; prfo@dimesest.com

Website: www.shivatest.com , www.shivatesthouse.com

Page 1 of 1 -



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTE & ENVIRONMENT, GOVE OF EMAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/6407(A)	De: 2	13.02.2023 You	r Work Order No. 4000	0285067-037-1019 Dt : 31.07.202		
[4]	Name and address of th	e Customer		North Karanpura Super Thermal Power Project Au Tandwa Dist- Chatra Jharkhand- 825 321			
ы	Details of Sample				lity Monitoring (As per NAAQS)		
િ	Sample Collected by				USE on 15.02 23		
{ď]	Sampling Location				as the top of Time Office (Main Plant)		
[e]	Method of Sampling			IS 11255 (Part-1,2,			
îų.	Sampling Environment	ol Condition		Temp. (°C)	24 Humidity (%) 66		
3]	No. & Type of Contains	#F		One poly Jar			
[b]	Instrument ID			RDS-2, FPM-2	 -		
[1]	Sample Quantity		•••	30 ml x 5 for each (NO ₂ , SO ₂ , NH ₃)			
ij.	Sample Code			A-6407			
[k]	Sample Condition on R	eccipt		Fit for Analysis			
[1]	Items required to be test			As per contract			
[m]	Whether any specific M been suggested by the p		st has	No			
[±]	Date of receiving the sa			16.02.23			
[0]	Analysis Start Date / Ar	nalysis Com	pletien Date	17.02.23/20.02.23			
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)		
1. Carts	on Monoxide (CO)	mg / m ^o	4	IS 6182 (Part-10)	0,46		
2. Ben.	z. Benzene (C₀H₀) μg / m³ 5			IS 5182 (Pert-11)	0.11		
3. Ben	3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12)			
	4. Arsenic (As) ng / m ³ 6			AAS Method	0.18		
	el as Ni	ng/m³	20	AAS Method 4,12			
6. Merc	cury (Hg)	μg/m³	Not Specified	US EPA (Method (Cl-5)	0.17		

BESHW Digitally signed by AR PRASAD 16:85 33 +05:30

Verified by : Technical Manager



¿Digitally signed by Shreyasee Prasad Date: 2023.02.23 16:46:17 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to earnple tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Adoths, Road No. 5A, Pathoutia Colony, Patria - 800-013 (Bihar)

Mob.: +9126768\$6249 ; +91943104790\$ shorouri@vuhoo.co in ; info@shrvatest.com

Website: www.shipulest.com; www.shipulestbonse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF DICHA, UNDER ENVIRONMENT (PROTECTION) ACT 1968; DEPTY OF INDUSTRY, PORESTS & ENVIRONMENT, GOVE, OF SHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6509	Dt: 27.02	.2023 Your Wo	rk Order No. 400028506	7-937-1019	Dt: 31.07.2022		
[a] Name and address of th	.: e Customer	r .	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
(b) ; Details of Sample	-		Ambient Air Quality		er NAAOS)		
[c] Sample Collected by		'	SHIVA TEST HOU				
[d] Sampling Location			Collected from Near at				
[e] Method of Sampling			IS 11255 (Part-1,2,3				
[f] Sampling Environment	al Conditio	n .	Temp. (°C)	24 Humidi	ity (%) . 65		
[3]: No. & Type of Contain	e	, .	One poly Jer	: "-"	• • • • • • • • • • • • • • • • • • • •		
[h]' Instrument ID		· -	RD\$-1, FPM-1				
[i] Sample Quantity			30 ml x 6 for each	NO2, SO2, NH3)			
[j] Sample Code			A-6509				
[k] Sample Condition on R	occupt	:	Fill for Analysis				
[I] Items required to be tes	ted		As per contract				
[m] Whether any specific M been suggested by the p		est has	No				
[n] Date of receiving the sa		<u>.</u>	21.02.23				
[o] Analysis Start Date / A		npletion Date	21,02,23/24,02,23				
Parametera	Unit	Umit as per NAAQS 2009	Method of Test	Near at the to	Nation / Result op of Time Offic		
Particulate Matter (PM ₁₀)	μg/m³	100	18 5182 (Part-23)		i n Pla gt) 73,4		
2. Particulate Maiter (PM _{2.5}) µg / m³ 60			CPCB (GMAAP Vol. I)	38.9			
3. Sulphur Dioxide as SO ₂ µg / m ³ 80			S 5182 (Part-2)	12.6			
4. Nitrogen Dioxide as NO ₂ μg / m ³ 80			IS 5182 (Part-6) 32.6				
5. Lead (Pb) μg / m ³ 1			IS 5182 (Part-22) 0.09				
6. Ammonia as NHs	μg/m³	400	IS 5182 (Part-5)		6.7		
7. Ozone (O ₃)	180	(S 5182 (Part-9)		23.4			

Digitally signed by SHINESHWAR PRASAD: . Date: 2023.03.03 18:13:29 +05'30'

Verified by : Technical Manager



Shreyasee \ Prasad

Digitally signed by Dage: 2023.03 03 18:24:12 +05'30' Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invaiced amount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory

Contact us :

122-C, Aastha, Road No. 5A, Patliputra Colony, Patra = \$00 013 (Bihar).

Mob.: +918676886249 ; +91943104790\$ Estat : > stopetas i @yehoo.co.jm ; ješki Žistiiheies i com

Webtite: new chimiestickin; powyshivatestourse.com



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOVT, OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE FOLLUTION CONTROL BOARD

<u>TEST REPORT</u>

Ref. No. STH/TR/22-23/	6509(A) Dt: 27.0	1_2023 Your W	ork Order No. 404028	5067-037-1010	Dt : 31,07.2022		
[a] Name and addre	ss of the Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Samp	lė	.: .		lity Monitoring (A)	s per NAAQS) .		
[c] Sample Collects	ed by			USE on 20.02 23			
[d] Sampling Locat	ion		Collected from Near	of the top of Time Of	Ace (Main Plane)		
[c] Method of Sam	ding		IS 11255 (Part-1,2,	3 & 7)			
	onmental Condition	:	Temp. (°C)	24 Hun	idity (%) . 65		
No. & Type of C	Container		One poly Jan				
. [h] Instrument ID			R08-2, FPM-2	<u> </u>			
[i] Sample Quantity	y		30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-6809				
[k] Sample Condition	on on Receipt		Fit for Analysis				
[]] [fems required to			As per contract				
[m] Whether any spe been suggested	ecific Method of Te by the party	st has	No :				
[n] Date of receiving	g the sample	·	21.02.23				
[o] Analysis Start D	Nate, / Analysis Com	pletion Date	21.02.23/24.02.23				
,	·. "	Limit as per	Method of	Sampling Station / Result			
Parameters	Unil	NAAQS 2009	Test		p of Time Office : Plant)		
Carbon Monoxide (CO) mg/m³	. 4	IS 5182 (Part-10)	. 0.57			
2. Benzene (C ₆ H ₆) μg / m³ 5			IS 5182 (Párt-11)	0.13			
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12)	0:28			
4. Arsenic (As)				0,20			
. Nickel as Ni	ng/m³	20	AAS Method				
6. Mercury (Hg)		Not Specified	US EPA (Method IQ-5)	0.	23		

Digitally signed by SHIBESHWAR PRASAD AR PRASAD 18-13-56 +05'30' Verified by Technical Manager



Shreyasee Prasad

Digitally signed by Sheeyasee Prasad David: 2013.03.03 18:24:32 +05'30' Authorized Signatory Quolity Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Lisbeity of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tasts and not the product certificate.

Test Report endorsed only the tasts and not the product certificate.

Contact us:

122-C, Aastba, Road No. 5A, Patherina Colony, Paum ~ 800-013 (Bihar).

Mob. #918676866249 ; +91943104790\$: Email:

sthethali@vahoo.co.in ; info@strivatest.com

Website . www.shivalest.com; mew.shivmeithouse.com







(Serving stace 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MINEFOC, GOVT. OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1886, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6563	Dt: 27.02	.2023 Your Wo	rk Order No. 400028500			
(a) Name and address of the	ie Cusiomei		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample				Monnoring (As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HOU	SE on 22.02.23		
[d] Sampling Location			: Collected from Near a	t the top of Three Office (Main Plant)		
[e] Method of Sampling		•	IS 11255 (Part-1,2,3	& 7)		
[f] Sampling Environment	àl Conditio	л	Temp. (°C)	24 Humidity (%) 68		
]. No. & Type of Contain			One poly Jar			
[h]: Instrument ID		· ·	RDS-2, FPM-2	#		
(i) Sample Quantity			30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₃)		
[j] Sample Code	· .:		A-6563			
[k]: Sample Condition on P	leccipt		Fit for Analysis			
[f] Items required to be tes	sted_		As per contract			
[m] Whether any specific N been suggested by the		est has .	No			
[n] Date of receiving the s			23.02.23			
[o] Analysis Start Date / A	nalysis Con	npletion Date	23.02.23/.26.02.23	A action in the contract of		
: Parameters	Unit.	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)		
1. Particulate Matter (PM ₁₀)	ng / m³	100	IS 5182 (Part-23)	74.8		
2. Particulate Matter (PM ₂₅)	μg / m³	60	CPCB (GMAAP Vol. I)	30.7		
3. Sulphur Dioxide as SO ₂	μg / m ³	80	(S 5182 (Part-2)	12.6		
, Nitrogen Dioxide as NO ₂ .	μg / m³	80	(S 5182 (Part-6)	32.9		
5. Lead (Pb)	μg / m³	1	(\$ 5182 (Part-22)	· 0.08 · .		
6. Ammonia as NH ₃	μg / m³	400	IS 5182 (Part-5)	8.1		
7. Ozone (O ₃)	ug / m³	180	(S 5182 (Part-9)	21.0		

Cigitally signed by SHIBESHWAR PRASAD Dage.2023.03.03 16:15:28 +05'30"

Verified by : Technical Monager



Shreyasee Prasad

Digitally signed by Detai 2023-03-03-16-3

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is firnled to invesced amount.

Test Report endersed only the tests and not the product certificate.

Test Report can not be reproduced perbally or full for legal/count purpose without written permission of the Laboratory.

Confact us:

122-C, Aasthe, Road No. SA, Parliputta Colony, Pales - 800 013 (Bilan)

Mob., +918676886249 , +919431047908

sthrates (@vahoo.co in ; info@chivalest.com Ė n. .

- END OF TEST REPORT

Webshe , www.shivsesy.com , www.shivsessbouse.com

Page tof I



(Serving since 1988)

Recognised as environmental Laboratory by Micefoo, Govt. Of India, Unider Environment (Protection) act 1986, Deptt. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF WHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22	23/6563(A) Dt : 2	7.02.2023 Your 1	Work Order No. 40002	85067-037-1019 Di: 31.07.2022		
[a] Name and so	idress of the Customer	г	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sa	mple			iny Monitoring (As per NAAQS)		
[c] Sample Coll	ected by	·.	SHIVA TEST HO			
[d] Sampling Lo	cation	•		et the top of Time Office (Main Plant)		
[c] Method of S [f] Sampling En	•		IS 1.1256 (Part-1.2)			
ांन् Sampling En	vironmental Conditio	n.	Temp. (°C)	24 Humidity (%) 66		
. No. & Type	of Container		One poly Jar .	·		
[h] Instrument ?	D		RDS-2, FPM-2			
(i) Sample Quar	ntity	•	30 m) x 6 for each (NO ₂ , SO ₂ , NH ₃)			
(i) Sample Code	,	•	A-6563			
[k] Sample Con-	dition on Receipt		Fit for Analysis			
	ed to be tested		As per contract			
	specific Method of T ed by the party	est has	No			
	ving the sample		23.02.23			
	rt Date / Analysis Cor	npletion Date	23,02,23/26.02,23			
Parameter	s Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)		
1. Carbon Monoxid	e (CO) mg/m³	4	IS 5182 (Part-10)	0.46		
2. Benzene (C ₆ H ₆)	μg/m³		(\$ 5182 (Part-11)	0.09		
Benzo(a) Pyren.			IS 5182 (Part-12)	0,28		
4. Arsenic (As)	ng / m ^a	6	AAS Method 0.20			
Nickel as NI	ng/m³		AAS Method 1.42			
6. Mercury (Hg)	μg / m³	Not Specified	US EPA (Method IO-6)	0.26		

SHIBESHW Digitally agreed by

SHIBESHWAR PRASAD Delg: 2023.03.03 AR PRASA 18:15:39 +05:30

Vérified by : Technical Manager.



Shreyasee Prasad

Digitally signed by Shreyasee Presed Ortg: 2023-03-03 18:27:04 +05'30'

Authorized Signatory Qualley Manager

This report applies only to sample leased so above.

Total Liability of our Leberatory is limited to invoiced amount.

Test Report endorsed only the leets and not the product certificate.

Test Report can not be reproduced partierly or full for regal/court purpose without written permission of the Laboratory.

Contact as :

172-C, Asstha, Roed No. SA, Pabliputra Colony, Panna – 300 013 (Bihari)

Med.: +918676186249; +919431047908

Email: szápátna tégyakon co. in jinforátáh i vateát com

Website: www.shinalesticom; www.shinatesthouse

- END OF TEST REPORT

Page 1 of 1



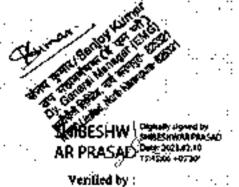


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC; GOVE OF MOM, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BUHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5946	Dt: 10.02.	2023 Your W	ork Order No. 400028500	7-037-1019	Di: 34.07:202		
:	·:		North Karanpura Super Thermal Power Project				
 a) Name and address of the 	Customer		At: Tandwa				
: · · · · ·	• • •	÷. ·-	Dist- Chatra Jharkhand- 825	321			
b] Details of Sample		<u> </u>	Ambient Air Quality l	donitoring (As per	NAAQS)		
c] Sample Collected by		· · · • •	SHIVA TEST HOUS	E on 01 02.23	•		
d) Sampling Location	*:		Collected from Near at	the top of DM Plan	r i:.'		
e Method of Sampling		· " · " - "	IS 11255 (Part-1,2,3 &	27)	•		
f Sampling Environmenta	1 Condition	1 · · · · · · · · · · · · · · · · · · ·	Temp. (°C)	22 Humid	ty (%) :67		
g] No. & Type of Contains		•	. One poly Jar	. ' ''	. "		
h] : instrument ID		·. <u>.</u>	RDS-3, FPNI-3				
i] Sample Quantity			30 ml x-8:for each (NO ₂ , SO ₂ , NH ₃)				
j) Sample Code	:	:	A-5946	· · · ·	: :		
k] Sample Condition on Re	ceipt		Fit for Analysis				
 Items required to be test 	ed .	.:	As per contract				
 m) Whether any specific M been suggested by the po 		st has 1919	No		. : :		
n] Date of receiving the sar	nple, ,		03.02.23				
[o] Analysis Start Date / An	alysis Com	pletion Date	03.02.23 / 05.02.23	: :	:		
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		Station / Result top of DM Plant		
." Particulate Matter (PM ₁₀)	μg / m ³ l	100	18 5182 (Part-23)		72.5		
2. Particulate Matter (PM _{2.5})	μg / m³	50	CPCB (GMAAP Vol. I)		42.6		
Sulphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2)	:. '	13.8		
L Nitrogen Dloxide as NO₂	μg / m³	: 80:	IS 5182 (Part-6)		33.9:		
Lead (Pb)	μg/m³		IS 5182 (Part-22)		0,16		
Ammonia as NH;	μg/mi³	400	IS 5182 (Part-5)		5.6		
Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	. 	16.4		



Shreyasee Prasad

Digitally signed by Sweyesee Prasad Date: 2023.02.10 16:24:42 +05'30'

Authorized Signatory . • Quality Manager

Technical Manager END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is fimiled to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/count purpose without written permission of the Laboratory.

Contact us:

122-C. Ansthe, Road No. SA, Parliputra Colony, Paum - 400 013 (Bahar).

Mobil +918676886249 , +919431047908 Website: www.shiveesc.com , www.shivetesthouse.com

Page 1 of 1



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOETCO, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1886, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BIKAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	. STH/TR/22-23/5946(A)	Di: 14.	02-2023 Your	Work Order No. 4000.	285067-037-	1019 Dt. 31.	07-2022	
[a]	Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[Ъ]	Details of Sample			Ambieni Air Qua	lity Monitor.	ing (As per NAAQ)S)	
[c]	Sample Collected by	•		SHIVA TEST HO			· .	
្រ	Sampling Location		·	Collected from New	at the top of L	M Plant		
[e]	Method of Sampling			IS 11255 (Part-1,2	,3 & 7)			
្រា	Sampling Environments	l Condition		Temp. (°C)	2 2 .	Humidity (%)	67	
. 3]	No. & Type of Contains	r		One poly Jar	•			
[h]	Instrument ID			RD\$-3, FPM-3				
· [i]	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
Ül	Sample Code			A-5946				
[k]	Sample Condition on Re	cerpt		Fit for Analysis				
M ·	Items required to be test	ed		As per contract				
(m)	Whether any specific M been suggested by the p		st has	No.				
[n]	Date of receiving the say		•	03.02.23				
[6]	Analysis Start Date / An	alysis Com	pletion Date	03.02.23 / 06.02	23 .			
	Parameters	Unit	Limit as per	Method of	Sampl	ling Station / Re:	şu i t	
	(_d)@0(d) 2	COM	NAAQS 2009	Test	Near at	t the top of DM F	ian t	
1. Cart	bon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	0.34			
2. Ben	zene (C _t H _t)	$\mu g / m^3$	5	IS 5182 (Part-11)	0.15			
3. B en	zo(a) Pyrene	IS 5182 (Part-12)	0.17					
4. Arse	enic (As)	AAS Method	0.31					
5. Nick	kel as;Ni	ng / m ^a ng / m ^a	20	AAS Method 1.49				
Mer	Mercury (Hg) ng / m³ Not Specified					.0.28		



Verified by : Technical Manager



<u>- ENO OF</u> TEST REPORT -

Shreyasee \ Prasad

Digitally staned by Shreyasee Prasad Date: 2023.02.10 16:25:27 +05'30"

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involved amount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastin, Rood No. 5A, Pathiptera Colony, Patas - \$00 013 (Bihar)

\$400.1497\$476\$362491;4919431047908 stheame (@yahoo.co.in , mika@shivaresi.com

Website: www.shirustest.com; www.shrustesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5956	Dt : 10.6	2.2023 Your W	ork Order No. 40002850				
[a] Name and address of the	Customer		North Karanpura Super Thermal Fower Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample				Honstoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location			Collected from Near as	the top of DM Plane			
[e] Method of Sampling			IS 11255 (Pert-1,2,3 &	8.7)			
Sampling Environmenta	I Condition		Temp. (⁰C)	22 Humidity (%) 68			
3] No. & Type of Containe			One poly Jar	•			
[h]: Instrument ID			RDS-3, FPM-3	•			
[ii] Sample Quantity			30 ml x 6 for each (f	NO2, \$O2, NH3)			
[j] Sample Code	•		A-5958				
[k] Sample Condition on Re	ccipt		Fit for Analysis				
[1] Items required to be test			As per contract				
(m) Whether any specific Mo been suggested by the pa		st bas	Nó ·				
[n] Date of receiving the sar	nple		03.02.23				
[o] Analysis Start Date / An	alysis Com	pletion Date	03.02.23 / 06.02.23 :				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant			
1. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	71.7			
2. Particulate Matter (PM _{2.6})	μg/m³	60	CPCB (GMAAP Vol. I)	43.5			
3 Sulphur Dioxide as SO ₂	μg / m³	. 80	IS 5182 (Part-2)	14.5			
4. Nitrogen Dioxide as NO ₂	μg / m³	80	IS 5182 (Part-6)				
Lead (Pb)	μg / m³	1	. IS 5182 (Part-22) 0.20				
6. Ammonia as NH ₃	μg / m³.	400	IS 5182 (Part-5)	5.3			
7. Ozone (O ₃)	μg / m³	180	18 5182 (Part-9)	: 17,3			

Olokally signed by SHOPSHWAR PRASAD Onje: 2023.02.10 16:47:31 +05:30* Verified by:

800065

END OF TEST REPORT

Shreyasee Prasad

Digitally signed by Simeyasee Prasad Date: 2023,02,10 16:27:32 +05'30'

Authorized Signatory Quality Manager

Technical Manager

This report applies only to sample tested so above.

Total Liability of our Laboratory is limited to involved amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legit/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aasthe, Road No. SA, Padilputts Colony, Patris ~ 100 () (Silvar)

Mob.: +912676136249 ; +919431047908

stipana i Strakov co m ; inth@shiraiss.com

Website: www.shivutest.com; www.shivutesshouse.co



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF MOIA. UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/5958(A)	Di: Î	0.02.2023 Уощ	Work Order No. 400	0285067-03	7-1018 Dt : 31	.07.2022	
(a)	Name and address of the	: Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Details of Sample		_	Ambient Air Qua		ing (As per NAAI	(2C)	
[c]	Sample Collected by		•	SHIVA TEST HO			_ 47	
[4]	Sampling Location			Collected Stone News				
[e]	Method of Sampling			IS 11255 (Part-1,2		· -		
िल्	Sampling Environments	Condition		Temp. (°C)	22	Humidity (%)	6-B.	
5]	No. & Type of Containe	ŕ		One poly Jar				
[b] [i]	Instrument ID			RDS-3, FPM-3		-:		
fij -	Sample Quantity		'	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
Ű	Sample Code		-	A-5958				
(k)	Sample Condition on Re	xeipt		Fill for Analysis				
[1]	Items required to be test	ed		As per contract				
[m] ·	Whether any specific M been suggested by the pa		x has	No				
[n]	Date of receiving the sar			03.02.23				
[6]	Analysis Start Date / An		pletion Date	03,02,23 / 06.02.2	23			
	Parameters	Unit	Limit as per	Method of	Samp	ling Station / Re	eult	
	Parameters	Ont	NAAQS 2009	Test	Nешт а	the top of DM	Plant	
1. Cart.	on Manoxide (CO)	mg/m³	4	(S 5182 (Part-10)	0.23			
2. Ben	zene (C _s H ₅)	μg/m³	5	IS 5182 (Part-11)	0.13			
з. Ben	zo(a) Pyrene.	ng / m³	1	(\$ 5182 (Part-12)	0.17			
	enic (As)	ng / m²	6	AAS Method	0.32			
5 Nick	el as Ni	ng/m^3	20	AAS Method	4.40			
√. Merc	cury (Hg)	ng / m³ .	Not Specified	US EPA (Method IO-5)		0.28	-	



Technical Manager

Paragaria Catory On Paraga

Shreyasee Prasad / Digitally signed by Shreyasee Prasad Date: 2023.02.10 16:27:46 +05'30'

Authorized Signatory

Quality Manager

- END OF TEST REPORT This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involved amount.

3. Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for lagraticism purpose without written permission of the Laboratory.

Contact us:

132-C, Austha, Road No. 5A, Patispuera Colomy, Panez - 800 013 (Bilton)

Math.: +918676686249; +919431047904 Bmail <u>stroomalighvahoo.co.in</u>; <u>in Se@shituates.com</u>

Website: www.shinalest.com; www.shinalestbouse.com

Page I of I





(Serving since 1988) .

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFICE, GOVT. OF INDIA; UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6200	Dt : 22.02	.2023 Your W	ork Order No. 40 <u>002850</u>	67-037-1019	Dt: 32.97.202		
			North Karanpura Super Thermal Power Project				
(a) Name and address of the	Customer		At: Tandwa				
			Dist- Chatra				
<u> </u>			Jharkhand- 825				
[b] Details of Sample		· · ·	Ambient Air Quality &		AAQS)		
[c] Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location	.		Collected from Near at				
[e] Method of Sampling		:	'IS 11255 (Part-1,2,3 &				
Sampling Environmental		-	Temp. (°C)	23 Humidity	(%) 66		
g] No. & Type of Container	Γ	1	One poly Jar	 			
[h]: Instrument ID		· · · · · · · · · · · · · · · · · · ·	RDS-3, FPM-3	::	·		
[i] Sample Quantity .		· · ·	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-6200				
[k] Sample Condition on Re			Fit for Analysis				
[I] Items required to be teste			As per contract				
[m] Whether any specific Me been suggested by the pa		st has	No				
[n] Date of receiving the san	aple .	•	10.02.23				
[0] Analysis Start Date / Ana	alysis Com	pletion Date	10.02.23/13.02.23		: :		
Parameters	Unit	Limit as per	Method of	Sampling Sta	tion / Result:		
ratalileters	OINC	NAAQS 2009	Test ::	Near at the to	p of DM Plant		
 Particulate Matter (PM₁₀). 	μg/m³	100	IS 5182 (Part-23)	. 72	.9		
2. Particulate Matter (PM _{2.8})	- pg / m²	60	···· CPCB ··· (GMAAP Vol. I) ···	39	.7		
3. Sulphur Dioxide as SO ₂	80 : -	18 5182 (Part-2)	10).6			
4. Nitrogen Dioxide as NO ₂	μg/m³ μg/m³	80	IS 5182 (Part-6)	33	.7		
Lead (Pb)	· μg / m³	. 1	IS 5182 (Part-22)	0,	12.		
6. Ammonia as NH ₃	μg / m³	400	IS 5182 (Part-5)	18	·4		
D. MURINUM AS INCO	444						

SHIBESHW | Digitally stand by SHIBESHWAR PRASAD AR PRASAD Date 2023 02 273

Venified by : Technical Manager



END OF TEST REPORT

Prasad

Shreyasee Calgitally signed by Date: 2023.02.23 15:54:53 +05'20"

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificale.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Asistha, Road No. 5A, Patliputa Colony, Panca - 800/013 (Bihat)

Mob.: +918676886249 ; +919431047908 sthoatna li Worthoo.co.in : in fordishi tette st icon

Website: www.shimmest.com (www.shivatesthouse.c



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DISPITE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/6200(A)	D1 : 22:	02.2023 Your V	Vork Order No. 40002	8 6067- 037-	1019 Dt : 32.	07.2022
[a]	Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Taridwa Dist- Chatra Jharkhand- 825 321			
[b]	Details of Sample			Ambient Air Qua	lity Monitor	ing (As per NAAQ	(S)
[c]	Sample Collected by			SHIVA TEST HO	USE on 09.	02.23	
[d]	Sampling Location			Collected from Near	at the top of I	DM Plant	
[0]	Method of Sampling			JS 11255 (Part-1.2,	3 & ፖ)		
լւն	Sampling Environments	af Condition		Temp, (^o C)	23	Humidity (%)	66
''R]	No. & Type of Contains	at .		One poly Jar			
[h]	Instrument ID			RDS-3, FPM-3	:	•	
	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₅)			
[i]	Sample Code			A-6200			
. [k]	Sample Condition on Re	sceipt		Fit for Analysis			
[f]	Items required to be test	led		As per contract			
[m]	Whether any specific M been suggested by the p		st has	No			•
[n]	Date of receiving the sa			10.02.23			
[6]	Analysis Start Date / Ar	ialysis Com	pletion Date	10.02.23/13.02.23			
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test		ling Station / Red t the top of DM F	
1. Cart	on Monoxide (CO)	rng / m³	4	IS 5182 (Part-10)	0.34		
	zene (C ₆ H ₆)	μg/m³	- 5	IS 5182 (Part-11)	0.01		
3. Benzo(a) Pyrene ng / m ³ 1				(S 5182 (Part-12)	0.17		
	enic (As)	ng/m³	6	AAS Method	0.31		
	(el as NI	ng/m³.	-20	AAS Method	4.26		
i Merc	cury (Hg)	ng/m³	Not Specified	US EPA (Method IO-5)		0.21	•



Pather Sold of State Sta

Shreyasee Prasad

| Digitally signed by | Shreyeses Prosed | Outr. 2023.02.23 | 19:59:14 +05/30 | Authorized Signatory | Quality Manager

Technical Manager

END OF TEST REPORT -

77.5

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/count purpose without written permission of the Laboratory.

Contact us :

122-C. Asista, Road No. SA. Patlipenta Colony, Pates - 800 013 (Biher)

Mob.: +918676886249; +919431047908 Email: <u>stripsmal@yathro.co.in</u>...mio@shiyatesc.com

Website: www.shlvates.com; www.shrvaiesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOVE OF UNDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1985, DEPTE. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. 5TH/TR/22-23/6267	Dt: 22.4	2.2023 Your W	ork Order No. 40002850				
a] Name and address of the	: Çustomer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chaira Jharkhand- 825 321				
b] Details of Sample				Horistoring (As per NAAQS)			
c] Sample Collected by			SHIVA TEST HOUS				
d] Sampling Location			Collected from New in				
el Method of Sampling	•	•	IS 11255 (Pert-1,2,3 a				
1 Sampling Environmenta	l Condition	ı	Temp. (°C)	23 Humidity (%) 68			
[4] No. & Type of Contains			One poly Jar				
h] Instrument ID			RDS-3, FPM-3	<u></u> .			
i] Sample Quantity		•	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
j] Sample Code			A-6267 · · · · · · · · · · · · · · · · · · ·				
k] Sample Condition on Re	ceipt ··		Fit for Analysis				
Items required to be test			As per contract				
 m) Whether any specific Min been suggested by the pa 	sthod of Te	st has	No	·			
n]. Date of receiving the sar			13.02.23	:			
o] Analysis Stan Date / An		pletion Date	13 02 23/ 16.02.23				
Parameters	Unit	Limit as per	Method of	Sampling Station / Result			
1 + 4	OIEC .	NAAQS 2009	Test	Near at the top of DM Plant			
I. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	74,2			
2. Particulate Malter (PM _{2.1})	μg / m²	60	CPCB (GMAAP Vol. I)	43.0			
Sulphur Dioxide as SO ₂	μg / m³	80	18 5182 (Part-2)	14.1			
. Nitrogen Dioxide as NO ₂ .	μg/m³	80	IS 5182 (Part-6)	34.1			
Lead (Pb)	μg/m³	1	IS 5182 (Part-22)	0.13			
Ammonia as NH ₃	µg/m³	400	IS 5182 (Part-5)	. 6.5			
. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	18.0			

BESHW LOGITARY SEGMENT OF PRASAD AR PRASAD (58-4-54-4-06-30)

Verified by : **Technical Manager**



Shreyasee Prasad

į, Di**getally signed** by Shreyasee Pracad Bate 2023.02.23 15:59:04 +05:30

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is implied to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastka, Rood No. 5A, Portipetra Colony, Patra - 400 013 (Bihar)

Mob: +918676486249 , +919431047908

stheire i Wahoo co in ; info@shimses.com

Website: www.shwarest.com; www.shiveresthouse.com

.

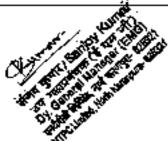
Page 1 of 1 :



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BUILD AND WHAR STATE POLEUTION CONTROL BOARD

TEST REPORT

Ref. N	o. STH/FN/22-23/6267(A)	Dt.: 22.	02.2023 Your W	ork Order No. 400028	5067-037- 1	019 Dt : 31.0	77.2022
[a]	Name and address of the	: Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b]	Details of Sample			Ambient Alr Qua	lity Monitor	ing (As per NAAO	S) .
[e]	Sample Collected by			SHIVA TEST HO			
[4]	Sampling Location			Collected from New	at the top of \$	M Plant	
[0]	Method of Sampling			IS 11255 (Part-1,2,	3 & 7)	•••	
īq_	Sampling Environmenta	Condition		Temp⊬(°C)	23	Humidity (%)	68
∴.≰፲	No. & Type of Comaine	r		One poly Jar			
[h]	Instrument ID			RDS-3, FPM-3			
ſũ	Sample Quantity			30 mt x 6 for each (NO ₂ , SO ₂ , NH ₂)			
(i)	Sample Code		•	A-6267			
[k]	Sample Condition on Re	toeipt		Fit for Analysis			
O	Items required to be test	ed		As per contract			
(m)	Whether any specific Mobern suggested by the pa		st has	No			
(n)	Date of receiving the sar			13.02.23			
[o]	Analysis Start Date / An		pletion Date	13.02.23/16.02.23			
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test		ling Station / Res t the top of DM P	
1. Ca	rbon Manaxide (CO)	mg/m³	4	IS 5182 (Part-10)*	0.46		
	nzene (C _s H _s)	μ g / m ³	5	IS 5182 (Part-11)	0.20		
	nzo(a) Pyrene	ng / m³	1	IS 5182 (Part-12) 0.18			
	senic (As)	ng / m³	6	AAS Method 0.25			
	kel as Ni	ng/m³.	20	AAS Method 2.93			
	reury (Hg)	ng/m³	Not Specified	US EPA (Method IO-5)		0.24	



SHIBESHW (Digitally signed by SHIBESHWAR PRASAD AR PRASAD 19-45-00 +05-10

Verified by : Technical Manager



Shreyasee Prasad

(Dighally signed by // Shreyasee Presed .Oute: 2023-02:73 15:59:18 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT -

■(3) (1) (2) (2)

This report applies only to cample lested as above.

Total LiabBby of our Laboratory is limited to invoiced emount, Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for fegal/court purpose writing written permission of the Leboratory.

Contact us:

122-C, Aastha, Road No. SA, Pattiputra Colony, Patha - 800 013 (Bdian)

A306.: +918676486249 ; +919431047908 <u>saterama i Alexando e o un ; émbligistri vacesa com</u>

Website: www.shivatest.com; www.shivatesthouse.com





(Serving since 1988) .

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6381	Di : 23.02.2	₩23· Your Wor	rk Order No. 400028506			
[a] Name and address of the	Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Quality I	Monitoring (As per NAAQS)		
[c] Sample Collected by		•	SHIVA TEST HOUS	SE on 14.02.23		
[d] Sampling Location			Collected from Near at	the top of DM Plans		
[e] Method of Sampling			IŞ 11255 (Part-1,2,3 &	£ 7)		
[17] Sampling Environmenta	Condition		Temp. (°C)	22 Humidity (%) 68		
No. & Type of Container	Г	•	One poly Jar	· · · · · · · · · · · · · · · · · · ·		
(h) Instrument ID.			RDS-3, FPM-3			
[i] Sample Quantity			30 ml x 6 for each (i	NO2, SO1, NHa)		
[j] Sample Code			A-6301			
[k] Sample Condition on Re	ceipt		Fit for Analysis			
[1] Items required to be test			As per contract			
[m] Whether any specific Mo heen suggested by the pa		st has	No ·			
[n] Date of receiving the sat	nple .		15.02.23			
[o] Analysis Start Date / An	alysis Com	pletion Date	16.02.23/19.02.23			
Parameters	Unit	Llinit as per	Method of	Sampling Station / Result		
		NAAQS 2009	Test	Near at the top of DM Plant		
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	. 76.1		
2. Particulate Matter (PM _{2,3})	μg/m³	80	CP.CB (GMAAP Vol. I)	38.8		
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	14.8		
4. Nitrogen Dioxide as NO ₂	μg / m³	80	IS 5182 (Part-6)	35.0		
Lead (Pb)	μg / m³	: 1 .	IS 5182 (Part-22)	0.08		
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	6.5		
7. Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	19,8		



BESHW , SHIBESHWAR PRASAD AR PRASAD 6818. 2023.02.23

Verified by: Technical Manager



Prasad

Shreyasee | Digitally signed by Shreyasee Prasad Date: 2023.02.23 16:44:21 +05'30"

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tosted as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product destificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C. Aastha, Road No. 5A, Patliputra Colony, Patro - 600-013 (Biher)

Mob., +918676886249 ; +91943104790\$ silipeiria l'alivation co in ; mitrattavants com

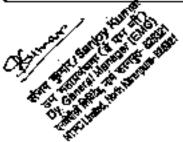
Website: www.shivmest.com; www.shivatesthouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MINEFOC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEFTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6381(A)	Dt : 23 /	02.2023 You	Work Order No. 4000)285067-03	7-1019 Dt : 31.	07.2022
[a] Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Qua	lity <u>Monitor</u>	ing (As per NAAC	XS)
[c] Sample Collected by			SHIVA TEST HO	USE on 14.	02.23	
[d] Sampling Location			Collected from Near	at the top of i	M Plan	
[e] Method of Sampling			1\$ 11255 (Pan-1,2,	3 & 7).		
(f) Sampling Environments	l Condițion		Temp. (^Q C)	22	Humidity (%)	68
g] No. & Type of Contains	:[One poly Jar			
[h] Instrument ID			RDS-3, FPM-3			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
(j) Sample Code			A-6381			
[k] Sample Condition on Re	eccipt		Fit for Analysis			
(I) Items required to be test	ed		As per contract			
(m) Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sa			16.02.23			
[o] Analysis Start Date / An	alysis Com	pletion Date	16.02.23/19.02.23			
Parameters	Unit	Limit as per	Method of	Samp	ēng Station / Re	sult
Parameters	CHRC	NAAQS 2009	Test	Near a	t the top of DM F	'lant
t. Carbon Monoxide (CO)	mg / m³	4	(\$ 5182 (Part-10)		0.46	
2. Benzene (C ₆ H ₆)	μg/m³	5	(\$ 5182 (Part-11)	0.12		
3. Benzo(a) Pyrene	ng/m³	1	(S 5182 (Part-12)			
4. Arsenic (As)	ng/m³	6	AAS Method 0.18			
5. Nickel as Ni	ng/m³.	20	AAS Method 4.20			
Mercury (Hg)	ng / m³	Not Specified	US EPA (Melhod (O-5)		0.18	



SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD 0044-2023-02.23

Verified by : Technical Manager



Prasad

Shreyasee L Shreyasee Prasad Date: 2023.02.23 16/44/37 +05/301

Authorized Signatory Quality Manager

-- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the lends and not the product conficate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aaptha, Road No. 5A, Patlipeutal Colony, Pages - 300 013 (Biher)

Mab: +918676886249; +919431047908; Email: siteatra ligitation co in ; milosistronies.com

Website : www.shinotest.com; www.shinutesthnuse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT, OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY. OF INDUSTRY, FORESTS & EXWIRONMENT, GOVT, OF EMAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/6408	Dt: 23.02	.2023 Your Wor	k Order No. 4000285067	-037-1019 Dt : 31.07.2022		
[a] :	Name and address of the	Customer . :	:	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b]	Details of Sample		··		donitoring (As per NAAQS)		
[c]	Sample Collected by		•	SHIVA TEST HOUS	iE on 15 02,23		
[d]	Sampling Location	:	•	Collected from Near at	the top of DM Plant		
[e] ·	Method of Sampling		· · · · · · · · · · · · · · · · · · ·	IS 11255 (Port-1,2,3 &	k 7)		
	Sampling Environmenta			Tempi (°C)	24 Humidity (%) 66		
	No. & Type of Containe	τ.		One poly Jar			
	lastrument ID	•		RD\$-3, FPM-3			
n	Sample Quantity	:	. ::	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
	Sample Code			A-6408			
[k]	Sample Condition on Re	cemt	·	Fit for Analysis			
ጠ	<u>ltems required to be test</u>		_	As per contract			
(m)	Whether any specific Mo been suggested by the pa		st has	No :	<u> </u>		
[n]	Date of receiving the say	nple :	-	16.02.23			
(이	Analysis Start Date / An	alysis Com	pletión Date	17.02.23/20.02.23			
:	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant		
1. Parti	culate Matter (PM ₁₀)	.μg / m ^o	. 100	IS 5182 (Part-23)	75,5		
2. Perti	culate Matter (PM _{2.5})	µg/m³	60	CPCB (GMAAP Vol. II)	39.2		
3. Sulp	hur Dioxide as SO ₂	μg / m ³	80	IS 5182 (Part-2) 13.5			
	gen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6)	34.1		
	(Pb)	μα / m³	1	IS 5182 (Part-22)	0.07		
	nonia as NH ₃	μg / m³	400	IS 5182 (Part-5)	5.8		
7. Ozor	ne (O ₃)	μg/m³	180	IS 5182 (Part-9)	21.7		

SHIBESHW | Digitally signed by AR PRASAD (0-00: 2023-02.23

Verified by : Technical Manager



. Shreyasee \ Prasad

Digitally signed by Shreyasee Prasad .Cate. 2023.02.23 16:46:31 +05'30'

Authorized Signatory Quality Manager

-- END OF TEST REPORT

This report applies only to sample tested as above.

Total Linkility of our Laboratory is limited to invoiced amount,

Test Report endorsed only the tests and not the product cerbficate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputo Colony, Patre - 800 013 (Bihar)

Mob.; +918676#36249 ; +91943 f047908. Showish (@vthoo.co.in ; info@shivutest.com

Website: www.shrutjesr.com; www.shlvsresthouse.com



Page 1 of to

RECOGNISED AS EMPROMIENTAL LABORATORY BY MISEFCC, GOVT. OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAN AND BRIAN STATE POLLUTION CONTROL BOARD

<u>TEST REPORT</u>

Ref. No. STH/TR/22-23/6409	(A) Di: :	23.02.2 02 3 Your	r Work Order No. 4000	285067-037	-1019 Dr : 31.07.2022	
(a) Name and address o	f the Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Qua	lity Monitori	ng (As per NAAQS)	
[c] Sample Collected by	,		SHIVA TEST HO			
[d] Sampling Location			Callected from Near	at the top of D	M Plant	
[e] Method of Sampling			IS 11253 (Pert-1,2,	3 & 7)		
[f] Sampling Environm	ental Condition		Temp. (°C)	24	Humidity (%) 66	
8] No. & Type of Cont	aider		One poly Jar			
[h] Instrument [D			ROS-3, FPM-3			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code	·		A-6406			
[k] Sample Condition or	n Receipt		Fit for Analysis			
[l] Items required to be	tested		As per contract			
(m) Whether any specific been suggested by if		si has	No			
[n] Date of receiving the			16.02.23			
[o] Analysis Start Date:	Analysis Com	pletion Date	17.02.23/20.02.23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		ing Station / Result the top of DM Plant	
1. Carbon Monoxide (CO)	mg / m³	4	IS 5182 (Part-10)	0,46		
2. Benzene (C ₆ H ₆)	μg / m³	5	IS 5182 (Part-11)			
3. Benzo(a) Pyrene				18 5182 (Part-12) . 0,19		
4. Arsenic (As)	ng / m³	6	AAS Method 0.15			
5. Nickel as Ni	ng/m³	20	AAS Method 2.80			
Mercury (Hg)	ng / m³	Not Specified	US EPA (Melhod KI-5)		0.19	



Verified by : **Technical Manager**



Prasad

Shreyasee Streyasee Prasad Date: 2023.02.23 y/ 16/46 50 +05/30°

> Authorized Signatory Quality Manager

END OF TEST REPORT.~

This report applies only to sample tested as above.

Total Liability of our Laboratory is fimited to involced amount:

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-40, Aaptha, Road No. 5A, Philippita Colony, Philip - \$00 013 (Bihar).

Mob : +918676586249; +919431047908 Email:

Website: www.shiivatesi.com; www.shivaresthouse.com

Stipanal Tychoc.co.in , info@shlvsess.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFICE, GOVE OF MOIA, UNDER ENVIRONMENT (PROTECTION ACT 1988, DEPTE OF MOUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BALAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6510	Di: 27.02	.2023 Your Wo	rk Order No. 400028506			31.07.2 <u>0</u> 2
• •			North Karanpuc	a Supe	r Thermai Pov	₽ ė Τ
	-		Project			
[2] Name and address of the	-Customer		At: Tandwa	٠.		
			Dist- Chatra			
•	·:		Jharkhand- 825	5,321		
b] Details of Sample			Ambiént Xir Quality i	Monitoria	ng (As per HAAQS)	
[g] Sample Collected by		•	SHIVA TEST HOUS	9E on 2	0.02.23	:
[d] Sampling Location			Collected from Near W	the rop of	DM Plan	
e Method of Sampling	٠		IS 11255 (Part-1,2,3 a	&·7)	· ::/ . ·	
[f] Sampling Environmenta	l Condition		Temp. (%C)	24	Hurridity (%)	65
No. & Type of Containe			One poly Jar	• • • •	· · .	
[h] Instrument ID	٠.		RDS-3, FPM-3			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[i] Sample Code			A-6510			
[k] Sample Condition on Re	ceipt	· · · · ·	Fit for Analysis			
[1] Items required to be test			As per contract			
[m] Whether any specific M	thod of Te	st has	Na			
been suggested by the pe			No			
[n] Date of receiving the sar			21.02.23			
[o] Analysis Start Date / An	alysis Com	pletion Date	21.02.23 / 24.02.23		. 5	
:	11-54	Limit as per	Method of	Sa	mpling Station /	Result
Parameters	Unit	NAAQS 2009	" Test		r at the top of D	
1. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)		76:2	
n. Carelandeta Materia (CM)			CPCB			
 Particulate Matter (PM₂₅) 	hūιω₃	60	(GMAAP Vol. I)	l	39.7	
3. Sulphur Dioxide as SO ₂	μg / m³	: 80	(S 5182 (Part-2)		13.5	•
4. Nitrogen Dioxide as NO ₂	μg/m³.	80	IS 5182 (Part-6)		33.5	:
Lead (Pb)	μg / m³	1	IS 5182 (Part-22)	1::	0.08	-
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part/5)		8.6	
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	1	22.0	

SHIBESHW CHIRDLE SAME SHIP AR PRASAD 18.14.07 +05'30'

Verified by Technical Manager



Shreyasee } Prasad

Digitally signed by Date: 2023.03.03 183444 +0530

Authorized Signatory Quality Manager

- END OF YEST REPORT

This report applies only to sample tested as allowe...

Total Luibility of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or last for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Puthputts Colony, Pates - 800 (13 (Biltor)

Mc6: +918676186249 . +919431047908

shannal@wakozeo.in , mb@shivatez.com

Website: www.shrvs.com; www.shrvs.coshouse.com



RECOGINSED AS ENVIRONMENTAL LABORATORY BY MICEFOC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTE. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. N	lo. STH/TR/22-23/6510(A)	Dt : 27.	02.2023 Your	Work Order No. 4000	285067-037-10	19 Dr: 31a	07.2022	
[a]	Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321						
[b]	Details of Sample	,	•	Ambiem Air Ona	lity Monttoring	(As per NAAQ	g : : :	
[c]	Sample Collected by			SHIVA TEST HO	USE on 20.02.2	23		
[6]	Sampling Location			Collected from Near	at the top of DM I	Yard		
[e]	Method of Sampling			IS 11255 (Part-1,2,	3 & 7)			
्रात्	Sampling Bayironmenta	l Condition		Temp. (°C)	24 H	lumidity (%)	.65	
]	No. & Type of Comaine	f		One poly Jar				
[h]	Instrument ID	٠٠		ROS-3, FPM-3				
· [i]	Sample Quantity			30 ml x 6 for each (NO₂, SO₂, NH₃)				
li)	Sample Code	· <u>. </u>		A-6510				
[k]	Sample Condition on Re	ceipt		Fit for Analysis				
; [I] · ·	Items required to be test	ed :		As per contract				
[m]	Whether any specific M been suggested by the p		st has	No 4				
[n]	Date of receiving the sar	mp le	•	21.02.23				
[o]	Analysis Start Date / An	alysis Com	pletion Date	21.02.23 / 24.02.23	: ::	.:	::	
;· .·	Parameters	Unit	Limit as per NAAQS 2009	Method of Test		Station / Res top of DM P		
1. Ca	rbon Monoxide (CO)	mg/m³	4	IS 5182 (Pert-10)	: :	0.34	- :	
	enzéne (C ₆ H ₆)	μg / m ³	5	IS 5182 (Part-11)	:::	0.13		
	nzo(a) Pyrene	ng/m³	1	IS 5182 (Part-12)		0:19		
	senic (As)	ng / m³	6	AAS Method 0.15				
	ckel as Ni	eg / m³	20	AAS Method	;": :"	4.20		
	ercury (Hg)	ng /ˌmj³	Not Specified	US EPA (Method IO-5)		0.19	·	

SHIBESHW Digitally signed by AR PRASAD 18:10:18 +15:30

Verified by: Téclonical Monager



Prasad

Digitally signed by Sheeyasee Presed Daile 2023 03.03 18:2959+05'30 Authorized Signatory

Quality Manager

:---

END OF TEST REPORT

This report applies only to sample lested as above.

Total Liability of our Laboratory is firmled to invoiced amount.

Test Report andorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C; Asstira, Road Mo. SA, Partifulto Colony, Patro - 300 Q13 (Bilian)

Mob.: +912676236249 ; +919431047908

Website: mww.shiwatesthouse.com

afected @rubos.co.in ; info@drimtest.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY INSEFCC, GOVT. OF MIDIA, UNDER EMARCHMENT (PROTECTION) ACT 1906, DEPTT. OF MOUSTRY, FORESTS & SAMROHMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. 5TH/TR/22-23/6564	Dt : 27,02	.2923 Your W	ork Order No. 40002850 8			
[a] Name and address of the	Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample .			Ambient Air Quality N	fonitoring (As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HOUS			
[d] Sampling Location		·	Collected from Near at t	he top of DM Plane		
[e] Method of Sampling			IS 11255 (Part-1:2,3 &	:7)		
[f] Sampling Environmenta	l Condition		Temp. (°C)	24 Humidity (%) 66		
t]. No. & Type of Containe	Г		One poly Jar			
[h] Instrument ID			RDS-3, FPM-3			
[i] Sample Quantity		<u> </u>	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code .			A-6564			
[k] Sample Condition on Re	ceipt	<u></u>	Fit for Analysis			
 Items required to be teste 		·	As per contract			
 [m] Whether any specific Monocon suggested by the pre- 		st has	No			
[n] Date of receiving the sar	aple		23.02.23			
[o] Analysis Start Dato / An	alysis Com	pletion Date	23.02.23/26.02.23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant		
Particulate Matter (PM ₁₀)	μg / m ^o	.100	IS 5182 (Part-23)			
2. Particulate Matter (PM _{2.5})	д д / m³	60	CPCB (GMAAP Vol. I)	40.9		
3. Sulphur Dioxide as SO ₂	μg / m ^o	80	IS 5182 (Part-2) 13.3			
 Nitrogen Dioxide as NO₂ 	д д / m³	. 80	IS 5182 (Part-6) 34.4			
Lead (Pb)	μg/m³	1: 1:	(S 5182 (Part-22) 0.07			
Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	: 9;3		
7. Ozone (Os)	μg/m³	180	IS 5182 (Part-9)	27.2		

SHIBESHW CHightelly signed by AR PRASAD 18:15:50 +05:30*

Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreywee Pussed Darg: 2013.01-03 18:27:24 +05'30'

Authorized Signatory Quality Manager

-- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests, and not the product certificate.

Test Report can not be reproduced partially or luff for legal/court purpose without written permission of the Laboratory.

Centact us:

122°C, Aastha, Read No. 5A, Pathpura Colony, Paus - 500 013 (Bihar).

Mob.: 4918676886249; 491943104790\$ sthostnal@vahoo.en.in jinfo@shivatest.com

Website: www.shimtest.com; www.shimtesthouse

Page Lof L



(Serving since 1988)

RECOGNSED AS ENVIRONMENTAL LABORATORY BY MILEFOC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTY.
OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6564(A)	Dt : 27	.02.2023 Your 1	Work Order No. 40002	88067-037-1019 Dt: 31.07.2022		
[a] Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Qua	lity Monitoring (As per NAAQS)		
[c] Sample Collected by		·.		USE on 22.02.23		
[d] Sampling Location			Collected from Near	et the top of DN Plant		
[e] Method of Sampling		•	IS 11255 (Part-1,2,	3 & 7)		
[6] Sampling Environment	al Condition		Temp. (°C)	24 Humidity (%) 66		
: 3] No. & Type of Contains	Er		One poly Jar			
[h] Instrument ID			RDS-3, FPM-3			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₃ , NH ₃)			
[j] Sample Code			A-6564	· · · · · · · · · · · · · · · · · · ·		
[k] Sample Condition on Re	eceipt		Fit for Analysis			
[1] Items required to be test	ted		As per contract			
[m] Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sa	mple	<u>-</u>	23.02.23			
[6] Analysis Start Date / Ar	nalysis Com	pletion Date	23.02.23/26.02.23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant		
1. Carbon Monoxide (CO)	mg/m³	. 4	IS 5182 (Part-10)	0.46		
2. Benzene (C ₆ H ₆)	μg/m³	5	IS 5182 (Part-11) 0.13			
3. Benzo(a) Pyrene	ng/m³	1	IS 5182 (Pari-12) 0.19 :			
4. Arsenic (As)	ng / m ³	6	AAS Method : 0:15			
5. Nickel as Ni	ng / m³	20	AAS Method 4.20			
Mercury (Hg)	ng/m³	Not Specified	US EPA (Method IO-5)	0.21		

I, Digitally signed by A SHIBESHWARI PRASAD. **SHIBESHW** AR PRASAÉ Baje: 2023.03.03 18:16:10 +05'50'

Venfied by : Technical Manager



Shreyasee Prasad

Shreyasee Proceed Bog 2023.03.03

1827:39 +05'30' Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample bested as above.

Total Liability of our Laboratory is limited to involced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose sufficult written permission of the Laboratory.

Centact us:

122-C, Austria, Road No. SA, Parliputos Colony, Pausa - 200 013 (Betar)

Mob : +918676886249 : +91943104790\$ <u>subpurea lighvahoo.co.en ; leefosjis krontest.com</u>

Website: www.shipatesr.com; wnort.shipatesthouse.com

Page 1 of 1



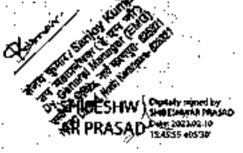


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF HIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1984, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT OF SHAR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/5947	Dt : . 10.02.20	23 Your Wo	rk Order No. 40002850	67-037-1019 Dt: 31.07.2022	
[a] Name and address of the	Customer		North Karanpur Project At: Tandwa Dist- Chatra Jharkhand- 82	a Super Thermal Power	
[b] Details of Sample	:	···		Monitoring (As per NAAQS)	
[c] Sample Collected by	·.	. :	SHIVA TEST HOU		
d Sampling Location				the top of Switch Yard Office Building	
[e] Method of Sampling			IS 11255 (Part-1,2,3		
[f] Sampling Environmental	Condition		Temp. (°C)	22 Humidity (%) 67	
g] No. & Type of Container	•		One poly Jan		
[h] Instrument [D			RDS-4, FPM-4	<u>.''.</u>	
[i] Sample Quantity		•	30 mi x 5 for each (NO ₂ , SO ₂ , NH ₃) :		
[j] Sample Code	:		A-5947		
[k] Sample Condition on Rec	cipt		Fit for Analysis		
[1] Items required to be tested	j		As per contract		
(m) Whether any specific Met been suggested by the per		has-	Na.		
[n] Date of receiving the sam			09.02.23		
[0] Analysis Start Date / Ana	lysis Compl	etion Dare	03.02.23/06.02.23	·	
Parameters	: .Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Building	
1. Particulate Matter (PM ₁₀)	<u>ид / m³</u>	100	IS 5182 (Part-23)	75.6	
2. Particulate Matter (PM _{2.5})	μ g / m j³ ·	60	CPCB (GMAAP Vol. I)	41.6	
3. Sulphur Dioxide as SO ₂	μg/m³	80.	IS 5182 (Part-2)	13.7	
Nitrogen Dioxide as NO ₂	$\mu g / m^3$	60	IS 5182 (Part-6)	37.3	
5. Lead (Pb)	_µg/m²	1 :.	IS 5182 (Part-22)	0.12	
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	. 5.2	
7. Ozone (O₃) 🚴	μg/m³	180	IS 5182 (Part-9)	21.3	



Verified by : Technical Manager



Prasad

Shreyasee Shreyase Prasad Date: 2023.02.10 16:25:40 +05'30"

> Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involced amount.

Test Report endorsed only the trials and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

172-C, Austha, Road No. 5A, Pathpére Colony, Paner - 800 D13 (Bihar)

MOB. +918676866289; +91943104790\$

sthosmal divideo co.in : m/692684 vantsi com

Page 1 of 1



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF BIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1985, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL SCARD

TEST REPORT

Ref. No. STH/TR/22-23/59/7(A)	Dt : 10.	02.2 0 23 Your	Work Order No. 40002		Dt: 31,07,2022		
(a) Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample	_		Ambiem Air Oua	lay Monitoring (As	per NAAOSI		
[c] Sample Collected by	•			USE on 01.02.23	,		
[d] Sampling Location	•		Collected from Near	at the top of Switch Yo	vel Office Building		
[e] Method of Sampling			IS 11255 (Part-1,2,				
[f] Sampling Environment	al Condition		Temp. (^o C)	22 Hum	idity (%) 67		
[8] No. & Type of Contain	er .		One poly Jar				
[h] Instrument ID		•	RDS-4, FPM-4				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-5947				
[k] Sample Condition on R	eceipt		Fit for Analysis				
[1] Items required to be tes	ted		As per contract .				
[m] Whether any specific M been suggested by the p		st ba's	No . ·				
[n] Date of receiving the sa		•	03 02 23				
[o] Analysis Start Date / Ar	ņalysis Com	pletion Date	03.02.23 / 06.02.23				
1	·	Limit as per	Method of	Sampling Sta	ation / Result		
Parameters .	Unit	NAAQS 2009	Test		of Switch Yard fullding		
1. Carbon Monoxide (CO)	mg / m³	. 4	IS 5182 (Part-10)	0.23			
2. Benzene (C _c H _c)	μg / m³	5	IS 5182 (Part-11) 0.11				
3. Benzo(a) Pyrene.	ng / m³	1	IS 5182 (Part-12) 0.19				
4. Arsenic (As)	ng / m³	6	AAS Method 0.36				
Mickel as Ni	· ng / m³	20	AAS Method 4.30				
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Mathod (O-6)	0.2	21 .		



Verified by : *Technical Manager*



Shreyasee Digitally signed by Shreyasee Prasad Prasad 14:25:59 +05:30*

Authorized Signatory
Quality Manager

– END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced emount.
 Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Page I of I

Contact us r

122-C, Austria, Road No. 5A, Palliputra Colony, Parpa – 800 0 (3 (Billian)

NO. +918676886249 ; +919431047908 Email . athorization

atherical @hahuo.co.in ; loso@shinolesi.com

Website - www.itrimest.com ; provv.shivaesthouse.com

· // 1/11



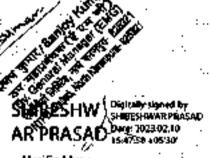


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFGC, GOVT, OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/12-23/5959	Dt: 10.0	02.2023 Your W	Fork Order No. 4000285	067-037-1019	Dt: 31.07.2022		
' ' ' '.			North Karanpur	a Super Then	nal Power		
		• •	Project				
[a] Name and address of the	e Custome	r	At: Tandwa	:			
	*, * - · · · ·		Dist- Chatra	. "			
			Jharkhand- 82	5.321	::		
[b] Details of Sample			Ambient Air. Quality		NA4Q5)		
[c] Sample Collected by	· · · _	:	SHIVA TEST HOU		<u> </u>		
[d]: Sampling Location	:	•	Collected from Near a	the top of Switch Y	od Office Building		
[e] Method of Sampling	:. '	•	IS 11255 (Part-1,2,3				
[f] Sampling Environment	al Conditio	'n .	Temp. (⁶ C)	22 Humidi	y (%) 68		
1 No. & Type of Contain			One poly Jar	· · · · · ·			
[h] Instrument ID		•	RDS-4, FPM-4	٠.			
[i] Sample Quantity		٠.	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] : Sample Code	;		A-5959				
[k] Sample Condition on R	eceipt	<u> </u>	Fit for Analysis				
[I] Items required to be tes			As per contract				
[m] Whether any specific N	lethod of T	est has					
been suggested by the p	barrty	:	No.				
[n] Date of receiving the sa		· ·· · · .	03.02.23 06.02.23				
[o] Analysis Start Date / A	nalysis Cor	npletion Date.					
• :]: "	Limit as per	Method of	Sampling S	tation / Result		
Parameters	Unit :	NAAQS 2009	Test		p of Switch Yard		
	1				Building		
Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)		4.6		
2. Particulate Matter (PM ₂₅)	ng /m³	. 60	CPCB (GMAAP Vol. II)	4	0.7		
a. Sulphur Dioxide as SO ₂	μg / m³	80	8 5182 (Part-2)	1	2.4		
Nitrogen Dioxide as NO ₂	μg/m³	80	(S 5182 (Part-6)		6.6		
5. Lead (Pb)	μg /:m³ .	1 1	IS 5182 (Part-22)		v13 i.		
6. Ammonia as NH ₃	μg /m²	400	IS 5182 (Part-5)		3.1		
7. Ozone (O ₃)	ng / m³	180	IS 5182 (Part-9)		0.7		
1							



Verified by : · Technical Manager



Prasad

: -:.

Shreyasee Shreyase Broken Date: 2023.02.10 16:28:04 #05'90"

> Authorized Signatory . ·· Quality. Manager

(Nis report applies, only to sample tested as above

Total Liability of our Laboratory is imited to invoiced amount,

Test Report endorsed only the tests and not the product conflictate.

Test Report can not be reproduced partially or full for legal/court purpose without santen parameters of the Laboratory.

122-C, Aastha, Road No. SA, Paulipeura Colony, Parns - 800 (f) 3 (Billion)

Mob.: +918676486249 ; +91943 (447908

. Website : www.shivatest.cim ; www.shivatestiouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MINEFCC, GOVE, OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1886, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAIN AND BRIAIN STATE POLLUTION CONTROL BOARD

TEST REPORT

Rof. No. STH/TR/22-23/5959(A)	Di: J	0.02.2023 Your	Work Order No. 4000	285067-037-1019	Dt: 31.07.202	
[a] Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Oug	lity Monitoring (As	per NAAOS) -	
[c] Sample Collected by				USE on 02.02.23	<u>, , , , , , , , , , , , , , , , , , , </u>	
[d] Sampling Location				at the top of Switch Ya	rd Office Building	
[a] Method of Sampling			IS 11253 (Part-1,2,			
[4] Sampling Environment	al Condition	-	Теттр, (⁶ С)	22 Humi	dity (%) 68	
No. & Type of Contain			One poly Jar			
[h] : Instrument ID			RDS-4, FPM-4			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-5959			
[k] Sample Condition on R	ecempt		Fit for Analysis			
[l] Items required to be tes	ted		As per contract			
[m] Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sa			03.02.23			
[o] Analysis Start Date / Au	nalysis Com	pletion Date	03.02.23 / 06.02.23			
Parameters	Unit	Limit es per NAAQS 2009	Melhod of Test	Sampling Sta Near at the top Office E	of Switch Yard	
1. Carbon Monoxide (CO)	mg/m³	4.	IS 5182 (Part-10)	0.34		
2. Benzene (C ₆ M ₆)	μg / m³	5	IS 5182 (Part-11)	0.1	13	
3. Benzo(a) Pyrene	1	IS 5182 (Part-12)	0.1	19		
4. Arsenic (Ás)	ng / m³ ng / m³	. 6	AAS Method 0.29			
Nickel as Ni	ng / m³	20	AAS Method 1.43			
6. Mercury (Hg)	են ∖ ψυ յ	Not Specified	US EPA (Method IÓ-5)	0.2	29	

SHIBESHW Distributioned by SHIBESHWAR PRASAD Date: 2023-02:10 15:48:10 +05:30* AR PRASAD Verified by :

Pagna 200013

-- END OF TEST REPORT

Prasad

: :

Shreyasee Shreyasee Prasad Digitally signed by Buty: 2023/02/10 16:28:22 +05'30'

Authorized Signatory Quality Manager

This report applies only to cample tested as above:

Technical Manager

Total Liability of our Laboratory is finaled to invoiced amount.

Test Report endorsed only the tests and sol the product certificate.

Test Report can not be reproduced partially or full for legal/count purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Padiputta Colony, Patta - 800 013 (Bilate)

DIOD: +918676866249; +919431047408. simma l@vzhoo.co.in ; inki@shnotesi.com Graph -

Website: www.shimtest.com; www.shimtesthouse.com

Page 1 of 1





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6201 1	DI: 22.02.2	023 Your Work	Order No. 4000285067-	037-1019 Dt : 31:07.2922			
[a] Name and address of the	Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample	:			Monitoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location				the top of Switch Yard Office Building			
[c] Method of Sampling	·	•	IS 11255 (Part-1,2,3 &	k 7)			
[f] Sampling Environmental	Condition	•	Temp. (°C)	23 Humidity (%) 66			
ig] No. & Type of Container		· · .	One poly Jar				
[h] Instrument ID			RDS-4, FPM-4				
[t] Sample Quantity			30 milx:6 for each (I	NO2, SO2, NH3)			
[j] Sample Code			A-6201				
[k] Sample Condition on Rec	æipť .	· .	Fit for Analysis				
[1] Items required to be teste	đ	•	As per contract				
(m) Whether any specific Me been suggested by the par		rt has 	No · ·				
[n] Date of receiving the sam	ple		10.02.23				
[o] Analysis Start Date / Ana	lysis Comp	eletion Date	10.02.23/13.02.23				
•	: .	Limit as per	Method of	Sampling Station / Result			
Parameters	Volt	NAAQS 2009	Test	Near at the top of Switch Yard Office Building			
1. Particulate Matter (PM ₁₀).	μg/m³	100	IS 6182 (Part-23)	75.2			
z. Particulate Matter (PM _{2.6})	μg / m³	60	CPCB (GMAAP Vol. I)	39,3			
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	13.5			
Nitrogen Dioxide as NO ₂	μg/m³	80.	IS 5182 (Part-6)	34.2			
5. Lead (Pb)	μg / m³	1	1S 5182 (Part-22)	0.14			
		-4-		4= 5			
6. Ammonia as NHs	μg/m³	400	IS 5182 (Part-5)	15.9			

SHISESHW Digitally stored by SHISESHWA PRASAD Dete: 2023.02.23
AR PRASAD Dete: 2023.02.23

Verified by : Technical Manager



Shreyasee Prasad Oligitally signed by Shreyesse Prased Barg: 2025.02.25 15:55:27 +05'30'

Authorized Signittory
Quality Manager

- END OF TEST REPORT

1. This report applies only to sample tested as above

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.
 Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Rood No. SA, Pathpura Colony, Parm - 300 013 (Bihan)

Mob: +9[8676986249: +9]9431047908

meil - situama (Wohoo.ce.in ; info@shinelest.com

Website: www.shivatest.com; www.shivateshouse.com

in a land Arean

. '

Page 1 of 1



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFOC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOYT, OF BRIAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6201(A)	Dt: 22	#2.2023 Your	Work Order No. 40002	285067-03	7-1019 Du: 32.	07.2022		
[z] Name and address of th	Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
b Details of Sample			Ambient Air Qua	lity Monito	ring (As per NAA))S)		
[c] Sample Collected by			SHIVA TEST HO	USE on 09	.02.23			
[d] Sampling Location			Collected from Near	at the top of	Switch Yard Office Bu	etiding		
[e] Method of Sampling			IS 11255 (Part-1,2,	3 & 7)	•			
[f] Sampling Environment	al Condition	•	Temp. (%C)	23	Humidity (%)	66		
g] No. & Type of Contain			One poly Jar					
[h] Instrument (D			RDS-4, FPM-4					
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)					
[j] Sample Code			A-6201					
[k] Sample Condition on R	eccipt		Fit for Analysis					
[1] Items required to be tes	ted		As per contract					
[m] Whether any specific M been suggested by the p		st has	No					
[n] Date of receiving the sa			10.02.23					
[o] Analysis Start Date / Ar	nalysis Com	pletion Date	10.02.23/13.02.23					
Parameters	Unit	Limil as per NAAQS 2009	Method of Test		pling Station / Re the top of Switch Office Bailding			
Carbon Monoxide (CO)	mg / m³	4	(S 5182 (Part-10)	0.23				
2. Benzene (CoHe)	μ g /:m³	5	IS:5182 (Part-11) 0:01					
3. Benzo(a) Pyrene	ng / m³	1	IS 5182 (Part-12) 0:19					
4. Arsenic (As)	ng / m ³	6	AAS Method 0.37					
Nickel as Ni	ng / m³	20	AAS Method		4.30	•		
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Method KO-5)		0.24			



Technical Manager

40000:3

Prasad

Shreyasee Streyase Praced Date: 2025.02.23 15:57:30 +05'30" Authorized Signatory

Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us: 122;-C., Austria, Road No. SA, Pallipetra Colony, Panna - 800 013 (Ethar)

Mob: +918676886249; +919431047908 Empil:

sthoring leavance come; in facility meest com-

Website : news.shinstest.com; severe shinstesthouse.co





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF NEW, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOYT. OF BHAR AND BHAR STATE POLLUTION CONTROL SOARD

TEST REPORT

Ref. No	STH/TR/22-23/6268	Dt : 22.0	2.2023 Your W	ork Order No. 4000285		
(a)	Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321		
<u>[b]</u>	Details of Sample			Ambient Air Quality	Monttoring (As per NAAQS)	
[c]	Sample Collected by			SHIVA TEST HOU	SE on 11.02.23	
[d]	Sampling Location			Collected from Near at	the top of Switch Yord Office Building	
[e]	Method of Sampling			IS 11255 (Part-1,2,3	& 7)	
[II]	Sampling Environments	al Condition	n.	Temp. (⁹ C)	23 Humidity (%) 68	
[]	No. & Typs of Contains	ar :		One poly Jan	<u> </u>	
[h] [*]	Instrument ID			RDS-4, FPM-4		
(ii)	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₈)		
ii)	·Sample Code			A-6268		
{k}	Sample Condition on Re	eceipt		Fit for Analysis		
[i]	Items required to be test			As per contract		
[m]	Whether any specific M been suggested by the p		est has	No		
[n]	Date of receiving the sa			13.02.23		
101	Analysis Start Date / An	nalysis Con	pletion Date	13.02.23/16.02.23		
: : .	Parameters	Unit	Limit as per NAAQS 2009 :	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Building	
1. Pari	liculate Matter (PM ₁₀)	·μg / m³	100	IS 5182 (Part-23)	74.3	
2. Par	ticulate Matter N _{2.5})	hā / m,	60	CPC8 (GMAAP Val. II)	40.7	
3. Sul	phur Dioxide as SO ₂	րց / m³	80	(\$ 5182 (Part-2)	12.4	
Nitr	Nitrogen Dioxide as NO ₂ µg / m ³ 80			IS 5182 (Part-6)	36.4	
5. Les	kd (Pb)	μg / m³ i	1	IS 5162 (Part-22)	0.10.	
6. Am	monia as NH ₃	$\mu g/m^3$	400	18 5132 (Part-5)	6.0	
7. Oze	one (O ₃)	μα / m²	180 ·	(S 5182 (Part-9)	23.7	

SHOESHW Destany signed by SHBESHWAR PRASAD BANGE 19023-02-28 AR PRASAD 1545-21+0530

Verified by : Technical Manager



Shreyasee

Prasad

i Digitally signed by Shreyasee Prasad Date: 2023.02.23 15.59.35 v05'30'

Authorized Signatory .
Quality Manager

END OF TEST REPORT

This report applies only to sample leated as above.

2. Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legisleour purpose sufficial written permission of the Laboratory.

Contact us :

122-C, Azsika, Rood No. SA, Pathpetra Colony, Paris – 800 013 (Bahar)

Mcb...+9|8676486249 ,+9|9431047906 Email: <u>silmanoi Svelton co m</u> ; (n#1685hiveness com

Website: www.shivatest.com; www.shivatesticuse.com



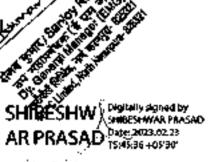
Page 1 of 1



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORPCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1986, DEPT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6268(A)	Dt: 22.0	2.2023 Your V	Vork Order No. 40002			022		
[a] Name and address of th	a) Name and address of the Costomer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Amblenj Air Qua	lity Monitoring	(As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HO	USE on: 11.02.:	23			
[d] Sampling Location			Collected from Near	er the top of Switt	h Yard Office Buildin	啡		
(e) Method of Sampling			JS 11255 (Part-1,2,					
[Jf] Sampling Environment:	al Condition		Temp. (°C)	23 H	fumidity (%)	68,		
<u>k] No. & Type of Contains</u>	r		One poly Jan	<u> </u>				
[b] Instrument ID	:		ROS-4, FPM-4					
	[i] Sample Quantity				30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
(j) Sample Code			A-6268					
[k] Sample Condition on R	eceipt		Fit for Analysis					
[I] hems required to be tes			As per contract					
[m] Whether any specific M been suggested by the p		st has	No .					
[n] Date of receiving the sa	mple	•	13.02.23					
[o] Analysis Stan Date / As	alysis Com	pletion Date	13.02.23/16.02.23					
		Limii as per	Method of	Sampling	Station / Result	t		
Parameters	Unit	NAAQS 2009	Test .		top of Switch Ya ice Building	ırd		
1. Carbon Monoxide (CO)	Carbon Monoxide (CO) mg / m ³ 4		(\$ 5182 (Part-10)	0.34				
2. Benzene (C ₅ H ₆) μg / m ³ 5			(\$ 5182 (Part-11)	•	0.20			
3. Benzo(a) Pyrene . ng / m³ ! 1			18 5182 (Part-12)		0.19			
4. Arsenic (As) ng / m³ 6			AAS Method		0.24			
Nickel as Ni	Nickel as Ni ng / m³ 20				2.86			
8. Mercury (Hg) µg / m³ Not Specified			US EPA (Method IO-5)		0.17			



Verified by : Technical Manager



Prasad

Shreyasee | Ougitally agreed by Shreyasee Proceed Orgitally agreed by Oate: 2023.02.23 15 59 49 +0530

> Authorized Signatory Quality Manager

END OF TEST REPORT

- This report applies only to sample leased as above.
- Total Liability of our Laboratory is limited to invoiced emount.

 Test Report endorsed only the tests and not the product certificate.
- Test Report can not be reproduced partially or full for regal/count purpose without written permission of the Laboratory.

Contact us :

1-22-C, Ansthe, Rood No. SA. Pattiputta Cology, Pates - 400 O(5 (Hitter)

Mob.: +918676846249 , +919431047908 athpatent (Greekee, corin.), la fet Geleinest extent.

Website : www.shivatesi.com ; www.shivatesthouse.com





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MINEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAN AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6382	Dt : 25.02	.2023 Your V	Vork Order No. 4000285	067-037-1019 Dt: 31.07.2022		
[a] Name and address of t	the Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Quality	Monitoring (As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HOU	SE on 14.02.23		
[d] Sampling Location			Collected from Near as	the top of Switch Yard Office Building		
[e] Method of Sampling			IS 11255 (Part-1,2,3	& 7)		
[f] Sampling Environmen		п	Temp. (°C)	22 Humidity (%) 68		
No. & Type of Contain	ner		One poly Jar			
[h] Instrument 1D			RDS-4, FPM-4			
[i] Sample Quantity	•		30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
(j) Sample Code			A-6382			
[k] Sample Condition on :	Receipt		Fit for Analysis			
(i) items required to be to	sted		As per contract			
[m] Whether any specific been suggested by the		est has	No			
[n] Date of receiving the :		•	15.02.23			
[o] Analysis Start Date / /	Analysis Con	npletion Date	16.02.23/19.02.23			
Parametera	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Building		
1. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	73.6		
2. Particulate Matter μg / m³ 60		CPCB (GMAAP Vol. I)	39.3			
9. Sulphur Dioxide as SO ₂ µg/m ³ 80		IS 5182 (Part-2)	14.4			
Nitrogen Dioxide as NO ₂ µg / m ³ 80		IS 5182 (Part-6)	31.2			
5. Lead (Pb) μg / m³ 1		IS 5182 (Part-22)	0.07			
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	. 5.9		
7. Ozone (O ₃) . 3 µg/m ³ 180			IS 5182 (Part-9)	23.1		

SHW SHIBESHMAR PRASAD AR PRASAD 000 1031 0225

Verified by: Technical Manager



Shreyasee § Prasad

Digitally signed by Sheeyasae Prasad Date: 2023/02:23 16:44:50 +05/30*

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoced amount.

Test Report eadured only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/count purpose without written permassion of the Laboratory.

Contact as:

122-C. Anaths, Road No. 5A. Patigodra Colony, Petra - 000 013 (Bihar)

Mob., +912676886249 , +919431047902

Website : www.shrvates.com , www.shhvaeshouse.com

stheses histories.co.in : info@shivaces.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MARFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. N	o. STH/TR/22-23/6382(A)	Dt : 23.	02.2023 You	r Work Order No. 400		· · · · · <u>- · · · · · · · · · · · · · ·</u>	07.2022
[a]	Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Diat- Chatra Jharkhand- 825 321					
[b]	Details of Sample			Ambient Air Qua	lity Monitor	ing (As per NAAQ	(3)
[0]	Sample Collected by			SHIVA TEST HO	USE on 14.1	02.23	
[d]	Sampling Location			Collected fram New	at the top of S	which Yard Office Bu	olding
[8]	Method of Sampling			IS 11255 (Part-1,2,	3 & 7) .		
(ii)	Sampling Environmenta	d Condition		Temp. (⁰C)	22	Humdity (%)	68
g]	No. & Type of Containe			One poly Jar			
[[h]	Instrument [D			RDS-4, FPM-4			
[1]	Sample Quantity	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)					
Ü	Sample Code			A-6382			
[k]	Sample Condition on Re	eceipt		Fit for Analysis			
[1]	Items required to be test	ed		As per contract			
[m]	Whether any specific M been suggested by the pa		st has	No			
[n]	Date of receiving the sar			15.02.23			
[0]	Analysis Start Date / An		pletion Date	16.02.23/19.02.20			
			Limitonnos	Method of	\$ampl	ing Station / Re	şuilt
-	Parameters	Unit	Limit as per NAAOS 2009	Test		the top of Switch Office Building	Yard
1. Car	Carbon Monoxide (CO) mg / m³ 4			IS 5182 (Pert-10)	0.34		
2. Bé	2. Bénzene (C ₈ H ₈) µg / m ³ 5			IS 6182 (Part-11)	- 11 1		
	3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12) 0.20			
4. Ars	4. Arsenic (As) ng / m³ 6			AAS Method		0.22	
	Nickel se Ni ng / m³ 20			AAS Method 4.27			
6. Me	6. Mercury (Hg) ng / m ³ Not Specified			US EPA (Method IQ-5)		0.21	

SAIBESHW SHESHWARPRASAD Date: 2023.02.23 AR PRASAD 16:33:50 +95:30

Verified by : Technical Manager



Prasad

Shreyasee | Chightally segmed by Shreyasee Pracad Digitally signed by Date: 2023.02.23 16:45:04 +05'30' Authorized Signatory Quality Manager

-- END OF TEST REPORT --

This report applies only to cample tested as above.

Total Liability of our Laboratory is limited to involced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us: 1. . .

122-C, Aasthe, Road No. 5A, Pallipura Colony, Patra - 800 013 (Bibar)

Mob.: +912676186249 , +919431647908 stimion hävahoo.co.in ; infetäshmatest.com Potest :

Website: www.shitetest.com , www.shitetestleute.com





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFICE, GOVT. OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	STH/TR/22-23/6409	Dt: 23	.02.2023 Your	Work Order No. 400028		
[a]	Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321		
[b]	Details of Sample	•		Ambient Air Quality	Monitoring (As per NAAQS)	
(c)	Sample Collected by			SHIVA TEST HOU		
[6]	Sampling Location		-	Collected from New at	the top of Switch Yard Office Building	
(o)	Method of Sampling			18 11255 (Part-1,2,3	& 7)	
lf]	Sampling Environments	i Condition	'n	T émp. (° C)	24 Humidity (%) 66	
ıl I	No. & Type of Containe			One poly Jar		
[h]	Instrument ID			RDS-4, FPM-4		
[i]	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)		
(ii)	Sample Code			A-6409		
[k]	Sample Condition on Re	eceipt		Fit for Analysis		
Ш	Items required to be test	ed		As per contract		
[m]	Whether any specific M been suggested by the p		est has	No		
[u]	Date of receiving the sar	mple		16.02.23		
[0]	Analysis Start Date / An	alysis Con	npletion Date	17.02.23/20.02.23		
	Parameters	Unit -	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Building	
1. Part	iculate Matter (PM ₁₀)	μg/m³	100	JS 5182 (Part-23)	72.7	
	2. Particulate Matter μg / m³ 60			CPCB (GMAAP Vol. I)	39.3	
3. Sul	3. Sulphur Dioxide as SO ₂ µg / m ³ 80			IS 5182 (Part-2)	12.9	
	Nitrogen Dioxide as NO ₂ μg / m ³ 80			JS 5182 (Part-6)	32.4	
5. Lea	5. Lead (Pb) μg / m³ 1			IS 5182 (Part-22)	0.08	
B. Ami	B. Ammonia as NHs lug / m² 400			IS 5182 (Part-5)	6.1	
7. Ozo	ine (O ₃)	μg / m³	180	IS 5182 (Part-9)	21.9	

A SHIBESHWAR PRASAD AR PRASAD 16.3611 105'37 Verified by :

800013

Shreyasee Digitally signed by Shreyasee Prasad Prasad / Date: 2023.02.23

> Authorized Signatory Quality Manager

This report applies only to sample lested as above.

Technical Manager

Total Lisbilly of our Laboratory its limited to invoiced amount.

Test Report endersed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C, Aastha, Road No. 5A, Parlipetra Colony, Patris - 800 013 (Bilinar)

Mob: +918676886249; +919431047908

<u>этрэти (Фужов со и</u> ; <u>и бойзкічных соги</u> Emgil:

Website mow thirdest com; were structes house com

Page I of I

Contact us:

- END OF TEST REPORT -



RECOGNISED AS ENVIRONMENTAL LABORATORY BY NIVEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	o. STH/TR/22-23/6409(A)	Dt : 23.	02.2023 Your V	Work Order No. 40002	85067-037-	1019 Dt : 31.0	7.2022
[#]	Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] .	Details of Sample					ing (As per NAAQ)	<u>(2</u>
[6]	Sample Collected by		•	SHIVA TEST HO			
[4]	Sampling Location			Collected from Near	at the top of S	witch Yard Office But	iding
[e]	Method of Sampling		" -	IS 11255 (Part-1,2,			
្រា	Sampling Environments	d Condition		Temp. (⁴ C)	24	Hurridity (%)	66
.: <u>81</u>	No. & Type of Contains	er		One poly Jar			
[h].	Instrument ID	ROS-4, FPM-4					
[/]	Sample Quantity	30 ml × 6 for each (NO ₂ , SO ₂ , NH ₈)					
ازا	Sample Code			A-6409			
[k]	Sample Condition on Re	eccipt		Fit for Analysis			
[1]	Items required to be test	ted .		As per contract			
[m]	Whether any specific M been suggested by the p		st has	No			
[n]:	Date of receiving the sai			16.02.23			
[0]	Analysis Start Date / An		pletion Date	17.02.23/20.02.23			
			Limit on non	14-45-4-6	Sampl	ing Station / Res	ult
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test		the top of Switch ' Office Building	Yard
r. Car	ton Monoxide (CO)	mg / m³	4	(S 5182 (Part-10)	0.46		
2. Be l	2. Benzene (C₀H₀) μg / m³ 5			(\$ 5182 (Part-11)	0.13		
	3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12)	0.21		
	4. Arsenic (As) ng / m³ 6			AAS Method	0.20		
	Nickelas Ni ng / m³ 20			AAS Method		1.42	
6. M e	6. Mercury (Hg) μg / m³ Not Specified			UB EPA (Mathed (O-5)		0.23	

SHIBESHW Oighelty signed by SHIBESHWAR PRASAD AR PRASAD 1045 2023 02 23 Verified by :

Patha **2**000013

Shreyasee Prasad

Digitally signed by Shreyasee Pracad Day: 2029.02.23 10:47:26 +05'30'

Authorized Signatory Quality Manager

-- END OF TEST REPORT -

This report applies only to sample tested as above.

Technical Manager

Total Liability of our Laboratory is finited to invoiced amount.

Test Report endorsed only the tests and not the product conflicate.

Test Report can not be reproduced partially or full for legislational purpose without written permission of the Laboratory.

Contact us :

122-C, Asstha, Road No. 5A, Parlipeera Colony, Paner - 800 013 (Bihar)

Mob.: +918676886249 ; +919431047908 stinomat@velor co in ; info@shivacear com Email:

3 · ii.: Website: www.shimtest.com; www.shinztesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFCC, GOYT, OF MONA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY. OF REDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BEHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6511	Dt: 27.82	.2023 Your W	ork Order No. 40002850			
			Project -	a Super Thermal Power		
[a] Name and address of th	e Customer	r .	At: Tandwa			
			Dist- Chatra	• • • • • • • • • • • • • • • • • • • •		
·.			Jharkhand- 823	<u> </u>		
[b] Details of Sample				Monitoring (As per NAAQS)		
[c] Sample Collected by		٠.	SHIVA TEST HOU			
[d] Sampling Location				the top of Switch Yard Office Building		
[e]. Method of Sampling	···		IS 11255 (Part-1,2,3			
[f] Sampling Environments		n ·	Temp. (°C)	24 Humidity (%) 65		
No. & Type of Contains	7		One poly Jar			
[h] Instrument [D]	*::		RD3-4, FPM-4	:		
[i] Sample Quantity	:		30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code 🔑	<u></u>	:	A-6511			
[k] Sample Condition on R	eceipt		Fit for Analysis			
[f] Items required to be test	led- '''		As per contract			
(m) Whether any specific M been suggested by the p			No			
[n] Date of receiving the sa	mple		21.02.23			
[o] Analysis Start Date / Ai	alyais Con	pletion Date	21.02.23/24.02.23			
		Limit as per	Method of	Sampling Station / Result		
Parameters	Unit	NAAQS 2009:	Test	Near at the top of Switch Yard Office Building		
1. Particulate Matter (PM ₁₀)	μg / m³	100	I\$ 5182 (Part-23)	75.9		
2. Particulate Matter (PM _{2,5})	μg / m³	60	CPCB (GMAAP Vol. I)	40.4		
3. Sulphur Dioxide as SO ₂	μġ / m³	. 80	IS 5182 (Part-2)	13.7		
Nitrogen Dioxide as NO:	μg/m³	80	IS 5182 (Part-6)	34.2		
5. Lead (Pb)	μg / m³	1	IS 5182 (Part-22)	0.05		
6. Ammonia as NHa	μg/mi³	400	IS 5182 (Part-5)	6.0		
7. Ozone (O ₃)	μg/m³	160	IS 5182 (Part-9)	21.9		

(, Digitally (lighed by), SHIBESHYAR PRASAD.

Ventied by : Technical Manager



Shreyasee Prasad

| Digitally signed by Streywood Presed Dete: 2029/03/03 18:25:12 +05'90" Authorized Signatory

Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for togal/court purpose without written permission of the Leboratory.

Contact us:

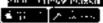
1224C, Assthe, Road No. 5A, Parliguna Calony, Paina - 800 013 (Bilan)

Mob.: +912676826249 ; +919431047908

sibustia i Govinos en in ; joés@altitutesi.com

- END OF TEST REPORT

Website . www.shivatest.com , www.shivetesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6511(A) D1: 27	.02.2023 You	Work Order No. 4000	285067-0	37-1019De: 31.	07.2022	
[a] Name and address of th	e Customer	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b] Details of Sample		<u>.</u>			ring (As per NAAQ	NS)	
[c] Sample Collected by	· · -	· ·	SHIVA TEST HO			·	
[d] Sampling Location					Switch Yard Office Bu	И фПид	
[e] Method of Sampling			I\$ 11255 (Part-1,2,				
JO Sampling Environment	al Condition		Temp. (°C)	24	Humidity (%)	65	
No. & Type of Contain	One poly Jar .	; .					
[h] Instrument II) .	RDS-4, FPM-4						
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
(i) Sample Code			A-6511 :				
[k] Sample Condition on R	ecemt :		Fit for Analysis				
[I] Items required to be tes	ted :		As per contract				
[m] Whether any specific M been suggested by the p		st has	No				
[n] Date of receiving the sa		• •	21.02.23				
[o] Analysis Start Date / Ar	nažysis Com	pletion Date	21.02.23/24.02.23	:.			
:	Ι"	سمة مم فلمت كي	48-15-4-5	Sam	pling Station / Res	sulti :	
Parameters	Unit	Limit as per NAAOS 2009	Method of Test	Near a	the top of Switch Office Building	Yard	
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)		0.46		
2. Benzene (C ₄ H ₆) pg / m ³ 5			IS 5182 (Part-11)	:	0.11		
3. Berizo(a) Pyrene ng / m³ 1			IS 5182 (Part-12)		0.18		
4. Arsenic (As) ng / m³ 6			AAS Method		0.18		
A Nicket as Ni ng / m³ 20			AAS Method		4.12		
6. Mercury (Hg)	US EPA (Method IO-5)	11	0.17				

SMBESHW States of the Control of the

Verified by : Technical Manager



Digitally signed by Shireyease Presed Date: 2023:09:03 18:25:37 405'30'

Authorized Signatory
Quality Manager:

— END OF TEST REPORT —
This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced emount.

Test Report endorsed only the lests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Roed No. SA, Patiputta Colony, Patha - 800 Q13 (Bilian)

Mob.: +911676816249 ; +919431047906 Email attention (in info@stitratetu.com

Website . www.shivatest.com; move.shivatesthouse.com



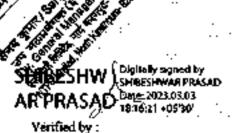


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MINEFCC, GOVT. OF BIDLA, UNDER ENVIRONMENT (PROTECTION) ACT 1985, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT OF BIHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STHYTR/22-23/6565	Dt: 27.0	2-2423 Your W	ork Order No. 4040285		
[a] Name and address of th	e Customer	•	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321		
[b] Details of Sample				Monttoring (As per NAAQS)	
c Sample Collected by		•	SHIVA TEST HOU		
[d]: Sampling Location			Collected from Neur at	the top of Switch Yard Office Building	
[e] Method of Sampling			IS 11255 (Part-1,2,3		
[1] Sampling Environment	d Conditio	n. * * .	Temp. (PC)	24 Humidity (%) 66	
[4]. No. & Type of Containe	Ħ		One poly Jar		
[h] Instrument (T)		•	RDS-4, FPM-4	···	
[i] Sample Quantity		: · ·	30 ml x 6 for each	n (NO ₂ , SO ₂ , NH ₂)	
[j] Sample Code			A-6565		
[k] Sample Condition on Re	sceipt · · ·	· · · — ·	Fit for Analysia		
[1] Items required to be test	led :		As per contract		
[m] Whether any specific M been suggested by the p		est has	No		
[n] Date of receiving the sa			23.02.23		
[0] Analysis Start Date / Ad	alysis Con	pletion Date	23.02:23/26.02.23		
		•	Method of	Sampling Station / Result	
Parameters	Unit :	Limit as per NAAQS 2009	Test	Near at the top of Switch Yard Office Building	
	μg / m³	100 /	IS 5182 (Part-23)	765	
2. Particulate Matter μg / m³ 60			CPCB (GMAAP Vol. I)	38.3	
3. Sulphur Dioxide as SO ₂	μg / m³	. 60.	16 5182 (Part-2)	. 13.1	
Nitrogen Dioxide as NO ₂ μg / m ³ 80			IS 5182 (Part-8)	34.5	
5. Lead (Pb)	μg / m³	. 1 .	IS 5182 (Part-22)	0.05	
6. Ammenia as NH₃	μg/m³	400	IS 5182 (Part-5)	7.1	
7. Ozone (O ₃) 🚵	μg/m³	160	IS 5182 (Part-9)	25.8	



8000013

END OF TEST REPORT

Shreyasee Prasad

Olgitally signed by Previous Planed Date: 2023.09.03 182754 40530 Authorized Signatory Quality Manager

This report applies only to sample leated as above.

Technical Manager

Total Liability of our Laboratory is limited to involved amount.

Test Report endorsed only the lests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C; Aasthe, Roed No. SA, Padiguna Colony, Parm - 800 013 (Balaic)

Mob.: +918676286249 : +919431047908 Emeil: - <u>subjects | @yeakoo.co.un</u> ; in fo@461144654.com

Website: manual involentación; promu shiru tendro reacción



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOSFICE, GOVT. OF NOIA, UNDER ENVIRONMENT (PROJECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6565(A) Dt : 2	7.02.2023 You		0285067-037-1019 Dt: 31.07.2022		
[a] Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample	* .::			lity Monitoring (As per NAAQS)		
[c] Sample Collected by				USE on 22:02:23		
[d] Sampling Location			Collected from Mear	at the top of Switch Yard Office Building		
[e] Method of Sampling			IS 11255 (Part-1,2,			
.[f] Sampling Environment	ai Condition		Temp. (°C)	24 Humklity (%) 66		
No. & Type of Contain			One poly Jar			
. [h] Instrument ID			RDS-4, FPM-4			
(i) Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-6565			
·[k] Sample Condition on R	cceipt		Fit for Analysis			
[i] Items required to be tes	ited		As per contract			
[m] Whether any specific Notes been suggested by the		st has .	No			
[n] Date of receiving the st			23.02.23			
[o] Analysis Start Date / A	nalysis Com	pletion Date	23.02.23/26.02.23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Building		
1. Carbon Monoxide (CO),	mg/m³	4	IS 5182 (Part-10)	0.46		
2. Benzene (C₀H₅) jug / m³ 5		IS 5182 (Part-11)	0.11			
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12)	0.18		
4. Arsenic (As) ng / m³ 6			AAS Method	0.19		
Nickel as Ni ng / m³ 20			AAS Method	2.75		
6. Mercury (Hg) j µg / m³ Not Specified			US EPA (Method IO-5)	0.17		

SHIBESHW SHIBESHWAR PRASAD AR PRASAD 18:16:34 +05'90"

Verified by : Technical Manager



Shreyasee Prasad

Olgitally signed by Streywee Presad Bate: 2023.03.03 1828:11 +0530 Authorized Signatory

Quality Manager

<u>- END OF TEST REPORT</u>

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to imposed amount,

Test Report endorsed only the tests and not the product conflicate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact es :

122-C, Anstha, Read No. 5A, Pathipatra Colorty, Patrict = 600-0(3 (Bifur))

Mob : +918676886249; +919431047908

subpared (@yehoo.co.in : ja/fo@shiverest.com

Website : www.shirotest.com; www.shirotesthouse.com

Serving since 1986)

(Serving since 1986)

(SERTKERED OF SERVICE ON OT SER STIVE 1851 TOJUSE ON VIVE CO BRUSING (Township) PROCOGNOTO AS ENVIRONME Tharkhand, 825 321 Ret No STATERAL E SOUS Name and address of the Customer Terre PC 30 ml x 6 for 9arch (NOs, 9Oz, NHs) One boy lar Details of Sample Res (2) Sample Collected by POS-1 Sampling Environmental Condition Sampling Location Method of Sampling A-5948 FR for Analysis U. [•] As per contract No. & Type of Container 03.02.23 03.02.23.106.02.23 [b] Instrument ID Sampling Sample Quantity [c] Sample Condition on Receipt Near at 1 Whether any specific Method of Test has Sample Code [0]Saı hems required to be traced Build Method of [¢] Мсь Analysis Start Date | Analysis Completion Date Տասուբ Œ. been suggested by the party 70**3**1 18 5182 (Part-23) No. & Date of receiving the sample Limit as par lusicum NAAOS 2009 (h/ CPCB [0]Sample v GNAAP VOL. (m) Sample C 15 182 Part 2 D 100 [k] <u>Sample Ce</u> 15 5 182 Part 6) Ha I m3 Parameters Items requir 60 15 5 182 (Part-22) Particulate Matter (PMI) Whether any, (m) $\mu g \mid m_g$ 15 5182 (Part 5) 80 been Suggeste Particulate Matter 185182 (Part-9 HB I M3 80 [n] Date of receive 191m3 Sulonur Dioxide Rs 302 [0] Analysis Start L Narogen Dioxide as NO 400 113 m (PAA39) MAIN **Parameters** Ma I m Lead (FU) Ammoriia as NH2 Carbon Monoxide (CO) A STATE OF THE PARTY OF THE PAR Benzene (C_eH_e) ₹5<u>1</u>4∂ Ozone (Os) HW CHANGE TO THE REAL PROPERTY OF THE PARTY 3. Benzo(a) Pyrene Arsenic (As) POLPA. Nickel as Ni ₀₀₀013 A STATE OF THE PARTY OF THE PAR 4 oha 👭 AR PRASAD IS NOT THE PARTY OF THE This report expires only to succeed the same of the product constraint on the product constraint only limbs and not the product constraint only limbs and not the product constraint only limbs and not the for technique only limbs and not the for technique on the limbs and not the li areas only the lights and not the product confincise authors. The state of the s SHIBESHW Commissioned by EASS: +918676836249 : +910437947994 SHIRESHWAR PRASAD AR PRASAD DATE THE ST HOP SET WORKE STEELS Test Paport of Contact as : Technical Manager ₩**05**30°unforized Signatory This report applies only to sample tested as above.

Total Liability of our Laboratory is amided to involced amou. 1 Quality Manager Test Report endorsed only the tests and not she product or Test Report can not be reproduced paintally or full for legal/c Contact ts: 122-C, Aastha, Road No. 5A, Publiqueto Colony, Pages - \$00 013 (Biling) Page I of 1 Mob.: +913676236349 ; +919431047908 Sheatral Sheden so.in : ub@directr.com Emert : Website www.shivenedi.com . www.shiveteshiress.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFGC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. 5TH/TR/22-23/5960	Dt: 10.	02.2023 Your V	ork Order No. 40002856	067-037-1019 Dt : 31.07.2022	
[a] Name and address of th	e Customer	·	North Karanpur Project At: Tandwa Dist- Chatra	a Super Thermal Power	
: :		·.	Jharkhand- 825	321	
[b] Details of Sample .		: "		denuoring (As per NAAQS)	
[c] Sample Collected by	• :	:	SHIVA TEST HOUS		
(d) Sampling Location		:- "	Collected from New at .	the top of Tojoravi Building (Township)	
[6] Method of Sampling		:	[\$ 11255 (Part-1,2,3 &	k7)	
[f] Sampling Environment	el Conditio	<u>n </u>	Temp. (⁰C).	22 Humidity (%) 68	
t] No. & Type of Contain	er :		One poly Jar	· · · · · · · · · · · · · · · · · · ·	
[h] Instrument [D			RDS-1, FPM-1		
[i] Sample Quantity		• ":	30 mt x 6 for each (NO ₂ , SO ₂ , NH ₃)		
[j] Sample Code	: "-		A-5960		
[k] Sample Condition on R	eceipt		Fit for Analysis As per contract		
[1] Items required to be les	(ed				
[m] Whether any specific N been suggested by the p		est has	No	· · · · · · · · · · · · · · · · · · ·	
[n] Date of receiving the sa	ntple		03.02.23		
[o] Analysis Start Date / A	nalysis Con	pletion Date	09.02.23 / 06.02.23		
	ļ		18.35	Sampling Station / Result	
Parameters	Unit	Limit as per NAAOS 2009	Method of Test	Near at the top of Tejasavi Building (Township)	
1. Particulaté Matter (PM ₁₀)	. μg / m³	100	IS 5182 (Part-23)	74.7	
2. Particulate Matter	μg / m³ .	60	CPCB (GMAAP Vol. I)	39.3	
3. Sulphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2)	12.7	
Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6)	39.3	
5. Lead (Pb)	μg/m³ ·	1	IS 5182 (Part-22)	0.12	
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	. 5.9 .	
7. Ozone (O ₃)	μg/m³	180 ::	IS 5182 (Part-9)	21.0	

BESHW ASHBESHWARPRASAD AR PRASAD 15.48.21 405'97

· Verified by : Technical Manager



Shreyasee Shreyasee Prased Prasad

Date: 2023.02.10 16:28:40 +05'30" Authorized Signatory Quality Manager

This report applies only to earnels tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificale. Test Report can not be reproduced panishly or full for legalicount purpose without written permession of the Laboral

Contact us:

–800 013 (Bibber) 122-C, Austin, Road No. SA, Palapeers Golony, Pausa

Mub_ +918676886249 ; +91943104790\$

stituatus ligityation, co. in ; info@stivates, com

Website: : www.shiwatest.com ; www.shiwatesthouse.com

Page 1 of 1.



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY McEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1964, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOYT, OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. ST	H/TR/22-23/5960(A)	Dt : 10.	02-2023 Your Y	Work Order No. 400028	6087-037-10)18 Dt: 31	.07.2022	
[a] Na	[a] Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] De	tails of Sample			Ambient Air Qual		g (As per NAA)	08)	
	nple Collected by	•		SHIVA TEST HOL				
[d] Sar	upling Location			Collected fram New .			muchip)	
[e] Me	thod of Sampling			IS 11255 (Part-1.2,3				
.∰ Sar	npling Environmente	Temp. (°C)	22	Humidity (%)	68			
g] No	& Type of Contains	a .		One poly Jar			_	
[h] Ins [i] \$ar	trument [D			RDS-1, FPM-1	_			
[i] Sar	nple Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
<u>[j] Şar</u>	nple Code			A-5960				
[k] Sar	nple Condition on Re	ecempt		Fit for Analysis				
[I]: Iter	ns required to be test	ted		As per contract				
	ether any specific M n suggested by the p		st has	No				
[n] Da	te of receiving the sai	mple		03.02.29				
[o] An	alysis Start Date / Ar	alysis Com	pletion Date	03.02.23 / 06.02.23				
} Pa	arameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at	ig Station / Re the top of Teja ling (Township	savi	
1. Carbon	Monoxide (CO)	mg/m³	4	(\$ 5182 (Part-10)		0.46		
2. Benzen	e (C ₆ H ₆)	μg/m³	5	IS 5182 (Part-11)	0.10			
	3. Benzo(a) Pyrene ng / m³ 1				0.18			
4. Arsenic	4. Arsenic (As) ng / m ³ 6				IS 5182 (Part-12) 0.18 AAS Method 0.24			
Nickel s	is NI	AAS Method 4.26						
6. Mercury	(Hg)	ng/m³	Not Specified	US EPA (Method IQ-5)		0.20		

Digitally agreed by **SHIBESHW** SHBESHWAR PRASAD AR PRASAD 100 2023.02.10 15:48:35 +06:301

Verified by : **Technical Manager**



Shreyasee Prasad Shreyasee Prasad Date: 2023.02.10

(, Digitally signed by 16:28:56 +05'30"

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Your Lisbilly of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product currificate.

Test Report can not be reproduced partially or full for legisfocurt purpose without written permission of the Laboratory.

122-C, Assita, Hond No. 5A, Patiputra Colony, Patra - 800-013 (Bittar) Contact us:

Mob.: #918676866249 : +919431047908 Email . Shostet Michoo.com; info@shootest.com

Webbile: www.shimtest.com; provishivatesthouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/5948(A)	Dt : 14	.02.2023 Your	Work Order No. 40002	2506 7-037-10	118 Dt : 31.	.07.2022	
[8]	Name and address of th		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra					
(b)	Details of Sample			Jharkhand- 82 Ambient Air Quali		(As ner NAAC	20	
	Sample Collected by			SHIVA TEST HOL			•	
	Sampling Location			Collected from Near a			washin)	
	Method of Sampling			IS 11255 (Pan-1;2,3		: "		
	Sampling Environments	al Condition		Temp. (°C)		(umidity (%)	67	
	No. & Type of Contains			One poly Jar		, , , ,	•	
	Instrument ID			RDS-1, FPM-1		·· ·		
	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
	Sample Code			A-5948				
	Sample Condition on Re	eceipt		Fit for Analysis				
	Items required to be test			As per contract				
[m]	Whether any specific M been suggested by the p	lethod of Te	st has	No				
	Date of receiving the sa		•	03.02.23		•		
	Analysis Start Date / At		pletion Date	03.02.23 / 06.02.23				
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at d	j Station / Re he top of Teja ng (Township	şavi	
1. Çarb	on Monoxide (CO)	mg / m³	. 4	(\$ 5182 (Part-10)		0.23		
2, Benz	ene (C _s H _s)	μg/m³	. 5	IS 5182 (Part-11)		0.12		
	to(a) Pyrene	ng/m³	1	IS 5182 (Part-12)		0.17		
	nic (As)	ng / m³	6	AAS Method		0.31		
	el as Ni	AAS Method 5.1						
6. Merc	ury (Hg)	ng/m³	Not Specified	US EPA (Mathod KO-5)	•	0.20		

SHIBESHW SHIBESHWARPRASAD AR PRASAD 15:0037 +05:30

Verified by : Technical Manager



Shreyasee \ Prasad

Digitally signed by Shreyasee Prasad Date: 2023.02.10 16:26:25 +05:30*

Authorized Signatory Quality Manager

END OF TEST REPORT

This suport applies crity to earnple tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report éndorsed only like tests and not the product conficere.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact no :

122-C, Ansthe, Road No. SA, Pathpura Colony, Panta - 800 013 (Bihar)

MAJO., +918676186249 , +919431047908 Emall: mes.Estarial@yaleec.co.in . mis@shirateS.com

Website: www.sharatest.com; www.sharatesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFICE, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1008, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF SHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6202	Dt: 22.4	2.2023 Your W	ork Order No. 4000285		
[a] Name and address of th	é Customer	·	North Karanpur Project At: Tandwa Dist- Chatra Jharkhand- 825	a Super Thermal Power	
[b] Details of Sample		•		Monitoring (As per HAAQS):	
[c] Sample Collected by	•		SHIVA TEST HOUS		
[d] Sampling Location			Collected from New at	the top of Tejesari Building (Township)	
[e] Method of Sampling			IS 11255 (Part-1.2;3 a		
「∬Sampling Environments	al Conditio	n .	Temp. (°C)	23 Humidity (%) 66	
g) No. & Type of Contains	car		One poly Jan		
[h] Instrument ID		:	RDS-1, FPM-1		
[i] Sample Quantity	· .		30 ml x 6 for each (NO2, SO2, NH3) ::	
[f] Sample Code		<u> </u>	A-6202		
[k] Sample Condition on R			Fit for Analysis		
[I] Items required to be test	ted		As per contract		
[m] Whether any specific M been suggested by the p		est has	Na		
[n] Date of receiving the sa	mple	•	10 02 23		
[o] Analysis Start Date / Ar	ndysis Cor	npletion Date	10.02.23/13.02.23		
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi Building (Township)	
1. Particulate Matter (PM ₁₀)	$\mu g / m^3$	100	IS 5182 (Part-23)	73.0	
Particulate Matter (PM _{2,5})	μg/m³	60	CPCB (GMAAP Vol. I)	42.6	
3. Sulphur Dioxide as SO ₂	μg / m³	80	(S 5182 (Part-2)	:: 14.3	
Nitrogen Dioxide as NO ₂	μg / m³	80-	IS 5182 (Part-6)	33.5	
5. Lead (Pb)	μg / m³	1	(\$ 5182 (Part-22)	0.16	
6. Ammonia as NH ₅	μg / m³	400	(S 5182 (Part-5)	16.8	
7. Ozone (O ₂)	μg / m³	180	(S 5182 (Part-9)	17.6	

Delg: 2023.02.23 15:47:30+05:30 AR PRASAD Verified by :

Technical Manager

Patra 6000013

Shreyasee\ Prasad

Shreyasea Prasad Date: 2023.02.23 15:57:44 +05'30'

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoked amount.

Test Report endersed only the tests and not the product cartificate.

Test Report can upt be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

122-C, Aastha, Road No. SA, Parlipetra Colony, Panta - 800 013 (Behar)

Mob.: +918676386249 ; +919431047908

Website: proveshivatest.com; groweshivatesthor



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INCIA, UNDER ENVIRONMENT (PROTECTION) ACT 1984, DEPTE. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BIHAR STATE FOLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6202(4)	Dt : 22.	02.2023 Yоңг ¹	Work Order No. 40002				
[a] Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra						
•	Jharkhand- 82	25 321					
[b] Details of Sample		_			oring (As per NAAC)S)	
[c] Sample Collected by		•	SHIVA TEST HO				
(d) Sampling Location			Collected from Near	of the top of	Tejerasi Bellekey (Te	¥πελής,	
[e] Method of Sampling			IS 11255 (Part-1,2,:			•	
[1] Sampling Environment	al Condition	•	Temp. (°C)	23	Humidity (%)	66	
g) No. & Type of Contain	One poly Jar						
(h) Instrument (D.			RDS-1, FPM-1		·		
[t] Sample Quantity			_30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code	•	•	A-6202				
[k] Sample Condition on R	eceipt		Fit for Analysis				
[I] Items required to be tes	ted.		As per contract				
[m] Whether any specific M been suggested by the p		st has	No				
[n] Date of receiving the sa			10.02.23				
[o] Analysis Start Date / A	nalysis Com	pletion Date	10.02.23/13.02.23				
		I imit on nor	Method of	Sampling Station / Result Near at the top of Tejasavi		eut	
Parameters	Unit	Limit as per NAAQS 2009	Test			savi	
		777740 2000		В	qidany (Towashiq	<u>) </u>	
 Carbon Monoxide (CO) 	mg / m³	4	(\$ 5182 (Part-10)	0.34			
2. Benzene (C ₆ H ₆)	μg/m³ ng/m³	5 1	4S 5182 (Part-11)	0.01			
3. Benzo(a) Pyrene	7S 5182 (Part-12)	0.17					
4. Arsenic (As)	AAS Method	0.31					
Nickel as Ni	20	AAS Method	AAS Method 1,47				
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Method IO-5)		0.28		



Patria 800013

Prasad

Shreyasee Shreyasee Proceed Bate: 2023.02.23 15:58:06+405'30'

Authorized Signatory Quality Manager

END OF TEST REPORT -

This report applies only to sample tested an above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/coun purpose without written permission of the Laboratory.

Contact as:

122-C. Assita, Road No. SA. Patispure Colony, Pates - 800 013 (Either)

Mob., +918676886249 , +919431047908 Email:

athratest (divates could, info@thivetes com

Website www.shivatesi.com; www.shivatesihouse.com



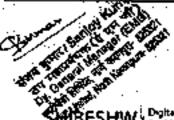


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORPCC, GOVT. OF INDIA, UNDER EIGHROMMENT (PROTECTION) ACT 1968; DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Dv - 44.04	 19093 - Va W.		97-037-1019 Dt : 32-07-2022		
Dr: 22.02	ZZUZS TOUE WA				
			a Super thermal Fower		
e Customer			Tarket in the San		
			201		
	:		- '' '		
					
	<u> </u>		·		
* ::			the top of Tejasari Bullding (Township)		
 	 				
	n '		23 Humildity (%) 68		
र र					
	:		···.:		
:. ·		30 ml x 6:for each	(NO ₂ , SO ₂ , NH ₃) :::		
	•	A-6269			
sceipt		Fit for Analysis			
ed	•	As per contract			
ethod of T	est has	Ala · · ·	· · · · · · · · · · · · · · · · · · ·		
arty		. 140	*		
mple 🗀 .	•	13.02.23	::		
ialysis Con	npletion Date.	13.02.23/.16.02.23	<u>" : ::</u>		
٠.	1 5-25-22	NewHamel and	Sampling Station / Result		
Unit:		1	Near at the top of Tejasavi		
·:	.1NAAGS 2009 ··	1981	Building (Township).		
μg/m³	100	IS 5182 (Part-23)	76.3		
		CPCB			
μg/m²	00 .	(GMAAP Vol. I)	39.3		
μg / m³	80	IS 5182 (Part-2)	12.7		
	1.80 111	IS 5182 (Part-6)	32.1		
	. 1 .	IS 5182 (Part-22)	0:11		
μg / m³"	400		7.7		
μg / m³	180	IS 5182 (Part-9)	23.7		
	e Customen al Condition receipt red ethod of The arry mple halysis Con Unit ug / m ³ ug / m ³ ug / m ³ ug / m ³ ug / m ³	e Customer Condition Condition	North Karanpura Project At: Tandwa Dist- Chatra Jharkhand- 825 Ambient Air Quality I SHIVA TEST HOUS Collected from New at IS 11255 (Part-1,2,3 at IS 00 mix 6 for each A-6269 sceipt Fit for Analysis As per contract ethod of Test has sirty mple 13.02.23 Limit as per NAAOS 2009 Limit as per NAAO		



BESHW Digitally repred by SHIBESHWAR PRASAD AR PRASAD 15:45:50 +05:30

· Verified by : Technical Manager



END OF TEST REPORT

Shreyasee Prasad

Authorized Signatory: Quality Manager

This report applies only to usimple tested se above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the lests and not the product certificate.

Test Report can not be reproduced partially or full for legar/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aésiha, Road No. SA, Padiputta Colony, Patra - 300 013 (Bibis)

Mob.: +9|\$676\$\$6249 ; +9|943|047908 ... Email: sileneme lignvehooveovin : indo@nhimmtest/com

Website: <u>www.shiratest.com</u>: <u>www.shiratesthouse</u>

Page I of I ..



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF BIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF MINUSTRY, FORESTS & EMPIRORMENT, GOVT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

<u>test report</u>

Ref. No STH/TR/22-23/6269(A)	Dt . 22.00	2.2023 Your W	fork Order No. 400028	5067-0 37-101 9	Dt : 31.07.2022		
(a) Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample			Ambient Air Quai	ity Monitoring	(As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HO				
[d] Sampling Location					eri Building (Township)		
[e] Method of Sampling			IS 11255 (Pert-1,2,	3 & 7)	•		
[6] Sampling Environmenta	of Condition		Temp. (⁰C)	23 H	umidity (%) 68		
No. & Type of Containe	‡ ri		One poly Jar				
[b] Instrument ID			RDS-1, FPM-1				
(i) Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
(j) Sample Code			A-6269				
[k] Sample Condition on Re	éceipt		Fit for Analysis				
[l] Items required to be test	ted		As per contract				
(m) Whether any specific M been suggested by the p		st has	No				
[n] Date of receiving the sa			13.02.23				
[o] Analysis Start Date / Ar	ialysis Com	pletion Date	13.02.23/16.02.23				
Parameters	Unil	Limit as per NAAQS 2009	Method of ⊤est	Near at th	Station / Result. e top of Tejasavi eg (Township)		
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	•	0.34		
2. Benzene (C ₆ H ₆)	μg/m³	5	IS 5182 (Part-11)	0.10			
3. Benzo(a) Pyrene	1	IS 5182 (Part-12)		0.15			
4. Arsenic (As)	6	AAS Method 0.27					
Nickel as Ni	ng / m ³ ng / m ³	20	AAS Method 4.26				
s. Mercury (Hg) ng / m³ Not Specified			The Cart				

SHIBESHW | Digitally agried by SHIBESHWAR PRASAD AR PRASAD 15:46:05 +05:30'

Verified by : Technical Manager



Shreyasee Prasad

Shreywee Passed DME 3033.02.28 1600:21+05'10 Authorized Signatory Quality Manager

(Digitally signed by

END OF TEST REPORT

This report applies only to sample lasted as above.

Total Liability of our Laboratory is limited to involced emount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced pertially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Roed No. SA, Pattiputra Colony, Petne - 890 (13 (Ritiga))

Mob. +918676486249 ;+919431047906 Establi

allores (Chialton co in , info@slinescu.com

Website: www.shinulest.com; www.shinureshouse.com





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOYT, OF MOLA, UNDER ENVIRONMENT (PROTECTION) ACT 1996, DEPTT. OF INDUSTRY, PORESTS & ENVIRONMENT, GOVT, OF SINAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Re	f. No. STH/TR/22-23/6383	Dt . 23.0	2.2023 Your	Work Order No. 400022	5067-037-1019 Dt : 31.07.2022		
[a]	Name and address of the	c Customer	.:	North Karanpur Project At: Tandwa Dist- Chatra Jharkhand- 825	a Super Thermal Power		
[b]	Details of Sample				Monitoring (As per NAAQS)		
[¢]	Sample Collected by			SHIVA TEST HOUS	SE on 14.02.23		
[d]	Sampling Location			Collected from Near at	the top of Tejasavi Building (Township)		
[e]	Method of Sampling		• .	IS 11255 (Part-1.2,3-	& 7)		
ĪĐ	Sampling Environments		п :	Temp, (ºC)	22 Humidity (%) 68		
gl	No. & Type of Contains	? r	•	One poly Jer			
Thi	Instrument ID			RDS-1, FPM-1	1		
(i)	Sample Quantity		_	30 ml x 6 for each (NO2, SO2, NH3)		
لِيَا	Sample Code		• • • • • • • • • • • • • • • • • • • •	A-6363			
1k1	Sample Condition on Re			Fit for Analysis			
[1]	ltems required to be test			As per contract .			
[m]	 Whether any specific M been suggested by the p 		est has	No			
[4]	Date of receiving the sai		•	15.02.23			
[6]	Analysis Start Date / An	ialysis Con	pletion Date	16 02.23/ 19.02.23			
ı			Limit as per	Method of	Sampling Station / Result		
:	Parameters	Unit	NAAQS 2009	Test	Near at the top of Tejasavi Building (Township)		
1. f	Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	75.5		
	Particulate Matter PM ₂₅)	μg / m³	60	CPCB (GMAAP Vol. I)	41,6		
3. \$	Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	13.9		
<u>- 1</u>	vitrogen Dioxide as NO₂	μg / m³	80	IS 5182 (Part-6)	32.8		
آ جر	ead (Pb)	μg / m²	1	IS.5182 (Part-22)	0.07		
B. /	Ammonia es NH ₃	μg / m ³	400	JS 5182 (Part-5)	7.3		
7 (Ozone (O₃) 🎉 📗	μg / m³	180	IS 5182 (Part-9)	20.7		

HW SHIPESHWAR PRASAD AR PRASAD Date: 2023.02.23

> Verified by : Technical Manager



- END OF TEST REPORT

Prasad

Shreyasee Digitally signed by Threyasee Prasad Date: 2023.02.23 16:45:17 +05'30' Authorized Signatory

Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product cartilicate.

Test Report can not be reproduced partially or full for legal/court purpose writtout written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Pathipuera Golomy, Panca - 800 013 (Bilinar)

Mob.: +918676886249 ; +919431047908

. Website: www.shivatesthouse.com

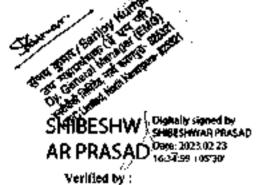
<u>saturama i ĝinvakon so la ; unitriĝishi varesa com</u>



RECOGNISED AS ENVIRONMENTAL LABORATORY BY INVEFCO, GOVT, OF NICHA, UNDER ENVIRONMENT (PROTECTION) ACT 1965, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6383(A)	D1: 23	.02.2023 Your	Work Order No. 4006	286067-037	-1019 Dt : 31.0	7.2022	
[a] Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321						
[b] Details of Sample			Ambient Air Qual	ity Monitor	ng (As per NAAC	<u></u>	
[c] Sample Collected by			SHIVA TEST HO				
[d] Sampling Location		'	Collected from Near	at the top of T	ejasavi Bullding (To	ruship)	
[e] Method of Sampling			IS 11255 (Part-1,2,	3 & 7)			
[f] Sampling Environmenta	Temp. (^q C)	22	Humidity (%)	68			
t] No. & Type of Containe	ar .		One poly Jar				
[h] Instrument ID			RDS-1, FPM-1				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
(j) Sample Code			A-6383				
[k] Sample Condition on Re	sceipt		Fit for Analysis				
(I) Items required to be test			As per contract				
 (m) Whether any specific M been suggested by the p 		si has	No				
[n] Date of receiving the sa	mple.	-	15.02.23				
[o] Analysis Start Date / Ar	udysis Com	pletion Date	16.02.23/19.02.23				
		Limit as per	Method of	Sampl	ing Station / Rea	sult	
Parameters	Unit	NAAQS 2009	Test		t the top of Teja; Iding (Township		
 Carbon Monoxide (CO) 	mg/m³	4	IS 6182 (Part-10)	0.34			
2. Benzene (C _e H _s)	μg / m³	5	IS 6182 (Part-11)	0.15			
Benzo(a) Pyrene					0.19		
4. Arsenic (As)					0,18		
Nickel as Ni	ng / m³	20	AAS Method 2.75			•	
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Method IO-5)		0.19		



Technical Manager

Patna

END OF TEST REPORT -

Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.02.23 16:45:30 +05'30' Authorized Signatory

Quality Manager

This report applies only to sample lested as above.

Total Liability of our Laboratory is limited to invoked amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without withen permission of the Laboratory.

Contact us:

122-C, Assite, Hoad No. SA. Politicetra Colony, Paris - 800 013 (Bihar)

Nub. #918676886249 , #919431047908 Emall: stimetra («Byahoo go.in., info@strivatest.com

Website: www.shivatesc.com; www.shivateschouse.com





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF MIDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BIHAR STATE POLLATION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6410	Dt: 23.02	.2023 Your W	ork Order No. 40002850			1.07.2022	
[a] Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321						
[b] Details of Sample			Ambient Air Quality I		er NAAQSI	!	
[c] Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location		·	Collected from Near at	the top of Tejasan	Building (Township)	
[e] Method of Sampling			1\$ 11255 (Part-1,2,3 c				
[f] Sampling Environments	al Conditio	л	Temp. (^A C)	24 Humid	lty (%)	86	
g] No. & Type of Contains	ਮ 		One poly Jar.	•			
(h) Instrument ID			RDS-1, FPM-1				
(i) Sample Quantity			30 ml x 6 for each	(NO ₂ , SO ₂ , N	H ₁)		
[j] Sample Code			A-6410				
[k] Sample Condition on Re	eceipt		Fit for Analysis				
[f] Items required to be test	ted		As per contract				
 (m) Whether any specific M been suggested by the p 		esi has	No				
[n] Date of receiving the sa			16.02.23	_			
[0] Analysis Start Date / Ar		npletion Date	17.02.23/20.02.23				
•			Matter dag	Sampling 5	Station / I	Result	
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Neur at the		ejasavi	
 Particulate Matter (PM₁₀) 	μg / m³	100	IS 5182 (Part-23)		74.8		
2. Particulate Matter (PM ₂₅)	μ g / m ³	60	CPCB (GMAAP Vol. I)		40.7	•	
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)		14.7		
Nitrogen Dioxide as NO ₂	μg / m³	80	IS 5182 (Part-6)		34.1		
s. Lead (Pb)	μg/m³	. 1	IS 5182 (Part-22)		0.06		
6. Ammonia as NH ₈	μg/m³	400	IS 5182 (Part-5)		6.9		
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)		20.7		

SPIBESHW , Dighally signed by , SHIRESHWAR PRASAD AR PRASAD 1643-2023-02.73

Verifled by : Technical Manager



Shreyasee Prasad

Olgitally signed by Shreyasee Prosad Date: 2023.02.23 1647:43 +05'30' Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoked amount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C. Arsitta, Road No. SA, Pallipeera Colony, Peros. - 300 D13 (Biliar)

Mob., +918676886249 ; +919431047908 *

Website: www.sblvetest.com; www.shrvetesthouse.com

sitipatria (cityateo co.in., mikateta iyates com



RECOGNISED AS EMPROPRIENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVERONMENT (PROTECTION) ACT 1985, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6419(A)	D1: 23:	92.2023 Your	Work Order No. 40002	8 5067- 037-1	019 Dt : 31.07.20		
[a] Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample			Ambient Air Quali		(As per NAAOS)		
[c] Sample Collected by		_	SHIVA TEST HOL				
[d] Sampling Location			Collected from Near a	n the top of Tele	savi Building (Township		
[e] Method of Sampling			IS 11255 (Part-1,2,3				
[f] Sampling Environment:	d Condition		Temp. (°C)	24	Humidity (%) 6		
g] No. & Type of Contains			One poly Jar				
[h] Instrument ID	•		RD\$-1, FPM-1				
(i) Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
(j) Šample Code			A-6410				
[k] Sample Condition on Ra	eceipt		Fit for Analysis				
[I] Items required to be test	ted		As per contract				
[m] Whether any specific M been suggested by the p		st has	No				
[n] Date of receiving the sa			16.02,23				
[o] Analysis Start Date / Ar	ialysis Com	pletion Date	17.02.23/20.02.23				
Parameters	Unit	Limit as per NA4QS 2009	Method of Test	Near at t	g Station / Result he top of Tejasavi ing (Township)		
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Parl-10)		0.23		
 Benzene (C_eH_e) 	μg/m³	5	(S 5182 (Part-11)	0.14			
 Benzo(a) Pyrene 	1	(\$ 5182 (Part-12)	5182 (Part-12) 0.17				
4. Arsenic (As)	6	AAS Method 0.14					
Nickel as Ni	20	AAS Method 4.13					
6. Mercury (Hg)	Not Specified	US EPA (Method IO-5)		0.15			

Cigitally signed by SHIBESHWAR PRASAD AR PRASAD (000: 2023:02.23

> Verified by : Technical Manager



Digitally signed by Shreyasee Shreyasee Pracad Date: 2023.02.23 Prasad 16:48:01 +05'30'

> Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Philipuan Colony, Paner - 800-013 (Biltar)

Mob.: +918676886249 ; +919431047908 stbootse i @velroc.co.in ; jarib@sle/vuest.com : النبية

Website: www.shivitest.com; www.shivatesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF NOW, UNDER EXVIRONMENT (PROTECTION) ACT 1965, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVE OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6512	Dt : 27.02	.2023 Your W	ork Order No. 40002850	67-037-1019 Dt : 37.07.2022			
[3] Name and address of th	e Customer	• •	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample	·			Monitoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location			Collected from Near at	the top of Tefasavi Bullding (Township)			
[e] Method of Sampling		· ·	IS 11255 (Part-1,2,3 &				
[f] Sampling Environment	al Condition	n ·	Temp. (°C)	24 Humidity (%) 65			
() No. & Type of Contain	eë	•	One poly Jar				
[h] Instrument ID	٠.		RDS-1, FPM-1	·			
[i] Sample Quantity	•		30 ml x 6 for each (I	NO2, SO2, NH3)			
[j] Sample Code			A-6512				
[k] Sample Condition on R	cccipt		Fit for Analysis				
[1] Items required to be tes	ted		As per contract				
[m] Whether any specific M been suggested by the p		est has	No .	· .			
[n] Date of receiving the sa	mple .		21.02.23				
[o] Analysis Start Date / A	nalysis Con	pletion Date	21.02.23/24.02.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sempling Station / Result Near at the top of Tejasavi Building (Township)			
1. Particulate Matter (PM ₁₀):	μg/m³	: 100	IS 5182 (Part-23)	76.1			
Particulate Matter (PM ₂₅)	hð (w)	60	CPCB (GMAAP Vol. I)	42.0			
3. Sulphur Dioxide as SO ₂	μg/m³	. 80	IS 5182 (Part-2)	14.9			
1. Nitrogen Dloxide as NO ₂	μg / m³	60	IS 5182 (Part-6)	34.5			
5. Lead (Pb)	μg/m³	1 .	IS 5182 (Part-22)	0.06			
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	7.4			
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	23.4			

, Digitally signed by SHIRESHWAR PRASAD Dage: 2023.03.03 18:14:52 +05'30' AR PRAS

Verified by : Technical Manager



Shreyasee \ Shreyasee \ Shreyasee

Prasad

Shreyasee Praced Date: 2023.03.03 16:26:01 +05'30" Authorized Signatory Quality Manager

END OF TEST REPORT

his report applies only to sample leated as above.

Total Clability of our Laboratory is limited to involced emount.

Test Report endorsed only the lests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastla, Road No. SA, Padipotra Colony, Petra - 100 013 (Biliar)

Mob.: +91\$676286249 ; +919431047908 uteana | @irahoo.co m ; Info@shirvalest.com

Website: www.thivatest.com; www.shivateshors



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEPCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BAIAR AND BINAR STATE POLLUTION CONTROL EGARD

TEST REPORT

Ref. No.	STH/TR/22-23/6512(A)	Dt : 27.	92.2023 Your Y	Vork Order No. 400028	5047-037-	1019 Dt : 31.	07.2022
[2]	2] Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[6]	Details of Sample		<u>"</u>	Ambient Air Onal	ity Monito	ring (As per NAAQ	(S)
	Sample Collected by		•	SHIVA TEST HOL			
[d] :	Sampling Location	- ::-		Collected from Near	at the top of	Tejasavi Bullding (Ter	ruship)
[e] .]	Method of Sampling		.:	IS 11255 (Part-1;2.)			
	Sampling Environmenta	l Condition		Temp. (^Q C)	24	Humidity (%)	65
<u>il </u>	No. & Type of Contains	<u> </u>		One poly Jan			• •
[b] 1	Instrument ID			RDS-1, FPM-1::			
	Sample Quantity			30 ml x 6 for each (NO ₂ , \$O ₂ , NH ₃)			
	Sample Code			A-6512			
	Sample Condition on Re	ceipt		Fill for Analysis			
[1]	llems required to be test	ed		As per contract			
	Whether any specific Mo heen suggested by the pa		st has	No			
	Date of receiving the sar			21.02.23			
	Analysis Start Date / An	alysia Com	eletica Date	21.02.23/24.02.23			
		!	4 7-124 4	Marinanian	Samp	ing Station / Rea	sult .
	Parameters	Unit	Limit as per NAAOS 2009	Method of Test		at the top of Teja: illding (Township	
1. Carb	on Monoxide (CO);	mg/m³	· 4	IS 5182 (Part-10)		0.34	•
	ene (C ₆ H ₆)	μg/m ³	5	IS 5182 (Part-11)	0.14		
3. Benzo(a) Pyrene ng / m³ 1				IS.5182 (Part-12)	0.17		
	nic (As)	ng / m³	6	AAS Method	0.14		
	elas Ni ···	ng / m³	20	AAS Method			
6. Merci	ury (Hg)	ng / m³	Not Specified	US EPA (Method IO-5)		0:16	

SHIBESHW | Chightelly signed by SHIBESHWAR PRASAD Cate_2023.03.03 AR PRASA 18.15:03 +05'30"

Verified by : Technical Manager



-- END OF TEST REPORT

Shreyasee Prasad

Cogmally signed by Shreywiee Prasad Cuto. 2023.03.03 12 36:17+06'30'

Authorized Signatory Quality Manager

This report applies only to cample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. 5A, Patliputta Colony, Patra - 800 013 (Biller)

Mob.: +918676886249 ; +919431047908

Website . www.shivalest.com , www.shivalesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MINEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1906, DEPTT, OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6566	Dt: 27.	02,2023 Your	Work Order No. 460	<u> 0255007-037-1049</u>	Dt: 3	1.07.2022	
[a] Name and address of the	Customer	· · ·	North Karang Project At: Tandwa Dist- Chatra Jharkhand- {	oura Super Ther 325 321	mal Pov	ver	
[b] Details of Sample				ity Monitoring (As p.	r NAAQSI		
[c] Sample Collected by				DUSE on 22.02.23		·:···	
[d] Sampling Location		: .	Collected from New	r at the top of Tajasavi	Building (Fouveskép)	
[e] : Method of Sampling		•	IS 11255 (Part-1,	2,3 & 7)	:		
[In Sampling Environmental		п .	Temp. (ºC)	24 Humid	ty (%)	,66	
No. & Type of Contains	г		One poly Jar	. "		". '	
[h] Instrument ID	• -		RDS-1, FPM-1				
[i] Sample Quantity				ach (NO ₂ , SO ₂ , N	H ₃ }		
[j] Sample Code			A-6566			٠. ٠:	
[k] Sample Condition on Re	ceipt		Fit for Analysis	; ,			
[1] Items required to be test			As per contract				
[m] Whether any specific Mobile is been suggested by the part of t		est has	No	:			
[n] Date of receiving the sai			23 02.23				
[o] Analysis Start Date / An	alysis Con	pletion Date	23 02.23/26:02.23	: .		.:	
		Limit as per	· Method of	Sampling 8	Station / I	Result.	
Parametere	Unit	NAAQS 2009	Test	Near at the Building	top of To (Townsi		
1. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23	3) 1	76.9	•	
Particulate Matter (PM _{2.5})	h∂ χ m ₃	60	CPCB (GMAAP Vol. I		42.0		
3. Sulphur Dioxide as SO ₂	μg/m³	. 80	IS 5182 (Part-2) :::	14.4	*:?	
Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6)	34.0		
5. Lead (Pb)	μg / m³.	· 1 ·	IS 5182 (Part-2:		0:06		
s. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5		8.5		
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9	_	23.7		

Digitally signed by SHIBESHWAR PRASAD Date: 2075,05,05 18:16:47 +05:30

Verified by Technical Manager



END OF TEST REPORT

Prasad

Shreyasee, Digitally signed by Date: 2023.03.03 18:28:27 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is firnlied to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or half or jegaticount purpose without written permission of the Laboratory.

Contact us:

122-C, Assitia, Road No. SA, Padipuen Colony, Pater - POUQ13 (Bihar)

Mob.: +918676886249; +91943104790\$ sthnesse hithyshoo.com ; indoftshiverest.com.

Website . www.shivatess.com , www.shivatebihouse.com



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFICE, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEP OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BRIAR STATE FOLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6566(A)	Du: 2	27.02.2023 Your	Work Order No. 4000	285067-037-1019 Dt.: 31.07.2022		
[a] Name and address of the	é Customer :	:	North Karanpu Project At: Tandwa Dist- Chatra Jharkhand- 82	ra Super Thermal Power 25 321		
[b] Details of Sample		; :·	Ambiem Air Qual	lity Monitoring (As per NAAQS).		
[c] Sample Collected by			SHIVA TEST HO			
[d] Sampling Location	:		Collected from Near	at the top of Tejasavi Building (Township)		
[e] Method of Sampling			IS 13255 (Part-1,2)	3 & 7)		
[16] Sampling Environments	d Condition		Temp. (°C)	24 Humidity (%) 66		
[] No. & Type of Contains	ar .		One poly Jar	·		
[b] Instrument JD	•	'	RDS-1, FPM-1			
[i] Sample Quantity	:	··	30 ml x 6 for each (NO ₂ , SO ₂ , NH₂)			
(j) Sample Code	·		A-6566			
[k] Sample Coudition on Re	eceipt		Fit for Analysis			
[I] Items required to be test			As per contract			
[m] Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sa			23.02.23			
[o] Analysis Start Date / Ar	ialysis Com	pletion Date	23.02.23/26.02.23	· · · · ·		
		Limit as per	Method of	Sampling Station / Result		
Parameters	Unit	NAAGS 2009	Test	Near at the top of Tejasavi Building (Township)		
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	0.48		
2. Benzene (C ₆ H ₆)	μg/m³	5	IS 5182 (Part-11)	0.14		
Benzo(a) Pyrene	ng/m³	1	IS 5182 (Part-12)	0.16		
4. Arsenic (As)	ng / m ³	6	AAS Method	0.15		
Nickel as Ni	ng / m³	20 .	AAS Method	2.75		
8. Mercury (Hg)	ng / m³	Not Specified	US EPA (Method IQ-5)	0.17		

SHIBESHWAR PRASAD AR PRASAD 000 2023 03 03 18:17:01 +05:30

Verified by : Technical Manager



Prasad

Shreyasee | Origitally signed by Shreyasee Prasad Date: 2023.03.03 18:26:43 +05'30'

Authorized Signatory Quality Manager

END OF TEST PEPORT

This report applies only to earnple leated as above.

Total Liability of our Laboratory is limited to involved amount.

Test Report endorsed only the lesis and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Anatha, Road No. SA. Pathipetra Colony, Patria - 800 013 (Bihari.

Mob., +918676886249 , +919431047908

Website: www.shrestesu.com; www.shrestesubouse.com

stituente l'attrateur co.in ; infortissionest com





(Serving stace 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFOC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.: STH/TR/22-23/6917	Dt : 21.03	.2023 Your Wor	rk Order No. 40002850	67-037-1019 Dt : 31.07.20	322		
(a) Name and address of th	e Customer	· . <u>.</u>	North Karanpur Project At: Tandwa Dist- Chatra	a Super Thermal Power			
:		·	Dist- Chaua Jharkhand- 82:	5 301			
[b] Details of Sample	· ; ;			Monitoring (As per NAAQS)	_		
c Sample Collected by	· .	_	SHIVA TEST HOU				
[d]: Sampling Location		-		t the top of Switch Vard Office Build	Tur		
[e] Method of Sampling	:.		IS 5182 (Part-14)				
[f] Sampling Environment	d Condition	n : ·	Temp. (°C)	25 Humidity (%) 5	4		
[g] No. & Type of Contains			One poly Jar		·.		
[h] Instrument [D		··	RDS-1, FPM-1:				
[1] Sample Quantity			30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₂)			
(j) Sample Code			A-6917 · ·				
[k] Sample Condition on R	eceipt		Fit for Analysis				
[1] Items required to be tes		···	As per contract				
[m] Whether any specific M been suggested by the p		est has .	No	4.7			
(n) Date of receiving the sa			03.03.23	:			
[o] Analysis Start Date / Ar	nalysis Con	npletion Date	03.03.23/06.03.23	•			
	•	Limit as per	Method of	Sámpling Station / Resu	ılt		
Parameters :	Unit	NAAOS 2009	Test :	Near at the top of Switch Y Office Building	arc		
1, Particulate Matter (PM ₁₀)	μg / m³	100·	IS 5182 (Part-23)	71.0			
 Particulate Matter (PM₂₅) 	μg / m³.	60	GPCB (GMAAP Vol. I)	37.6			
3. Şulphur Dioxidə aş SO ₂	μg / m³	80	IS 5182 (Part-2)	15.2			
4. Nitrogen Dioxide as NO ₂	μg / m³	80	IS 5182 (Part-6)	35.4			
5. Lead (Pb)	μg / m³	1	IS 5182 (Part-22)	. 0.06			
6. Ammonia as NHs	μg / m³	400	IS 5182 (Part-5)	. 7.2			
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	23.4	•		

be made and woman 120021

SHIBESHW Digitally signed by Ashibeshwari Prinsal AR PRASAD (000 2023,09.21)

Verified by : Technical Manager Shreyasee Prasad

Date: 2023.03.21 16/08/37 +05/30 Authorized Signatory Quality Manager

Edwira Cole Patra

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount, Tool Report endorsed only the lesis and not the product certificate.

Test Report can not be reproduced partially or full for legalicourt purpose without written permission of the Laboratory.

Contact us :

132-C, Asstha, Road No. 5A, Patlipotes Colony, Patra — 800-913 (Bilan)

Mub +918676886249 : +91943104790# Emed :

Website: www.shimtest.com; www.shimtesthouse.com





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MINEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTIONS ACT 1986, DEPTY, OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6917(A)	Di : 21.	03.2023 Your V	Work Order No. 40042	85067-037	-1019 Dt . 31	.07.2022	
[a] Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
(b) Details of Sample			Ambient Air Oug	lity Monito	ring (As per NAA)	OS)	
[c] Sample Collected by			SHIVA TEST HO			- <u></u>	
[d] Sampling Location			Collected from Near	at the top of	Switch Pard Office B	ulding.	
[e] Method of Sampling			IS 5182 (Part-14)				
[f] Sampling Environments	d Condition		Temp, (°C)	26	Humidity (%)	54	
[g] No. & Type of Containe			One poly Jar				
[h] Instrument ID			RDS-1, FPM-1				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
(j) Sample Code			A-6917				
[k] Sample Condition on Re	eceipt		Fit for Analysis				
[1] Items required to be test	ted		As per contract				
[m] Whether any specific M been suggested by the p		st has	No				
[n] Date of receiving the sa			03.03.23				
[o] Analysis Start Date / Ar	alysis Com	pletion Date	03.03.23/06.03.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at	iling Station / Re the top of Switch Office Building		
1. Carbon Monoxide (CO)	mg (m³	4	IS 5182 (Part-10)		0.34		
2. Benzene (C ₆ H ₆)	ng/m³	5	18 5182 (Part-11)		0.13		
3. Benzo(a) Pyrene	ng / m³	1	IS 5182 (Part-12)		0.19		
4. Arsenic (As)	ng / m³	6	AAS Method		0.18		
5. Nickel as Ni	ng / m³	20	AAS Method		4.27		
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Method (O-5)		0.21		

SHIBESHW SHIBESHWAR PRASAD

Verified by : Technical Manager

AR PRASAD 1955:15 +0530



Shreyasee Prasad

Degitally signed by Streyater Praiad Dele: 1023.03.21 16.0851 +95'30'

Authorized Signatory Quadity Muranger

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount. Test Report endorsed only like tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

132-C, Assile. Road No. SA. Patifperts Colony, Parts - 800-013 (Bilter).

Mob., 1918676886249 , 1919431047908

Website: www.shivatesu.com; www.shrvæesthouse.com

sthoetna toživelnou co.ig ; [m/ks2stavutem.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1986, DEPTY, OF INDUSTRY, FORESTS & ENVIRONMENT, GGYT, OF BHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STIJ/TR/22-23/6979	Dt: 21.0.	3.2023 Your Wo	rk Order No. 40002850	67-037-1019 Dt: 31.07.2022		
[a] Name and address of th	e Customer	·	North Karanput Project At: Tandwa Dist- Chatra Jharkhand- 82:	a Super Thermal Power 5:321		
[b] Details of Sample	.		Ambient Air Quality	Monitoring (As per HAAQS)		
[c] Sample Collected by			SHIVA TEST HOU	SE on 03.03.23		
[d] Sampling Location			Collected from Near at	the rop of Switch Vard Office Building		
[e] Method of Sampling		. "-	IS 5182 (Pag-14)			
[f] Sampling Environment	al Conditio	ti	Temp, <u>(</u> °C)	26 Humidity (%) 52		
[g] No. & Type of Contain	¢ r		One poly Jar .			
[h] Instrument (D)			RDS-3, FPM-3			
[i] Sample Quantity		:	30 ml x 6 for each	n (NO ₃ , SO ₂ , NH ₃)		
[j] Sample Code			A-6979			
[k] Sample Condition on R	eceipt		Fit for Analysis			
[]] Items required to be tes	ted		As per contract			
[m] Whether any specific M bean suggested by the p		est has	No ·			
[n] Date of receiving the sa			04.03.23 .			
[o] Analysis Start Date / A		upletion Date	04.03.23/07.03.23	· · · · · · · · · · · · · · · · · · ·		
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Building		
t. Particulate Matter (PM _{t0).}	μg / m³	100	IS 5182 (Part-23)	74.6		
 Particulate Matter (PM₂₈) 	μg / m³	. 60	CPCB (GMAAP Vol. I)	37.4		
3. Sulphur Dioxide as SO ₂	μg/m³	90	IS 5182 (Part-2)	12.9		
4. Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6)	35.8		
5. Lead (Pb)	μg / m³	1	IS 5182 (Part-22)	. 0.09		
e. Ammonia as NH ₃	μg / m³	- 400	IS 5182 (Part-5)	5.8		
7. Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	21.9		
3 -1						

SHIBESHWAR PRASAD Cate: 2023 03.21 ar prasad 15:57:45 +05:30

Verified by : Technical Manager



Prasad

Shreyasee J. Shreyasee Prasad Date: 2023.03.21 16:10:45 +05'30' Authorized Signatory Quidity Manager

END OF TEST REPORT

his report applies only to sample tested as above.

Total Elability of our Laboratory its limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastin, Road My, SA, Pallipeare Colony, Pages - 600 013 (Bibar)

Mob. +918676886249; +919431047908 sthoatdaf@vehoo.co.in; jaife@shivstest.com

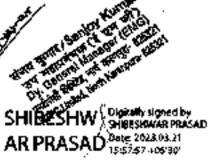
Website . www.shivalest.com ; www.shivatesthouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER EINMEDIT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOYT, OF BRIAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6979(A)	Dt : 21	43.2023 Your	Work Order No. 40002	285067-037-1019 Dt: 31.07.2022		
[a] Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Qua	lity Monitoring (As per NAAQS)		
[c] Sample Collected by				USE on 03.03.23		
[d] Sampling Location			Collected from Near	at the sop of Switch Yard Office Building		
[e] Method of Sampling			IS 5182 (Part-14)			
[f] Sampling Environments	al Condition	•	Temp, (º C)	26 Humidity (%) 52		
[g] No. & Type of Contains	*		One poly Jar			
[h] Instrument ID			RD6-3, FPM-3			
[i] Sample Quantity			30 m) x 6 for each (NO ₂ , SO_2 , NH ₃)			
[j] Sample Code			A-6979			
[k] Sample Condition on R	eceipt		Fit for Analysis			
[I] Items required to be tes	ted		Aş per contract			
[m] Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sa	mplė		04,03,23			
[o] Analysis Start Date / Ar	nalysis Com	pletion Date	04,09,29/07 03,2	23		
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Building		
1. Carbon Monoxide (<u>CO)</u>	mg/m³	4	(\$ 5182 (Part-10)	0.23		
2. Benzene (C ₆ H ₆)	μ g / m ³	5	(S 5182 (Part-11)	0.20		
3. Benzo(a) Pyrene	ng / m³	1	(\$ 5182 (Part-12)	0.20_		
4. Arsenic (As)	ng/m³	6	AAS Method	0.29		
5, Nickej as Mi	ng / m³	20	AAS Method	2.86		
8. Mercury (Hg)	μg / m³	Not Specified	US EPA (Method IO-6)	0.29		



Venilled by : Technical Manager



Prasad

Shreyasee | Digitally regreed by | / Date: 2023.03.21 16:11:00 +05'30' Authorized Signatory

Quality Manager

- END OF TEST REPORT -

- This report applies only to sample tested as above.
- Total Liability of our Luboratory is limited to invoiced amount.

 Test Report endorsed only the sens and nor the product certificate.
- Test Report can not be reproduced partially or Arti for legal/court purpose without written permission of the Laboratory.

Contact us :

142-C, Aastha, Road No. SA, Pathiputra Colony, Palma - 300 013 (Biher)

Mob. +918676486249 , +919431047908 Einei†: Sthootenfullyahoo.co.in . imfo@christoss.com

Website: www.shrvatest.com; www.shrvatesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1886, DEPTL OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT: OF BHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7109	Dt: 21.03	.2023 Your Woo	rk Order-No 400028501	67-037-1019 Dt : 31.07.2022			
			North Karanpur	a Super Thermal Power			
ļ			Project				
[a] Name and address of the	e Customer	r :	At: Tandwa				
· ·. ·· ·			Dist- Chatra				
· · · · · · · · · · · · · · · · · · ·			Jharkhand- 829				
[b] Details of Sample				Monnoring (As per HAAQS)			
[c] Sample Collected by		' .	SHIVA TEST HOU				
[d] Sampling Location	:			the top of Switch Varid Office Building			
[e] Method of Sampling			IS 5182 (Part-14)				
[f] Sampling Environments		n :	Temp. (%C)	28 Humidity (%) 52			
[g] Nö. & Type of Contains	r		One poty Jar	· · · · · · · · · · · · · · · · · · ·			
[h] Instrument [D			RDS-1, FPM-1				
[i] Sample Quantity		· . ·	30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₂)			
(j) \$aniple Code			A-7109				
[k] Sample Condition on Re	ceipt .		Fit for Analysis				
[J] Items required to be test	ed	:	As per contract				
[m] Whether any specific M	ethod of T	est has	No ·				
 been suggested by the p 			•				
[n] Date of receiving the sai	mple ::		+ 07.03.23	٠.٠			
[o] Analysis Start Date / Ar	<u>ialysis Con</u>	npletion Date	07.03.23/ 10.03.23				
 		Limit as per	Method of	Sampling Station / Result			
Parameters	Unit	NAAQS 2009	: Test	Near at the top of Switch Yard			
		1 1		Office Building			
Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	69.8			
Particulate Matter	μg/m³.	60	CPCB	35.5			
(PM ₂₅)		•	(GMAAP Vol. I)	1.7.7			
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	14.5			
4. Nitrogen Dioxide as NO ₂	μg / m³	80	IS 5182 (Part-6)	36.3			
5. Lead (Pb)	$\mu g / m^3$.	1	IS 5182 (Part-22) >	0.10			
8. Ammonia as NH₃	μg / m ^{3.}	400	IS 5182 (Part-5)	6.7			
7. Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	22.2			





Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.03.21 16:22:54 +05'30' Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invested amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for tegal/court purpose without written permission of the Laboratory.

Contact us:

122-C. Assity, Road No. SA. Pattipuge Colony, Page - 800 013 (Biltar).

Mob., 4918676886249 ; 4919401017905

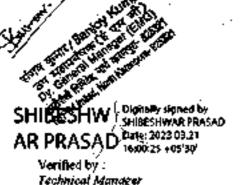
Website . www.shivisters.com , www.shivetershouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1986, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOYT, OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	o. STH/TR/22-23/7109(A)	Di : 21.	03.2023 Your V	Work Order No. 40002				
[a]	Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321						
[b]	Details of Sample			Ambient Air Qua	lity Monitor	ing (As per NAAC)	(5)	
[c]	Sample Collected by			SHIVA TEST HO				
[d]	Sampling Location		· -	Collected from New	at the top of S	Switch Pard Office Bu	dding	
[e]	Method of Sampling			IS 51\$2 (Part-14)				
[0]	Sampling Environments	al Condition		Temp. (ºC)	28	Humidity (%)	52	
[8]	No. & Type of Contains	er .		One poly Jar				
[h]	Instrument ID		•	RDS-1, FPM-1				
Ø	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
Úl	Sample Code			A-7109				
[k]	Sample Condition on Re	ecelpt		Fit for Analysis				
[1]	Items required to be test	ted		As per contract				
[m]	Whether any specific M been suggested by the p		st has	No 07.03.23				
[n]	Date of receiving the sa							
[0]	Analysis Start Date / Ar	ralysis Com	oletion Date	07.03.23/10.03.23	3			
			Limit on noc	Blankad of	Samp	ing Station / Rea	sult	
	Parameters	Unk	Limit as per NAAOS 2009	Method of Test		the top of Switch Office Building	Yard	
1. Car	bon Monoxide (CO) -	mg/m³	4	IS 5182 (Part-10)		0.46		
	nzéne (C ₆ H ₆)	μg / m³	5	IS 5182 (Part-11)		0.13		
	nzo(a) Pyrene	ng / m³	1	IS 5182 (Part-12)		0.21		
	enic (As)	ng / m³	6	AAS Method		0.16		
	kel as Ni	ng / m³	20	AAS Method		2.84		
6. Me	rcury (Hg)	ng / m³	Not Specified	US EPA (Method IO-5)	: .	0.23		



Patria

Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2023.03.21 16:23:08 +05'30'

Authorized Signatory Quality Manager

 END OF TEST REPORT This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legaticourt purpose without written permission of the Laboratory.

Contact us:

122-C; Austra, Road No. SA, Pathiputra Colony, Patra - 400 013 (Binar)

Mob. +918616886249 ; +919431047908

Website: www.shivatest.com; www.shivatesthouse.com

pituatus (Giveboo co.m.; mila@strivatesr.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFOC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF ERIAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7116	Dr: 21.03.	1023 Your Work	Order No. 4000285087	-037-1019 Dt : 31.07.2022		
[#] Name and address of the	Customer		North Karampur Project At: Tandwa Dist- Chatra Jharkhand- 825	a Super Thermal Power		
[b] Details of Sample			Ambient Air Quality I	Monitoring (As per NAAQS)		
[c] Sample Collected by		:	SHIVA TEST HOUS			
[d] Sampling Location			Coffected from Near at	the top of Switch Yard Office Building		
[e] Method of Sampling			IS 5182 (Part-14)			
[f] Sampling Environmenta	Condition		Temp, (%)	26 Humidity (%) 52		
[g] No. & Type of Containe	1	<u> </u>	One poly Jar .			
[h] Instrument ID			. RDS-3, FPM-3			
[i] Sample Quantity			30 ml x 6 for each	(NO ₂₁ SO ₂ , NH ₃)		
[j] Sample Code		.	A-7316			
[k] Sample Condition on Re	ceipt		Fit for Analysis:	•		
[1] Items required to be teste	ed .		As per contract			
[m] Whether any specific Me been suggested by the pa		st has	No			
[n] Date of receiving the sar			08.03.23			
[o] Analysis Start Date / An		pletion Date	08.03.23/11.03.23	•		
		:	11.4b.a.d = E	Sampling Station / Result		
Parameters .	Unit	Limit as per NAAQS 2009	Method of Test	Near at the top of Switch Yard Office Building		
1. Particulate Matter (PM ₁₀)	μ g / m³	100	IS 5182 (Part-23)	73.5 · · ·		
2. Particulate Matter (PM _{2.0})	д д / m³	60	CPCB (GMAAP Vol. I):	36.1		
3. Sulphur Dioxide as SO₂	μ g / m³	80	IS 5182 (Pert-2)	13.2		
4. Nitrogen Dioxide as NO ₂	μ g /m³	. 80 .	IS 5182 (Part-6)	34.9		
5. Lead (Pb)	μ g / m³	· 1 .	IS 5182 (Part-22)	0.13		
6. Ammonia as NH ₃	μ g / m ³ :	400	IS 5182 (Part-5):	6.2		
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	22.5		

Digitally signed by SHIBESHAVAR PRASAD AR PRASAD Porte 2023.03.21 10:02:59 +05:30 Verified by:

8000613

Shreyasee Prasad

Digitally signed by Shreyasee Prased Date: 2023 03:21 16:25:29 +05'90'

Authorized Signatory Quality Manager -

END OF TEST REPORT

This report applies only to sample lested as above. Total Liability of our Laboratory is limited to involced amount.

Technical Manager

Tasi Report endorsed only the lests and not the product cartilicate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact m :

132-C. Agstle, Road No. 5A. Padiputra Colony, Patrot - 300 013 (Billion)

Mab., +912676236249 , +919431047908

Website . www.shivatest.com ; www.shivatesthoiste.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFOC, GOVT. OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BUILD STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7116(A)	Dt: 21.	03.2023 Your V	Work Order No. 40002	85067-037-10	19 Dt : 31.07.	2022
[a] Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825-321			
[b] Details of Sample					(As per NAAQS)	
[c] Sample Collected by			SHIVA TEST HO			
[d] Sampling Location			Collected from Near	at the top of Swi	tch Yard Office Buildi	me
[e] Method of Sampling		•	IS 5182 (Part-14)		• -	
[f] Sampling Environment	al Condition		Temp. (°C)	26	Humidity (%)	52
[g] No. & Type of Contains		_	One poly Jar	•		
[h] Instrument ID			ROS-3, FPM-3		•	
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-7116			
[k] Sample Condition on R	eceipt		Fit for Analysis			
[I] Items required to be tes	ted		As per contract			
[m] Whether any specific M been suggested by the p		st has	No 08.03.23			
[n] Date of receiving the sa						
[o] Analysis Start Date / Ar	nalysis Com	pletion Date	08.03.23/11.03.2	23		
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at the	g Station / Result top of Switch Ya fice Building	
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)		0.34	
2. Benzene (C ₆ H ₆)	μg / m³	5	IS 5182 (Part-11)		0.18	
3. Benzo(a) Pyrene	ng / m³	1	IS 5182 (Part-12) 0,19			
4. Arsenic (As)				AAS Method 0.22		
5. Nickel as Ni	ng / m³	20	AAS Method		1.43	
6. Mercury (Hg)	hã t m _a	Not Specified	US EPA (Method 10-5)		0.36	



Patra 000013

Shreyasee Prasad

; Oighally signed by Shreyesee Prasad Date: 2023-03.21 16:25:44 +05'30" Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample lested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the lesis and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of lite Laboratory

. Comfact us:

470.

132-C, Azsilia, Road No. 3A, Pattipotra Colony, Patos - 100 013 (Bahar)

Mob., +918676486249 , +919431047908 Enrall:

statement (Street on co.in . in forth Statement com

Website: www.shirutest.com; www.thirutesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. S	TH/TR/22-23/7369	Dt: 27.03.	2023 Your Wor	k Order No. 400028506	7-437-1019 DI: 31.07.2022			
[a] N:	ame and address of the	t Customer		North Karanpura Super Themaal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] D	etails of Sample				Monitoring (As per NAAQS)			
	imple Collected by			SHIVA TEST HOU:				
[d] Sz	unpling Location			Collected from Near at	the top of Switch Yard Office Building			
	athod of Sampling			IS 5182 (Part-14)				
	umpling Environments	l Condition		Temp. (°C)	26 Humidity (%) 58			
	o. & Type of Comaine	эr		One poly Jan				
	strument ID			RD\$-4, FPM-4				
	umple Quantity			30 ml x 8 for each (NO2, SO2, NH3)			
	imple Code			A-7369				
	imple Condition on Re	ecipt		Fit for Analysis				
	ems required to be test	ed		As per contract				
	hether any specific M en suggested by the p		esi bas	No				
	ate of receiving the sau		•	18.03.23				
	nalysis Start Date / An		pletion Date	18.03.23/20.03.23	' 			
	arameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Switch Yard Office Building			
1. Particu	late Matter (PM ₁₀)	μg / m³ ·	100	(S 5182 (Part-23)	70.0			
	ilate Matter	μg / m³ .	60	CPCB (GMAAP Vol. I)	37.6			
3. Sulpho	r Dioxide as SO ₂	μg / m³	. 80	(S 5182 (Part-2)	15.2			
4. Nitroge	en Dioxide as NO ₂	μg / m³ ·	80	(S 5182 (Part-6)	- · · · · · 36.6			
ș. Lead (Pb)	μg / m² ·	1 .	IS 5182 (Part-22)	0.07			
8. Ammo	nia as NH3	μg / m³	400	IS 5182 (Part-5)	7.0			
7. Ozone		μg / m²	180	(S 5182 (Part-9)	23.1			

SHIRESHMAR PRASAD AR PRASAD DULE 2023 03.29 125357+0590

> Verified by : Technical Manager



Shreyasee Prasad

Shreyasee Prasad Date: 2023.03.27 13:31:10 +05'30" Authorized Signatory Quality Manager

END OF TEST REPORT -

This report applies only to sample tested so above.

Total Liability of our Laboratory is finited to involced amount.

Test Report endorsed only the tests and not the product cartificate. Test Report can not be reproduced parketly or kell for legalizating purpose without written permission of the Laboratory

Contact us:

122-C. Aasthe, Hoad No. SA, Pellipura Colony, Pales - 900-013 (Bilhar)

Mob., +918676886249 , +91943104799\$

Website: www.shivatest.com; www.shivatesthouse.com



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTY. OF MOUSTRY, FORESTS & SMARROHMENT, GOVT. OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7369(A)	· Dt : 27.	03.2023 Your Y	Work Order No. 40002	25067-037- 1	019 . Dt : 31.	.07.202	
[a] Name and address of the] Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambieni Air Qua		ig (As per NAAC	(8)	
[c] Sámple Collected by			SHIVA TEST HO			٠.	
[d] Sampling Location			Collected from Near	of the top of Su	High Yard Office Bu	dding	
[e] Method of Sampling			IS 5182 (Part-14)	•			
[f] Sampling Environments	I Condition		Temp. (⁰C)	26	Humidity (%)	58	
[g] No. & Type of Contains	: [One poly Jar				
[h] Instrument LD			RD\$-4, FPM-4				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code			A-7369				
[k] Sample Condition on Re	éceipt		Fit for Analysis				
[I] Items required to be test	ed		As per contract				
[m] Whether any specific M been suggested by the p		st has	No 18.03.23				
[n] Date of receiving the sa							
[o] Analysis Start Date / An	ialysis Com	pletion Date	18,03,23/20 03,23	3			
Parameters :	Unit	Limit as per NAAQS 2009	Method of Test	Near at th	ng Station / Res te top of Switch		
t. Carbon Monoxide (CO)	mg/m³	4	IÉ E193 (Dad. 10)		ffice Building 0.28		
		5	IS 5182 (Part-10)				
2. Benzene (C ₆ H ₆)	μg/m³		IS 5182 (Part-11)		0.13 0.22		
3. Benzo(a) Pyrene	ng / m ³	6	IS 5182 (Part-12)				
4. Arsenic (As) 5. Nickel as Ni	ng/m³	20	AAS Method AAS Method	 	0.14 1.42		
6. Mercury (Hg)	ng/m³	Not Specified	US EPA (Method IO-5)	:	0.17		

SHIBESHW | Organity should by 066: 2023.03.27 12:50:12:405.30 AR PRASAD

> Verified by: Technical Manager



Prasad __

Shreyasee Controlled by Shreyasee Prased Date: 2023.09.27 13:31:27+05:30*

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to earnple tested as above.'
Total Liability of our Laboratory is limited to invoiced amount. Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us 7

122-C, Amrika, Rood No. 5A, Pallipetra Colony, Pages - 300 013 (Bahar)

Mob., +918676886249; +919431047908 supatra istration co.in , mfc@shivetes.com

Website: www.shrutesi.com; www.shrutesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MICEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT, OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7398	Dt: 27.03	.2023 Your Wor	k Order No. 40002850 0	87-037-1010 Dt: 31.07-2022			
[a] Name and address of the	Custome		North Karanpur Project At: Tandwa	a Super Thermal Power			
[a] Livings and appliess of the	Custome		Dist- Chatra	· .			
	:	: :	Jharkhand- 82	5 20 1			
[b] Details of Sample		i· :					
(b) Details of Sample (c) Sample Collected by		: · · · · ·	SHIVA TEST HOU	Monitoring (As per NAAQS)			
[d] Sampling Location	: :::.	· .'-		the top of Switch Yard Office Building			
[e] Method of Sampling			IS 5182 (Part-14)	this tak of Desica Take offices Betremak			
	I Conditio			26 Humidity (%) 52			
		11	Temp. (^q C) One poly Jar	26 Humidity (%) 52			
[g] No. & Type of Contains [h] Instrument ID	· ·	· :	RD9-4, FPM-4	1			
		·		MO. SO. MUA			
			A-7398	i (NO ₂₁ SO ₂ , NH ₄)			
[j] Sample Code k Sample Condition on Re	:		Fit for Analysis				
[f] Items required to be test			As per contract				
[m] Whether any specific M been suggested by the p			No :				
[ŋ] Date of receiving the sai			19.03.23				
[o] Analysis Start Date / An	alysis <u>Coo</u>	npletion Date	19.03.23/22.03.23	1			
		. Limit as per	. Method of	Sampling Station / Result			
Parameters	Unit .	NAAQS 2009	Test	Near at the top of Switch Yard Office Building			
1. Particulate Matter (PM ₁₀)	$\mu g / m^a$	100	IS 5182 (Part-23)	75.1			
Particulate Matter (PM _{2.6})	μg / m³	60	CPCB (GMAAP Vol. J)	:36.5			
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	: 14.5			
4. Nitrogen Dioxide as NO ₂	μg / m³	. 80:	IS 5182 (Part-6)	36.3			
s. Lead (Pb)	μg / m³	1 .	(\$ 5182 (Part-22)	0.09			
6. Ammonia as NH ₃	$\mu g / m^3$	400	IS 5182 (Part-5)	6.9			
7. Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	23.1			

Date: 2023.03.27 AR PRASA 1255:59 +05301

> Verified by : Technical Manager



Shreyasee Prasad

Bete 2023,03:27 13:33:44+05'30'

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involced amount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastia, Road No. SA, Palifpiers Golony, Pines - 800 013 (Bihari

Mob: +9|8076486249; +919451047908

Website: www.shiristest.com; www.shivite3thoute

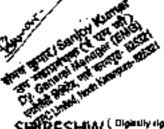


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1996, DEPTT. OF BOUGSTRY, FOREVER & ENVIRONMENT, GOVT. OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7396(A)	Dt : 27.	03.2023 Your V	Vork Order No. 40002	85467-0 37-	1019 Dt : 31.4	7.2022		
[a] Name and address of the	Name and address of the Customer				North Karampura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample		_	Ambieni Air Ona	lity Monitor	ing (As per NAAQ)	S)		
[c] Sample Collected by			SHIVA TEST HO			-		
[d]Sampling Location			Callected from Near	at the top of S	witch Yard Office But	liding		
[e] Method of Sampling			IS 5182 (Part-14)		•			
[f] Sampling Environments	d Condition		Temp. (^A C)	26	Humidity (%)	52		
[g] No. & Type of Containe			One poly Jan		•			
(h) Instrument ID			ROS-4, FPM-4					
(i) Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)					
(j) Sample Code			A-7398					
[k] Sample Condition on Re	eceipt		Fit for Analysis					
[1] Items required to be test	ted		As per contract					
(m) Whether any specific M been suggested by the p		st has	No					
[n] Date of receiving the sa			19.03.23					
[o] Analysis Start Date / Ar		oletion Date	19.09.23/22.03.23					
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at (ing Station / Res he top of Switch Office Building			
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	0.57				
2: Benzene (C ₆ H ₆)	μg/m³	5	IS 5182 (Part-11).	S 5182 (Part-11). 0.19				
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12) 0.21					
Arsenic (As)	. Arsenic (As) ng / m ³ 6			AAS Method 0.29				
5. Nickel as Ni					AAS Method 2.86			
6. Mercury (Hg)	μg / m³	Not Specified	US EPA (Method KO-5)		0,20			



SHIBESHW (Digitally algored by SHIBESHWAN PRESAD AR PRASAD De 2013.08.27 12:56:11 +05:30*

> Verified by : Technical Manager



Prasad

Shreyasee (Cligitally signed by Shreyasee Prasad) Date: 2023.03.27 13:34:00 #05'30"

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to cample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced pertially or fell for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastrie, Road No. SA, Patliputta Colony, Parta - 400 013 (Binar)

Mob. +914676846749 ; +919431047908

Website: www.skiputest.com; saww.shivmesthouse.com

sitematichysten.com; introbstrates.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MILEFOC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT.
OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7536	DI: 28.03.	2023 Your Wor	k Order No. 400028506	7-037-1019 Dt: 31.07-2022	
[a] Name and address of t	he Customer	г	North Karanÿura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321		
[b] Details of Sample			Ambiem Air Quality	Monitoring (As per NAAQS)	
[c] Sample Collected by		•	SHIVA TEST HOU		
[d] Sampling Location			Collected from Near a	the top of Switch Yard Office Building	
[6] Method of Sampling		•	IS 5182 (Part-14)	· · · · · · · · · · · · · · · · · · ·	
[f] Sampling Environment	al Conditio	n	Temp. (°C)	28 Humidity (%) 52	
[g] No. & Type of Contain	re c		One poly Jar	• •	
(h) Instrument ID			RDS-4, FPM-4		
[i] Sample Quantity			30 ml x 6 for each i	(NO ₂ , SO ₂ , NH ₃)	
[j] Sample Code			A-7536		
[k] Sample Condition on F	leceipt		Fit for Analysis		
[I] [tems required to be tes	sted	· :	As per contract		
[m] Whether any specific N been suggested by the		est has	No		
[n] Date of receiving the s	ample .		29.03.23		
[o] Analysis Start Date / A	nalysis Con	npletion Date	23.03.23/ 26.03.23		
Parameters	Unit	Limit as per	Method of	Sampling Station / Result Near at the top of Switch Yard	
	J ,	NAAQS 2009	· Test ·	Office Building	
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	69.6	
Particulate Matter (PM ₂₈)	μg/m³	60	CPC8 (GMAAP Vol. II)	33.2	
3. Sulphur Dioxide as SO ₂ µg / m ³ 80			IS 5182 (Part-2)	16.4	
4. Nitrogen Dioxide as NO ₂	ng / m³	80	IS 5182 (Part-6)	34.8	
5. Lead (Pb)	μg/m³	1	IS 5182 (Part-22)	. 0.16 .	
6. Ammonia as NH ₃	μg / m³	400	18 5182 (Part-5)	7.3	
7. Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	22.2	

SELECTION DISTRIBUTED HIS PRASAD DISTRIBUTED HIS PRASAD DISTRIBUTED HIS PRASAD 124927 +0530

Vérified by : Technical Manager



Shreyasee Prasad Cligitally signed by Shrayever Proced June: 2023.03.20 136251 +05'90'

Authorized Signatory
Quality Manager

- END OF TEST REPORT -

This report applies only to semple tested as above.

2. Total Liability of our Laboratory is limited to involved amount.

Test Report endorsed only the tests and not the product certificate.
 Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us: 122-C, At

122-C, Ansthe, Road No. SA, Pathiputra Colony, Panes - 800 013 (Enter)

5606. +918676886249 ,+919431047908 Email : <u>athorical faveboo co.in</u> ; <u>info@chivaless.com</u>

Webset : www.shivaess.com; www.shivaesthouse.com

Page 1 of I

.



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, Dept OF BIDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7536(A)	Dt: 28.	03.2023 Your V	Work Order No. 40002	850 87-037	-1019 Dt : 31	.07.2022	
[a] Name and address of th	e Customer		North Karanpa Project At: Tandwa Dist- Chatra Jharkhand- 8:	·.· -	r Thermal Powe	ear	
[b] Details of Sample		:	Ambient Air Qua	lity Monito	ring (As per NAA))S) :	
[c] Sample Collected by			SHIVA TEST HO				
[d] Sampling Location			Coffeered from New	at the top of	Switch Yard Office B	wilding .	
[e] Method of Sampling			1S 51\$2 (Part-14)				
[f] Sampling Environments	d Condition		Temp. (°C)	28	Humidity (%)	52	
[g] No. & Type of Contame			One poly Jar	٠.		•	
(h) Instrument ID			RDS-4, FPM-4				
[ii] Sample Quantity ::		:	30 ml x 6 for each	n (NOz. SO	2, NH ₃)		
[j] Sample Code			A-7536				
[k] Sample Condition on R.	eccipt		Fit for Analysis				
[1] Items required to be test	ted	.: .	As per contract				
[m] Whether any specific M been suggested by the p		st has	No		·		
[n] Date of receiving the sa		•	23.03.23				
[0] Analysis Start Date / An	nalysis Com	pletion Date	23.03.23/26.03.23	3 :		.::	
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at	bling Station / Re the top of Switch Office Building		
1. Carbon Monoxide (CO)	mg / m³	: 4	IS 5182 (Part-10)	:	0.46		
2. Bertzene (C ₆ H ₆)	μg / m³	5	1\$ 5182 (Part-11)		0.16		
3. Benzo(a) Pyrene	ng / m³ :	1 .:	IS 6182 (Part-12)	. : . :	0.19		
4. Arsenic (As)	ng / m³	6	AAS Method	· ;	0.38	•	
5. Nickel as Ni	ng/m³	. 20	AAS Method		1,43		
6. Mercury (Hg)	ng / m³ :	. Not Specified	US EPA (Method 10-5)		0.28		

SHIBESHW | Digitally, signed by SHIBESHWAR PRASAD AR PRASAD 10-10-2023.03.28

Verified by Technical Manager



Shreyasee) Prasad

Digitally signed by Shreyasee Prasad Date: 2023.03.28 13:53:04 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample lasted as above.

Total Liability of our Laboratory is limited to iswelced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partietly or full for legalicourt purpose without written permission of the Laboratory

Contact na :

122-C, Aspilia, Road No. 5A, Pallipatra Celony, Passa - 300 013 (Biliar)

Mob. +918676886249 ; +919451047908

stipatra (sitvatoo co in amosistivaest com

Website: www.shirotest.com; worse.shirotesthorae.com

Page | of I.





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MCEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT, OF INDUSTRY, FORESTE & ENVIRONMENT, GOVT, OF BIHAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	STH/TR/22-23/7585	Dt : 28.03	.2023 Your Wo	rk Order No. 408028500	87-037-1019 Dt : 31.07.2022	
[a]	Name and address of th	e Çustomer		North Karanput Project At: Tandwa Dist- Chatra Jharkhand- 82:	a Super Thermal Power	
[b]	Details of Sample		···-		Monitoring (As per NAAQS).	
[0]	Sample Collected by			SHIVA TEST HOU		
<u>[9]</u>	Sampling Location			Collected from Near at	the top of Switch Yard Office Building	
[0]	Method of Sampling			IS 5182 (Part-14)	• • • • • • • • • • • • • • • • • • • •	
[f]	Sampling Environments	d Condition	n	Temp. (°C)	29 Humidity (%) : 51	
· [R]	No. & Type of Contains			One poly Jar		
[h]	Instrument ID			RDS-4, FPM-4		
(i)	Sample Quantity			30 ml x 6 for each	h (NO ₂ , SO ₂ , NH ₃)	
űl	Sample Code			A-7585	Tr. Tr. T	
[k]	Sample Condition on Re	eceipt		Fit for Analysis		
[I]	Items required to be test	ed		As per contract		
(m]	Whether any specific M been suggested by the p		est has . :	No		
[n]	Date of receiving the sa			24.03.23	. ': .:	
[0]	Analysis Start Date / Ar	ialysis Con	pletion Date	24.03.23/ 27.03.23		
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result :: Near at the top of Switch Yard Office Building	
i. Part	culate Matter (PM ₁₀)	μ g / m³	100	IS 5182 (Part-23)	67.9	
	ticulate Matter	μ 9 / m³	60	: CPCB (GMAAP Vol. I)	35.3	
3. Suk	thur Dioxide as SO ₂	·μg / m³	80	IS 5182 (Part-2)	14.9	
4. Nitr	ogen Dioxide as NO ₂	μg / m²	80	IS 5182 (Part-6)	33.9	
5. Lea		μg / m³	<u> </u>	(S:5162 (Part-22)	0.09	
6. Am	monia as NH _{3.}	μg / m³	400	IS 5182 (Part-5)	: 8.2	
	one (O ₃)	μg/m³	180	IS 5182 (Part-9)	23.1	

SHIBESHW Digitally signed by SHIBESHWAR PRASAD

AR PRASAD 12-2073.03.20

Verified by : Technical Manager



END OF TEST REPORT

Shreyasee Prasad Digitally signed by Shreystee Presed Date: 2023-03-28 13:55:59 405-30 otherinad Signista.

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

2. Total Liability of our Laboratory is limited to invoked amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact ms :

132-C, Aastha, Road No. SA, Parliphtia Colony, Pana. - 800 013 (Batar)

Mob.: +918676386249; +919431047908

Email: sthootee leveloog.co.in; infe@tshivelest.com

Website: www.shivatest.com: www.shivatesthouse.com

the deliterate posteroin 2 liberate dra charge



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, BEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

test report

Ref. No. STH/TR/22-23/7585(A)	Dt: 28.	03.2023 Your V	Work Order No. 40002	85067-037-	1019 Dt: 31.07.2022	
[a] Name and address of the		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
(b) Details of Sample			Ambiem Air Qua	liny Monteori	ing (As per NAAQS)	
[c] Sample Collected by			SHIVA TEST HO			
[d] Sampling Location			Collected from Near	of the top of S	witch Yard Office Building	
[e] Method of Sampling			1S 5182 (Part-14)			
[f] Sampling Environments	d Condition		Temp. (°C).	29	Humidity (%) 5:1	
[g] No. & Type of Containe			One poly Jar			
[h] Instrument ID			RDS-4, FPM-4 ::			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-7585			
[k] Sample Condition on Re	eceipt		Fit for Analysis			
[1] Items required to be test	ed		As per contract			
[m] Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sar	nple -	· _ ·	24.03.23			
[o] Analysis Start Date / An	udysis Com	pletion Date	24.09.23/27.03.23			
Parameters	Unit'	Limit as per NAAQS 2009	Method of Test	Near at t	ing Station / Result :: the top of Switch Yard Affice Building	
1. Carbon Monoxide (CO)	ան լա ₃	4	IS 5182 (Part-10)	•	0.23	
2. Benzene (C ₈ H ₆)	μg/m³.	5	IS 5182 (Part-11) 0.18			
3: Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12): 0.21			
4. Arsenic (As) ng / m³ : 6			AAS Method 0.18			
5. Nickel as Ni	20	AAS Method 4.30				
6. Mercury (Hg)	ng/m³ μg/m³	Not Specified	US EPA (Method 10-5)	: .	0.36	

SMIBESHWIAR PRASAD Date: 2023-03-28 12/15/21 +05/30* Verified by :



- END OF TEST RÉPORT -

A Carre

Shreyasee Prasad

Digitally signed by Shreyasee Presad Date: 2023.03.26 13556/19 +05'30" Authorized Signatory

Quality Manager

Technical Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is britted to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aastha, Road No. SA, Pathipetra Colony, Paras - 800 013 (Bahar)

MOD. +918676386249 , +919431047908 Empiri .

Website . www.shirotest.com ; www.shirotesthouse.com

Page I of I

stimului @vohen on.in : info@shivuest com





(Serving since 1988)

RECOGINSED AS ENVIRONMENTAL LABORATORY BY MICEFOC, GOVT, OF MOMA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY. OF INCUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BAIAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. N	o: STH/TR/22-23/6916	Dt : 21.03.3	2023 Your Work	Order No. 4000285067	-037-1019 Dt : 31.07.20	122
		:.			a Super Thermal Power	
[a]	Name and address of the	Customer		At: Tandwa		
"				Dist-Chatra		
. 🗀 😬				Jharkhand- 825	321	٠.,
[b]	Details of Sample .			Ambient Air Quality A	Monitoring (As per NAAQS)	
[0]	Sample Collected by			SHIVA TEST HOUS	SE on 02 03 23	
[6]	Sampling Location	· .		Collected from Near at	the top of DM Plant	٠.,
[ē]	Method of Sampling		٠.	18 51 82 (Part-1 4)	23 a	
[f]	Sampling Environmenta		: '.:.	Temp. (°C)	25 Humidity (%) 64	
[g]	No. & Type of Container	г	•	One poly Jar	·"	
[h]	Instrument ID	i	. :.	· ROS-3, FPM-3	:::	:-
(i)	Sample Quantity			30 ml x 6 for each (NO₂, SO₂, NH₄)	
(0)	Sample Code		: :.	A-6916		
[k]	Sample Condition on Re	ceiρt		Fit for Analysis		
101	Items required to be teste	xd .		As per contract		
[m]	Whether any specific Mo been suggested by the pa		st has	No .		
<u>[n].</u>	Date of receiving the san			03.03.23	·	
[0]	Analysis Start Date / An		pletion Date	03.03.23/06.03.23	• • • • • • • • • • • • • • • • • • • •	
,	:		Limā as per	Method of	Sampling Station / Result	\neg
.	Parameters	Unit	NAAQS 2009	. Test	Near at the top of DM Plan	
1. P	articulate Matter (PM ₁₀)	μ g / m³	. 100	IS:5182 (Part-23)	: 73.8-	
	rrticulate Matter (PM _{2.5})	.µg / m³	60	CPCB (GMAAP Vol. I)	38.8	
3. Su	ılphur Dioxide as \$O ₂	μ g / m³**	80	IS 5182 (Part-2)	43,1	
4. NB	trogen Dioxide as NO ₂	μ g / m³	.: 80 .	(8 5182 (Part-6)	34.2	
	ad (Pb)	μg / m³	1 1	IS 5182 (Part-22)	0.08	
8. An	nmonia as NH₃	μ g / m³.	400	IS 5182 (Part-5)	6.2	
	one (O ₃)	μg / m³	180	IS 5182 (Part-9)	20.7	
7. 42	-45	poyt (FII		IO OTOE (I GIT-D)		

SHIBESHW Dignally stoned by AR PRASAD 1554:55 +0530

Verifled by : Tachnical Manager



Shreyasee

Prasad

Olgitally signed by Shreyasee Prasad Date 2023-03-21 18:09:09 +05:30 Authorized Signatory

Quality Manager

END OF TEST REPORT

This report applies only to sample rested an above.

Total Liability of our Laboratory is finited to invoiced amount,

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Adaths, Road No. SA, Padiputra Colony, Patra - 100 013 (Bilear)

Mob.: +918676886249 ; +919431047904 silpaten (@yahoo.co.in ; in fe@shivaten.com

Website: www.shivutes.com; www.shivsnestbouse.com

Page Lof I



RECOGNISED AS ENVIRONMENTAL LABORATORY BY McEFCC, GOYT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEFTE.
OF INDUSTRY, FORESTS & ENVIRONMENT, GOYT, OF BHAR AND BEAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TK/72-23/6916(A)	Dt : 284	03.2023 Your V	Vork Order No. 400028			
[a] Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Amhient Air Quali	ity Monitori	ing <u>(As per NAAQ</u>	ຫຼ
[c] Sample Collected by			SHIVA TEST HOL	JSE on 02.0	93/23	
[d] Sampling Location			Collected from Near I	n the rap of D	M Plant	
[c] Method of Sampling			18 51 8 2 (Part-14)		· ·	
[f] Sampling Environmenta	d Condition		Temp. (°C)	25	Humidity (%)	64
[g] No. & Type of Contains			One poly Jar			
[h] Instrument ID			RDS-3, FPM-3.			
[i] Sample Quantity			30 mt x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code	•		A-6916			
[k] Sample Condition on Re	eceipt		Fit for Analysis			
[1] Items required to be test	ted	·	As per contract			
[m] Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sa			03.03.23			
[o] Analysis Start Date / Ar		pletion Date	03,03,23/06.03.2 3	3 .		
		Limit as per	Method of	Sampl	ing Station / Res	su it
Parameters	Unit	NAAOS 2009	Test	Near at	t the top of DM P	'lant
1. Carbon Monoxide (CO)	mg/m³	4 .	IS 5182 (Pert-10)	0.46		
2. Benzene (C ₆ H ₆) μg / m ³ 5			IS 5182 (Part-11)	0.12		
3. Benzo(a) Pyrene ng / m³ 1			IS 6182 (Part-12)	<u>0.18</u>		
4. Arsenic (As) ng / m ³ 6			AAS Method	AAS Method 0:18		
5. Nickel as Ni	AAS Method 4.20					
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Mathed IO-5)		0.23	

Character State Seattle State State

SHIBESHW SHIBESHWAR PRASAD Date: 2023-03-21 LSSS:07 +03'30'

Verified by : Technical Manager



Shreyasee y Prasad

Engrally (Speed to Sheepston Posture Trains (MES) of 21 housests (MES)

Authorized Signatory

Quality Manager

. . - END OF TEST REPORT

This report applies only to sample tested as above;
 Total Lisbility of our Laboratory is limited to involved amount.

Test Report endorsed only the tests and not the product certificate.

1. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Comtact us : 122-C, Austin, Road No. 5A, Philipinta Colony, Pante - 800 013 (Billion)

Mob : +918676886249 ; +919451047908 Email sthouthal (stronthal (st

Website: www.shiwatest.com; www.shiwatesthouse.com

SHIPSHINGSHEET TOXOG III





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA. UNDER ENVIRONMENT (PROTECTION) ACT 1988. DEFIT: OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6978	Dt: 21.43.	2023 Your Wa	rk Order No. 400028506	7-037-1019 Dt : 31.07,2022		
(a) Name and address of the	e Customer	5	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
(b) Details of Sample				tomtoring (As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HOUS			
[d] Sampling Location			Collected from Near at a	the rop of DM Plans		
[e] Method of Sampling			IS 5182 (Part-14)			
[f] Sampling Environments	d Condition		Temp. (°C)	26 Humidity (%) 52		
[g] No. & Type of Contains			One poly Jar			
[h] Lostrument ID			RDS-2, FPM-2			
[i] Sample Quantity			30 ml x 6 for each (NOz, SOz, NHz)			
[f] Sample Code			A-6978			
[k] Sample Condition on Re	eceipt		Fil for Analysis			
[1] Items required to be test	led .		As per contract			
[m] Whether any specific M been suggested by the p		st has .	No			
[n] Date of receiving the sat	mple		04.03.23			
[o] Analysis Start <u>Date /-Ar</u>	ulysis Com	pletion Date	04.03,23/07.03.23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant		
(, Particulate Matter (PM _{t0})	μg / m³	100	IS 5182 (Part-23)	73.9		
2. Particulate Matter (PM _{2.5})	rig / m³	60	CPCB (GMAAP Vol. I)	36.3		
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2):	14.3		
4. Nitrogen Dioxide as NO ₂	μg / m³	80	IS 5182 (Part-6)	35.2		
5. Lead (Pb)	μg / m³	1	IS 5182 (Pert-22)	0,12		
6. Ammonia as NHs	μg / m³	400 .	IS 5182 (Pert-5)	6,5		
7. Ozone (O ₃)	μg/m³	. 180	IS 5182 (Part-9)	" 1 8. 9 .		

HTM: Land San San Dea

SHIBESHW | Digitally somed by ASHIBESHWARPRUSAD AR PRASAD 1957 2021.09 21

> Verified by : Technical Monager



Shreyasee Prasad

(Digitally signed by / Shreyesee Prasad Date: 2023:03:21 16 10:14 +0530

Authorized Signatory Quality Manager

END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the lests and not the product conficere.

Test Report can not be reproduced partially or full for legal/count purpose without written permission of the Laboratory.

Contact us :

122-C, Austha, Road No. SA. Patispotra Colony, Pates - 600 013 (Bihar)

Mob. ±918676886249 ; ±919431047908 Mitches (Grand County) in the Galactic Mass Account

Website: www.shivmesi.com; www.shivatesthouse.com





RECOGNISHO AS ENVIRONMENTAL LABORATORY BY MOSSICC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/6978(A)	_Dt : 21.	03.2023 Your '	Work Order No. 4000			
(a)	Name and address of the	: Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[6]	Details of Sample			Ambient Air Qua	lity Monitori	ng (As per NAAQS)	
[c]	Sample Collected by			SHIVA TEST HO	USE on 03.0	3.23	
[4]	Sampling Location		·	Collected from New	at the top of D	H Plant .	
[e]	Method of Sampling			I\$ 5182 (Part-14)			
[ŋ	Sampling Environmenta	l Condition		Temp. (°C).	26	Humidity (%), 52	
[g]	No. & Type of Containe	f .		One poly Jar			
[h]	Instrument ID			RDS-2, FPM-2			
(i)	Sample Quantity			30 mì x 6 for each (NO ₂ , SO ₂ , NH ₃)			
úì	Sample Code			A-6976			
(k)	Sample Condition on Re	sceipt		Fit for Analysia			
[0]	Items required to be test	ed		As per contract			
[m]	Whether any specific M- been suggested by the po		st has	No .			
[n]	Date of receiving the sar	nple		04,03,23			
[6]	Analysis Start Date / An	alysis Com	oletion Date	04.03.23/07.03.23			
	Parameters	Unit	Limit as per	Method of	Sampl	ing Station / Result	
1	Parameters	UNK	NAAQS 2009	Test	Near at	the top of DM Plant	
r. Cark	oon Monoxide (CO)	mg/m³	4	(\$ 5182 (Part-10)		0,46	
2. Be n	zene (C _s H _s)	μ g / m³	5	(\$ 5182 (Part-11)	5182 (Part-11) 0.20		
3. Ben	3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12) .0.18			
	enic (As)	6	AAS Method 0.24				
5. Nid	kellas Ni	ng/m³	20	AAS Method 2.93			
6. Mer	cury (Hg)	ng/m³	Not Specified	US EPA (Method IQ-6)		0.28	

SHIBESHW CHIGHTON Stoned by SHIBESHWAR PRASAD AR PRASAD 153734 +0530

Verified by : Technical Manager Shreyasee Prasad

Digitally signed by Sheryasan Prasad Date: 2023/03:21 16:10:32 +05:30 Authorized Signatory Quality Manager

END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not me product certificate.

Test Report can not be reproduced partielly or full for legal/court purpose without written permission of the Laboratory

Contact us:

122-C, Aasthu, Rood No. 5A, Pathiputra Colony, Patris = 300 013 (Bihar)

Mob. +918676486249 . +919431047908 Битай, SRESULATED VISION CO.III - BATOSTONIO SCESI, COM-

Website : www.shrvatesl.com ; www.shrvatesthouse.com

Page I of 1





(Serving since 1988)

RECOGNISED AS EMPROMIENTAL LABORATORY BY MORFOC, GOVE OF INDIA, UNDER EMPROMIENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7108	Dt: 21.03.	2023 Your Work	Order No. 4000285067-	-037-1019 Dt: 31.07.2022		
1: -			North Karanpura Super Thermal Power Project			
[a] Name and address of the	Costomer		At: Tandwa			
•			Dist- Chatra Jharkhand- 825	201		
[b] Details of Sample				donttoring (As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HOUS			
d Sampling Location			Collected from Near at			
[e] Method of Sampling			IS 5182 (Port-14)			
[f] Sampling Environmenta	Condition		Temp. (°C)	28 : Humidity (%) 62		
[g] No. & Type of Containe			One poly Jar			
[h] Instrument ID			RDS-3, FPM-3	::		
(i) Sample Quantity			30 ml x 6 for each (i	NO ₂ , \$Q ₂ , NH ₂)		
(j) Sample Code			A-7108			
[k] Sample Condition on Re	ceipl		Fit for Analysis			
[I] Items required to be test	ed ed		As per contract			
[m] Whether any specific Ma		st has	No	:		
been suggested by the pa				· · ·		
[n] Date of receiving the san			07.03.23			
[o] Analysis Start Date / An	alysis Com		07.03.23/10.03.23			
Parameters	Unit	Limit as per	Method of	Sampling Station / Result		
		NAAQS 2009	Test	Near at the top of DM Plant		
Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	71.6		
2. Particulate Matter (PM _{2.5})	μg/m³	60	CPCB (GMAAP Vol.:i)	37.6		
3. Sulphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2)	13.8		
4. Nitrogen Dioxide as NO ₂ µg / m ³ 80			IS 5182 (Part-6)			
5. Lead (Pb) pg / m ³ 1			IS 5182 (Part-22) 0.09			
t. Ammonia as NH ₃	µg / m³	400	IS 5182 (Part-5).	5.2		

SHIBESHW SHIPPESHIWAR PRASAD AR PRASAD 15:59:40 + 05:30 Date: 2023.03.21

Verified by: **Technical Manager**

Pating 800011

Shreyasee Shreyasee Praced Prasad

Date: 2023:03:71 16:22.10 +05'30: Authorized Signatory

Quality Manager

END OF TEST REPORT -

This report applies only to sample leated as aboye.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/opent purpose without written permission of the Laboratory.

Contact us:

122-C; A)střa, Road No. 5A, Petiguus Colony, Patre – 200 013 (Biler)

Mob.: +918676886249 ; +91943104790\$* Eftractia lightahou.co.m ; info@shivetcar.com

Website : www.shivaters.com; proceshivateshouse.co





RECOGNSED AS ENVIRONMENTAL LABORATORY BY MOBPCC, GOVT, OF INDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. N	STH/TR/22-23/7108(A)	Di : 21.	03.2023 Your V	Vork Order No. 40002			
[#]	Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jherkhand- 825 321					
[b]	Details of Sample			Ambient Air Qua	lity Monito	ring (As ver NAAQ	5)
[0]	Sample Collected by			SHIVA TEST HO			
[d]	Sampling Location			Collected from Near	at the top of	DM Plant	
[e]	Method of Sampling			IS 5182 (Part-14)			
Ø	Sampling Environments	l Condition		Temp. (°C)	28	Humidity (%)	52
[g]	No. & Type of Containe	त		One poly Jar			
[h]	Instrument ID			RDS-3, FPM-3			
[i]	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
(ii)	Sample Code			A-7108			
[k]	Sample Condition on Re	ceipt		Fit for Analysis			
[1]	Items required to be test	ed		As per contract			
[m]	Whether any specific M been suggested by the pa		st has	No			
[n]	Date of receiving the say			07.03.23			
[0]	Analysis Start Date / An	alysis Com	pletion Date	07.03.23/ 10.03.23			
	Parameters	Unit	Limit as per	Method of	Samp	ding Station / Rea	sult
	Falanieleis	Oth	NAAQS 2009	Test	. Near s	of the cop of DM P	lant '
1, Car	bon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	0.34		
2 Be	nzene (C ₆ H ₆)	μg/m³	5	I\$ 5182 (Part-11)	0.13		
3. Bei	3. Benzo(a) Pyrene ng / m³ 1			IS 6182 (Part-12)	0,18		
4. Ars	senic (As)	AAS Method	d 0.16				
5. Nic	kel as Ni	ng / m³	20	AAS Method 2.80			
6. Me	rcury (Hg)	ng/m³	Not Specified	NC COA			

OV. George at Land Science Spice ESTAL PROPERTY SECURITY SECURITY

Philips

SHIBESHW | Digitally signed by | AR PRASAD 15 59 53 +05 30

> Verified by : Technical Manager

Prasad

Shreyasee | Digitally signed by | .Date: 2023.03.21 16.22 37 +05'30'

Authorized Signatory Quality Manager

-- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is firrited to involced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report day not be reproduced panietly or full for legal/court purpose without written permission of the Laboratory.

Page 1 of 1

Contact us:

1724C. Assitta, Koad No. SA, Palispura Colony, Pates - 800 013 (Biber)

Mob., +918676886249 ; +919431047908

sinateal@avahoo.co = : info@shiwtest.co= .

Website . www.shivetest.com , www.shivetesthouse.com

1 / Care





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7115	Dt : 31.03.	2023 Your Wor	k Order No. 4000285067	7-037-1019 Dt : 31.07.2022		
[a] Name and address of the	Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample				foritoring (As per NAAQS)		
[c] Sample Collected by		<u> </u>	SHIVA TEST HOUS			
[d] Sampling Location			Caliected from New of t	the top of DM Plant		
[e] Method of Sampling			IS 5182 (Part-14)**			
[f] Sampling Environmenta	I Condition		Temp. (°C)	26 Humidity (%) 52		
[g] No. & Type of Containe		•	One poly Jar	:		
[h] Instrument ID			RDS-2, FPM-2 · :			
[i] Sample Quantity			30 ml x 6 for each (f	NO2, \$O2, NH3)		
[j] Sample Code			A-7115			
[k] Sample Condition on Re	ceipt		Fit for Analysis			
 Items required to be test 	ed .	_	As per contract			
m) Whether any specific Me been suggested by the pa		st bas	No			
[n] Date of receiving the san	nple		08.03.23			
o] Analysis Start Date / An	alysis Com	pletion Date	08.03.23/11.03.23			
Parameters	Unit -	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant		
r. Particulate Metter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	73.1		
Particulate Matter (PM _{2.6})	μg/m³	60	CPCB (GMAAP Vol. i)	35.4		
Sulphur Dioxide as SO ₂ μg / m ³ 80			IS 5182 (Part-2) 13.8			
4. Nitrogen Dioxide as NO ₂ · · μg / m ³ 80			IS 5182 (Part-6) 35.4			
5. Lead (Pb) μg / m ³ 1			IS 5182 (Part-22) 0.12			
. Ammonia as NH _a	μg/m³	400	JS 5182 (Part-5)	7,2		
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	19.5		

Character State State of the County of the C

SHIBESHW SHIBESHWAR PRASAD Deter 2023/09.21

Verified by : Technical Manager



Shreyasee | Prasad

Digitally signed by Shreyasee Prasad
Date: 2023:03-21
16:25:00-405'30'
Authorized Signatory
Quality Manager

-- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced emount.
 Test Report endorsed only the Lests and not the product certificate.

4. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Assitta, Road No. SA, Pathputra Colony, Pates = 600 013 (Bitar)

Mob. +918676686749 ; +919431047508 Extent sthemas (25vahou co.m.) inferes:

Website: www.shlvatesr.com : www.shlvateshouse.com

(house) ližnahoo,co. . : infor@shimatest.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MICEPCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTI. OF INDUSTRY, FORESTS & ENVIRONMENT; GOVT, OF BRIAR AND BEHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	STH/TR/22-23/7115(A)	Di : 21/	03.2023 Your \	Vork Order No. 40002	85067- 037-1	019 Di : 31.07.2022	
[a]	Name and address of the		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[6]	Details of Sample			Ambient Air Qua	lity Monitori	ng (As per NAAQS)	
[¢]	Sample Collected by			\$HIVA TE\$T HO			
[4]	Sampling Location			Collected from New	at the top of D	H Flant	
[e]	Method of Sampling			IS 5182 (Part-14)			
[f]	Sampling Environments	d Condition		Temp. (°C)	26	Humidity (%) 52	
[g]	No. & Type of Contains	ar '		One poly Jar			
[h]	Instrument ID			RDS-2, FPM-2			
[i]	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
Li]	Sample Code		·	A-7115			
[k]	Sample Condition on Re	eccipt		Fit for Analysis			
[1]	Items required to be test	ted	'	As per contract			
[m]	Whether any specific M been suggested by the p.		st has	No			
[n]	Date of receiving the sai	mple		08.03.23			
[6]	Analysis Start Date / An	alysis Com	pletion Date	08.63.23/ 11.03.23			
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test		ing Station / Result the top of DM Plant	
1. Cart	on Monoxide (CO)	mg/m³	4	IS 6182 (Part-10)	-	0,34	
_	zene (C ₆ H ₆)	μ g / m³	5	13 5182 (Part-11)			
3. Be n	3. Bertzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12)			
	4. Arsenic (As) ng / m³ 6			AAS Method 0,31			
	kel as Ni	ng / m³	20	AAS Method : 1.47			
6. Mer	cury (Hg)	ng / m³	Not Specified.	US EPA (Method IC-5)		0.28	

Charles India Carlo Const History



SHIBESHW SHIBESHWAR PRASAD AR PRASAD 1046: 2023.03.21

Verified by : Technical Manager Shreyasee 🦠 Prasad

Digitally signed by Sineyasee Prasad Date: 2023.03.21 16:25:14 +05'30' Authorized Signatory **Onality Manager**

- END OF TEST REPORT

This report applies only to sample lested as above.

Total Liability of our Laboratory is smilled to invoked amount.

Test Report endersed only the tests and not the product conflicate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C. Assika, Road No. 3A, Paillipitra Colony, Pitra - 800 013 (Biher)

Mob., +918676486249 , +919431047908 Emal);

subprintiful values on in ; info@sitivates.com

Website: www.she/atest.com; www.shivatesthouse.com





(Serving since 1988)

, icuesta

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF BIDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7368	Dt: 27.03.	2023 Your Worl	k Order No. 4000285067	-037-1019 Dt : 31.07.2022			
Ţ-		. :	North Karanpur	a Super Thermal Power			
•			Project				
[a] Name and address of the	Customer	· . ·	At: Tandwa				
•			Dist- Chatra				
<u></u> :		<u> </u>	Jharkhand- 825	<u> </u>			
(b) Details of Sample	•			Monitoring (As per NAAQS)			
[c] Sample Collected by	<u> </u>		SHIVA TEST HOUS	SE on 17.03.23			
[d] Sampling Location		•	Collected from Near at	the top of DM Plant			
[e] Method of Sampling		· · · · · · · · · · · · · · · · · · ·	··· 13 5182 (Part-14)				
[f] Sampling Environmenta	I Condition		Témp. (⁰C)	26 Humidity (%) 58			
[g] No. & Type of Containe	<u>r</u>		One poly Jar				
[h] Instrument ID			RDS-3, FPM-3				
[i] Sample Quantity			30 ml x 6 for each (i	NO2, SO2, NH3)			
[j] Sample Code	:	. : .:	A-7368				
[k] Sample Condition on Re	ceipt		Fit for Analysis	· ·:			
[I] Items required to be test	ed	· · · · ·	As per contract				
[m] Whether any specific Me	ethod of Te	st has	ni				
been suggested by the pa	arty	•	. No				
[n] Date of receiving the sar	mple		18.03.23				
[o] Analysis Start Date / An	alysis Com	pletion Date	18.03.23/20.03.23				
Parameters	Unit	Limit as per	Method of	.:Samping Station / Result			
: Faranierers	Onit	NAAQS 2009	T⊕st	Near at the top of DM Plant			
 Particulate Matter (PM₁₀) 	μg/m³	100 ·	IS 5182 (Part-23)	72.1			
· · · · · · · · · · · · · · · · · · ·			CPCB				
 Particulate Matter (PM_{2,5}) 	hα ∖ ω ₃	. 60	(GMAAP Vol. I)	: 38.4			
3. Sulphur Dioxide as SO ₂	μg / m³	·. 80	IS 5182 (Part-2)	14.1			
4. Nitrogen Dioxide as NO ₂	յաց / m³	-80	IS 5182 (Part-6)	36.0			
5. Lead (Pb)	μg/m³	: 1	IS 5182 (Part-22)	0.09			
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	4:8			
* A (A)	μg / m³	180	JS 5182 (Part-9)	22.6			
7. Uzone (Us)	HALL MIL.	100	10 0102 (Fares)				

Charles Service Servic

SHIBESHW SHIBESHWAR PRASAD AR PRASAD Date: 2022.03.27

> Verified by : Technical Manager



Shreyasee Prasad Digitally signed by Sweyasee Pracad Dete: 2023-03-27 13:30:42 +05/30*

Authorized Signatory
Quality Manager

- END OF TEST REPO

This report applies only to sample tested as above.
 Total Lieblity of our Laboratory is limited to involved and

Total Leading or our Laboratory is writted to envolved amount.
 Test Report endorsed only the tests and not the amount cartificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C; Aastha, Road No. 5A, Páthjube Colony, Patro - 800 013 (Bikar)

Mob.: +918676886249 ; +919431047906 Email : <u>ethipites li@brahoo.co.in</u> ; info@ethioratest.com

Website : www.shivness.com; news.hlvmes.hours.com



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDIASTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7368(A)	D1: 27.	43.2023 Your \	Work Order No. 40002	85067-037	7-1019 Di: 31.	07.2022	
[a] Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[6] Details of Sample			Ambiem Air Qua	lity Montto	ring (As per NAAQ	(S)	
[c] Sample Collected by			SHIVA TEST HO				
[d] Sampling Location			Collected from Near	at the top of	DM Plant		
[e] Method of Sampling			IS 5182 (Part-14)		•	_	
[f] Sampling Environments	d Condition	. ,	Temp. (°C)	26	Humidity (%)	58	
[g] No. & Type of Containe			One poly Jar				
[h] Instrument ID			RDS-3, FPM-3				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)				
[j] Sample Code			A-7368				
[k] Sample Condition on Re	sceipt		Fit for Analysis				
[1] Items required to be test	<u>led</u>		As per contract				
[m] Whether any specific M been suggested by the p		sthas .	No				
[n] Date of receiving the sa		<u> </u>	18.03.23				
[o] Analysis Start Date / An		pletion Date	18.03.23/ 20.03.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant			
1. Carbon Monoxide (CO)	mg/m³	4	(91-10) (Part-10)	0.46			
2. Benzene (C ₈ H ₅)	μg/m³	5	IS 5182 (Part-11)	0.12			
3. Benzo(a) Pyrene	IS 5182 (Part-12)	0.18					
4. Arsenic (As)	ng / m ³	6	AAS Method	0.19			
5. Nickel as Ni	ng / m³	20	AAS Method				
6. Mercury (Hg)	ng / m ^o	Not Specified	110 5704				

The second live of the second li

SHIBESHW (Olyhadly signed by ShiBESHWAA PRASAD)
AR PRASAD DOG 2023.03.27
125945+0990

Verified by : Technical Manager



Shreyasee Prasad

(Digitally signed by Strop asses Presspi Date: 2023.03.27 13:38:58 +05'30'

Authorized Signatory
Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liabelty of our Leboratory is firnited to invoiced smobal.

Test Report endersed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legalicourt purpose without written permission of the Laboratory.

Contact us :

122-C, Austha, Read No. 5A, Petlipeera Golony, Panna - 600 013 (Bihar).

Mob. +918676886249; +91943104790\$ Email: sthpatra f@vahoo co.in _ anf/@bh/varcsr.com

Weistite: www.shirotest.com; www.shirotesthosee.com





(Serving since 1988)

TC-10582

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC. GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDIA STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7397	DI: 27.03	2023 Your Wor	k Order No. 400028506 7			
[2] Name and address of the	: Customer		North Karanpura Super Thermal Fower Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Quality &	donitoring (As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HOUS	SE on 18 03.23		
[d] Sampling Location			Collected from Near at	the top of DM Plant		
[e] Method of Sampling			IS 5182 (Part-14)			
[f] Sampling Environmenta	I Condition		Temp. (°C)	26 Humidity (%) 52		
[g] No. & Type of Contains	<u>.</u>		One poly Jar			
[h] Instrument [D			ROS-2, FPM-2			
[i] Sample Quantity			30 ml x 6 for each (I	NO ₂ , SO ₂ , NH ₃)		
[j] Sample Code			A-7397			
[k] Sample Condition on Re	ceipt		Fit for Analysis			
11 Items required to be test.	ed		As per contract			
[m] Whether any specific Mo been suggested by the pa		st has	No			
n) Date of receiving the sar	uple		19.03.23			
[e] Analysis Start Date // An	alysis Com	pletion Date	19.03.23/22.03.23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant		
i, Particulate Matter (PM ₁₀)	μg / m³ :	100	IS 5182 (Part-23)	7 8 .5		
2. Particulate Matter (PM _{2.6})	μg / m³	60	CPCB (GMAAP Vol. I) 38,8			
3. Sulphur Dioxide as SO ₂ μg / m ³ 80			IS 5182 (Pari-2) 12.8			
Nitrogen Dioxide as NO ₂	μg / m³	80	IS 5182 (Part-6) 35.7			
5. Lead (Pb)	μg / m³	: " <u>1</u> ·	IS 5182 (Part-22) 0.09			
8. Ammonia as NH ₂	μg/m³	400	IS 5182 (Part-5) :10,1			
7. Ozone (O ₂)	μg/m³	180	I\$ 5182 (Part-9)	26.0		

Charles and South and Sout

SHIBESHW | Copingly signed by Smile Sample S

Vérified by : Technical Manager



Shreyasee Prasad

Olgitally signed by Shreyosee Prasad Date: 2023-03-27 13:33:12+05'30'

Authorized Signatory

Quality Manager

- END OF TEST REPORT

This report applies only to sample rested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.
 Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact ps :

172-C, Aasika, Roed No. SA, Pattiputra Colony, Parna - \$00 013 (Billion).

Mob.: +918676136249 ; +91943 | 047908 | Emoil | <u>salmatha | @hishoo co un ; infic@shil-saca com</u>

Website: www.shilystest.com; www.shilystestholese.com

Page Lof L



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF BRIDGE STATE POLLUTION CONTROL BOARD.

TEST REPORT

Ref. No. STH/TR/22-23/7397(A)	Dt : 27.	●3.2023 Your V	Work Order No. 40002	85087-037-1	019 Dr : 31.0	77.2022
[#] Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhend- 825 321			
[b] Details of Sample			Ambiem Air Quai	lity Monitori	ng (As per NAAQ)	S)
[c] Sample Collected by			SHIVA TEST HO			
[d] Sampling Location			Coffected from Near	at the top of D	M Plant	=
[e] Method of Sampling			IS 5182 (Part-14)			
[f] Sampling Environments	ıl Çondition	-	Temp. (°C)	26	Humidity (%)	52
[g] No. & Type of Containe	!r		One poly Jar			
[h] [nstrument ID			RDS-2, FPM-2			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[i] Sample Code			A-7397			
[k] Sample Condition on Re	eceipt		Fit for Analysis			
[I] Items required to be test			As per contract			
[m] Whether any specific M been suggested by the particular partic		st bos	No .			
[n] Date of receiving the sai	mple		19.03.23			
[o] Analysis Start Date / An	alysis Com	pletion Date	19.03.23/ 22.03.23			
Parameters	Unit	Limit as per	Method of		ng Stalion / Res	
		NAAQS 2009	Test .	Near at	the top of DM Pi	se t
1. Carbon Monoxide (CO)	mg/m³	. 4	IS 5182 (Part-10)	0.34		
2. Benzene (CaHL)	μg/m³	5,	IS 5182 (Part-11)	0.19		
	3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12) 0.17		
4. Arsenic (As)	4. Arsenic (As) ng / m³ 6			AAS Method 0.17		
5. Nickel as Ni	ng / m³	20	AAS Method 4.40			•
6 Mercury (Hg)	ng /.m³	Not Specified	US EPA (Method 10-5)		0.20	

Clared State State

Pains Acquire Colony Pains Acquire Colony Pains Acquire Colony Pains Acquire Colony Pains Acquire Colon Pa

SHIBESHW SHBESHWAR PRASAD Date: 2023 01-27
AR PRASAD Date: 2023 01-27

Verified by : Technical Manager Shreyasee Prasad Ofgirally signed by Shroyasee Prasad Dage: 2023:03.27 13:33:28 +05'50'

Authorized Signatory
Quality Manager

END OF TEST REPORT -

Links problem

This report applies only to sample tested as above.

Total Liability of our Laboratory is smalled to involved emount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without unities permission of the Laboratory.

Contact us:

122-C. Aastin, Road No. SA, Pagiputre Colony, Patria - 800 013 (Billian)

Mob., +912676836249 ; +919431047908 Email situates | @pratico co en ; info@shit-antol com

Website: www.shrvarest.com; www.shivatesthouse.com

Page 1 of 1

ragerop





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEPCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT (986, DERTT. OF BIOLISTRY, FORESTS & BIOLINGIAN, GOVT. OF BRIAN AND BRIAN STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref.	No. STH/TR/22-23/7535	Dt: 18.03.:	2023 Your Work	Order No. 4000285067	-037-1019 Dr : 31.07.2022		
[å]	Name and address of the	Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
ē	Details of Sample			Ambiera Air Quality !	Hankoring (As per NAAQS)		
[0]	Sample Collected by			SHIVA TEST HOUS	E on 22 03 23		
[4]	Sampling Location			Collected from Near at	the top of DM Plant		
[¢]	Method of Sampling			IS 5182 (Part-14)			
(f)	Sampling Environmental	Condition		Temp. (°C)	28 Humidity (%) 52		
[8]	No. & Type of Container	•		One poly Jan	·		
[h]	Instrument ID			ROS-3, FPM-3			
.D.	_ Sample Quantity			30 ml x 6 for each (I	NOz, SOz, NHJ)		
ij.	\$ample Code			A-7535			
[k]	Sample Condition on Re	<u>ceipt</u>		Fit for Analysis			
[1]	Items required to be teste			As per contract			
[m]	Whether any specific Me been suggested by the pa		st has	No			
ľ	Date of receiving the san	nple		23,03,23			
[0]	Analysis Start Date / Ana	ilysis Com	pletion Date	23.03.23/26.03.23			
•	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant		
1.	Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	74,3		
	articulate Matter (PM _{2.6})	μ g / m³	8i0	CPCB (GMAAP Vol. I)	35.4		
3.: 5	ulphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2) 11,3			
4. N	ttrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6) 36.5			
	ead (Pb)	h@ / m³	1	IS 5182 (Part-22) 0.10			
6. A	mmonia as NH ₅	μg / m³	400	IS 5182 (Part-5) 10.7			
7. Q	zone (O ₃)	μg/m³	. 180	IS 5182 (Part-9)	27:9		

STATE OF THE PROPERTY BAPTA MINE IN SEC. WE SHOULD SEE SEC.

> SHIBESHW Supplement to SHIBESHW A SHIBESHWAR PRASAD AR PRASAD DING JULIOEN

> > Verified by : Technical Manager



Prasad

Shreyasee Presad Date 2023,03,28 13:52:25 +05'30'.

Authorized Signatory **Quality Manager**

This report applies only to sample tested as above.

Total Liability of our Laboratory is implied to invoceed greeont.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or fulf for legal/court purpose without uniting permissible of the Laboratory

Contact us:

122-C. Astilia, Road No. 5A, Philiputa Colony, Patris - 800 013 (Biliau).

Mob.: +91\$676\$\$6249 ; +919431047908 Entel : Shotted @vahoo.co.in ; info@shivatest.com

Website , www.shrvatist.com , www.shlvates0idesc.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA. UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7535(A)	Dt.: 28.	03. 202 3 Your Y	Work Order No. 40002	85067-037	-1 019 Dt: 31	.07.2022	
[a] Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample			Ambient Air Qual	ity Monitor	ring (As per NAA)	X 9	
[c] Sample Collected by			SHIVA TEST HO				
[d] Sampling Location			Collected from Near	ai the top of	DH Flord		
[e] Method of Sampling	•		IS 5182 (Part-14)				
[f] Sampling Environments	l Condition		Temp. (°C)	28 -	Humidity (%)	52	
[g] No. & Type of Containe			One poly Jar				
[h] Instrument ID			RDS-3, FPM-3				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
(j) Sample Code			A-7535				
[k] Sample Condition on Re	ecei <u>pt</u>		Fit for Analysis				
[I] Items required to be test	ed.		As per contract				
[m] Whether any specific M been suggested by the p		st has	No				
[n] Date of receiving the sau			23.03.23				
[o] Analysis Start Date / An		pletion Date	23.03.23/26,03.23	}			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		king Station / Re of the cop of DM I		
Carbon Monoxide (CC)	mg/m³	4	IS 5182 (Part-10)		0.48		
2. Benzene (C ₆ H ₆)	. μg / m³	5	IS 5182 (Part-11)	0.21			
Benzo(a) Pyrene	ng / m³	1 .	(S 6182 (Part-12)				
4. Arsenic (As)	AAS Method 0.31			•			
5. Nicke) as Ni	ng/m³ ng/m³	20	AAS Method 2.93				
6. Mercury (Hg)	ng/m ^a	Not Specified	NA PRO				

Charter Secret Secret Control of Carlos

SHIBESHW Digitally signed by SHIBESHWAR PRASAD Date: 2023-03-28 12:43:16:405:30

Verified by : Technical Manager



Shreyasee Prasad

Quality Manager

- END OF TEST REPORT

This report applies only to sample lested as above.

Total Lightly of our Leboratory is fimiled to invoiced amount.
 Test Report endorsed only the lests and not the product cartificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

172-C, Aastha, Rood No. SA, Pauliputra Colony, Pana - 200 013 (Bihor)

Mcbi. +913676136249 ; +91943 | 047908 | Empil: subjette | Glyshoo.co.m ; mfc.@Shlvatest.com ;

Website : <u>Worm, shivutest, com</u> ; <u>worm shivetesshowse com</u>





(Serving since 1988)

RECOGNISSO AS ENVIRONMENTAL LABORATORY BY MORFOC, GOVT, OF INDIA, UNDER ENARCONMENT (PROTECTION) ACT 1986, DEPTY.
OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7584	De: 28.03	2023 Your Wor	k Order No. 4000285067	7-037-1019 Dt: 31.07.2022		
[a] Name and address of the	: Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Quality N	lonitoring (As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HOUS			
[d] Sampling Location			Collected from Near at t	the top of DM Plans		
[e] Method of Sampling			1S 5182 (Part-14)			
[f] Sampling Environmenta	Condition		Temp. (°C)	29 Humidity (%) 51		
[g] No. & Type of Containe	r	<u> </u>	One poly Jan			
[h] Instrument ID			RDS-2, FPM-2			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-7584			
(k) Sample Condition on Re (i) Items required to be test	ceipt		Fit for Analysis			
		·	As per contract			
[m] Whether any specific Mobies suggested by the po		st has	No ·			
[n] Date of receiving the san	nple .		24.03.23	:		
[o] :: Analysis Start Date / An	alysis Com	pletion Date	24.03.23/ 27.03.23			
Parameters .	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of DM Plant		
1. Particulate Matter (PM ₁₀)	μ g / m³		IS 5182 (Part-23)	72.6		
2. Particulate Matter (PM _{2.5})	hð ∖ m̂₃	- 60	CPCB (GMAAP Vol. I)	34.2		
3. Sulphur Dioxide as SQ ₂	. Sulphur Dioxide as SO ₂ μg / m ³ 80			12.6		
4. Nitrogen Dioxide as NO ₂ μg / m ³ 80			IS 5182 (Part-6) 35.8			
5. Lead (Pb)	μg/m³	i i	IS 5182 (Part-22) 0.07			
 6. Ammonia as NH₃ 	μg/m³·	400	IS 5182 (Part-5)	10.2		
7. Ozone (O ₃)	. μg / m³	180	IS 5182 (Part-9)	26.9		

SHIBESHW Shipteshwan Phasaco AR PRASAD Page: 2023.03.28

Verified by : Technical Manager



The Market

Shreyasee Prasad

Olgitally signed by Ashreyesse Presad Date 2023.03.28 13:55:27 ±05:30* Authorized Signatory

Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

2. Total Lisbeity of our Laboratory is limited to involced amount

3. Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastija, Road No. SA, Palliputra Colony, Penn - 400 013 (Billion)

Mob., +918676386249 , ◆919431047908' Email: <u>silmatan li@enhon co in ; mfc@shlvatest com</u>

Website: www.shiverest.com; www.shiveresthouse.com

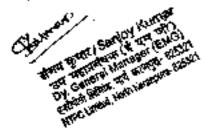


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	STH/TR/22-23/7584(A)	Dt : 28.	03.2023 Your V	Work Order No. 40002	8 506 7-037-1	019 Dt: 31.07.2022	
[a]	Name and address of the	e Customer	•	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[6]	Details of Sample			Ambient Air Qua	ity Monitori	ng (As per NAAQS)	
[¢]	Sample Collected by	•		SHIVA TEST HO			
[4]	Sampling Location			Collected from Near	el the top of D	м Ртан	
	Method of Sampling	:		18 5182 (Part-14)			
(f)	Sampling Environments	d Condition		Temp. (°C)	29	:Humidity (%) 51	
[g]	No. & Type of Containe	.		One poly Jar			
[h]	Instrument ID		_	RDS-2, FPM-2			
[i]	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[†]	Sample Code			A-7384			
[k]	Sample Condition on Re	eceipt		Fit for Analysis			
[1]	Items required to be less	tedi.		As per contract			
[m]	Whether any specific M been suggested by the p		st has	No -			
[n]	Date of receiving the sar			24.03.23			
[0]	Analysis Start Date / Ar		pletion Date	24.03.23/27.03.23			
	Deramataa	Unit.	Limit as per	Method of	Sampl	ng Station / Result	
	Parameters	O/MC	NAAQS 2009	. Test	Near at	the top of DM Plant	
1. Cart	on Monoxide (CO)	.mg/m³	4	IS 5182 (Part-10)		0,57	
2. Ben	zene (C ₆ H ₆)	μg / m³	5 .	IS 5182 (Part-11)			
	3. Benzo(a) Pyrene ng / m². 1			IS 5182 (Part-12) 0;22			
4. Arse	4. Arsenic (As) ng / m³ 6			AAS Method	. :	0.24	
5. Nick	kel as Ni	20	AAS Method	_	4.40		
6. Mer	cury (Hg)	ng/m³	Not Specified	US EPA (Method IO-5)		0.20	



SHIBESHW Cognaty signed by SHIBESHWAR PRASAD DAY: 2023-00-28 12-4-59 -05'30'

Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Streynsee Pressed Date: 2023.03.28 13:55:43:+05'30' Authorized Signstory Quality Manager

END OF TEST REPORT =

This report applies only to sample tested as obove,

Total Liability of our Laboratory is limited to involced amount.

Test Report endorsed only the lasts and not the product certificate.

Test Report can not be reproduced partially or full for legalicours purpose without written permission of the Laboratory

Contact as:

122-C. Assits, Road No. 5A. Pathputts Colony, Pates — 800-0) 3 (Bittis)

Mob. +918676886299; +93943104793\$ Email: sthootnal@vahoo.co.in; inth@shrvatest.com

Website - www.shivstess.com , www.shivstesshouse.com







(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MARFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. l	No. STH/TR/22-23/6918	Dt : 21.0	3.2023 Year W	ork Order No. 40002350				
[a]	Name and address of th	e Customer	:	North Karanpur Project At: Tandwa Dist- Chatra Jharkhand- 825	a Super Thermal Power			
[b]	Details of Sample :				Monitoring (As per NAAQS)			
[c]	Sample Collected by		, :	SHIVA TEST HOUS	SE on 02.03.23			
[d]	Sampling Location	:		- Collected from Near at	the top of Telesari Building (Township)			
[e]	Method of Sampling			IS 5182 (Part-14)				
ſΠ	Sampling Environments	al Condition	h	Temp, (*C)	25 Humidity (%) 54			
[8]	No. & Type of Contains	≑ Γ		One poly Jar				
[h] .	Instrument ID	:	•	RDS-4, FPM-4	4 % " · ·			
[i]	Sample Quantity			30 ml x 6, for each (l	NO2, SO2, NH3)			
Űł	Sample Code			A-6918				
[k]	Sample Condition on R	eceipt		:Fit for Analysis :::				
<u>[D</u>	Items required to be test	(ed		As per contract				
[m]	Whether any specific M been suggested by the p		est has	No				
[ħ]	Date of receiving the sa	mple:	•	03.03.23				
[0]	Analysis Start Date / Ar	ialysis Con	npletion Date	03.03.23/06.03.23				
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi Building (Township)			
1. Pa	rticulate Matter (PM _{10).}	∴ µg / m³	; ∶100	IS 5182 (Part-23)	69.2			
	rticulate Matter M _{2.6})	μg/m³	60	CPCB (GMAAP Vol. (i)	37.8			
3. Su	Iphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	14.0			
4. Nit	rogen Dioxide as NO ₂	μg / m³	80	IS 5182 (Part-6)	. 34.3			
5. Lei	ed (Pb)	μg/m³	. 1	(S 5182 (Part-22)	0.08:			
	monia as NH ₈	μg / m³	400	IS 5182 (Part-5)	5.3			
_	one (O ₃)	μg/m³	180	IS 5182 (Part-9)	21.6			

SHIBESHW SHEES IN AR PRASAD

AR PRASAD BME 2023.08.21

Verified by: Technical Manager



Shreyasee Prasad

Sweyases Presed Coste; 2023 03.21 16:09:03:+05:30*

Authorized Signatory Ouality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Yest Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for regardours purpose without written permission of the Laboratory

Contact us;

122-C, Ağılkı, Rood No. SA, Palliputra Colony, Panto — 800 013 (Bihar)

Mob. +918676486249 ; +919431047908 sthoeinst@vahor.co.in ; info@shrvacest.com ;

Website: www.shivatest.com; www.shivatesthor





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6918(A)	Dt. \$1.	43.2023 Your \	Work Order No. 40002	85067-037	-1019 Dt. 31	.07.2022
(a) Name and address of th	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Quai	lity Monito	ring (As per NAAQ	NS)
[c] Sample Collected by	. <u> </u>		SHIVA TEST HO			
[d] Sampling Location			Collected from Near	at the top of	Tejasavi Bullálug (To	waship)
[e] Method of Sampling			IS 5182 (Part-14)			•
[f] Sampling Environment	al Condition		Temp. (^q C)	25	Humidity (%)	54
[g] No. & Type of Contain			One poly Jer			
(b) Instrument 2D			RD\$-4, FPM-4			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[j] Sample Code			A-6918			
k Sample Condition on R	eceipt		Fit for Analysis			
[1] Items required to be tes	ted		As per contract			
[m] Whether any specific M been suggested by the p		st has	No			
[n] Date of receiving the sa			03.03.23			
[o] Analysis Start Date / A	nalysis Com	pletion Date	03.03.23/06.03.23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near	pling Station / Re at the top of Teja illding (Township	savi
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)		0,34	
2. Benzene (C _a H _a) μg / m³ 5			(S 5182 (Part-11)	0.15		
3. Benzo(a) Pyrene ng / m³ 1			(\$ 5182 (Part-12)	0.16		
4. Arsenic (As)	AAS Method	0.19				
5. Nickel as Ni	ng / m ³	20	AAS Melhod 2,75			
B. Mercury (Hg)	US EPA (Method IO-5) 0.24					

THE CONTROL STATE STATES OF COMMENTS OF CO HTPC Interest National Assessment (1993)

SHIBESHW SHIRESHWAR PRASAD AR PRASAD (0ate: 2023/03:21

Mob. 1918676186249 ; 1919431047908

Verified by : Technical Manager

Patria #800013

- END OF TEST REPORT

Shreyasee Prasad

Degitally signed by Shreyasee Prasad Date: 2023.03.21 16:09:17 +05'30" Authorized Signatory

Quality Manager

This report applies only to sample justed as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us: 122-C, Assika, Road No. SA, Pertipetra Colony, Parci - 800 013 (Biheri

Email: stlestnati-Bysless so in : inthightiestest.com

Websile: www.shrvarest.com; www.shrvaresthouse.com





(Serving since:1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1984, DEPIT.
OF IROUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6980	Dt: 21.03	.2023 · Your Wor	rk Order No. 400028508	7-037-1049 Dt: 31.07/2022			
			North Karanpur	a Super Thermal Power			
· · ·			Project				
[a] Name and address of the	c Customer		At: Tandwa				
	٠: .		Dist- Chatra				
			Jharkhand- 825				
[b] Details of Sample				Monitoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location				this top of Tolosovi Building (Township)			
[e] : Method of Sampling	<u> </u>		 IS 51\$2 (Part-14) 	·			
[f] Sampling Environments		n	Temp. (PC):	26 Humidity (%) 52			
[g] No. & Type of Contains	ar .		One poly Jar				
[h] Instrument ID			RDS-4, FPM-4				
(i) Sample Quantity		•	30 ml x 8 for each	(NO ₂ , SO ₂ , NH ₂)			
[j] Sample Code			A-6980				
[k] Sample Condition on Re	tocapt		Fit for Analysis				
[i] Items required to be test	ed		As per contract				
(m) Whether any specific M	ethod of To	est has	No				
been suggested by the p	arty'		No				
[n] Date of receiving the sa			04.03.23				
[o] Analysis Start Date / Ar	ralysis Con	pletion Date	04.09.23/07.03.23				
•		Limit as per	Method of	Sampling Station / Result			
Parameters	Unit :	NAAQS 2009	Test	Near at the top of Tejasavi Building (Tewnship)			
1. Particulate Matter (PM ₁₀)	μg / m³	100	18 5182 (Part-23)	75.4			
Particulate Matter (PM ₂₅)	μg / m³ :	60	CPCB (GMAAP Vol. I)	40.6			
3. Sulphur Dioxide as SO ₂ pg/m ³ 80			IS 5182 (Part-2) 13.7				
4. Nitrogen Dioxide as NO₂ μg / m³ 80			IS 5182 (Part-6) 33.8				
5. Lead (Pb)	μg/m³	1	IS 5182 (Part-22) 0.09				
6. Ammonia as NH ₃	μg / m³	400	IS 5182 (Part-5)	. 7.7			
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	22.2			

Charles while Sacion Kurren an membrase (\$ tra off) Dy. Ganara Manager (ELAG) white point, and manager (ESS) wheelman has been an essential wheelman has been an essential

SHIBESHW Digitally signed by SHIBESHWAR PRASAD Date: 2023.03.21

Verified by : Technical Manager



Shreyasee

Prasad

Authorized Signatory - Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced smount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without writing permission of the Laboratory.

Contact us:

122-C, Aasthe, Road No. SA., Pattiputta Colony, Patris - 800 013 (Ether)

Mob.: +918676(\$86249): +919431047908 Estati. stheses 1/25/2000 co.in ; (hfs/d/shlv/sest.com

Website: www.shivbtex.com _ www.shivstexbetise.com

C. 3 / 200



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY, OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6980(A)	Dt : 21	.03. 2423 Your	Work Order No. 40002	85067-037-	1019 Dt. 31.00	7.2022			
[a] Name and address of th	Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample			Ambient Air Qual	ity Monitor	ing (As per NAAOS	}			
[c] Sample Collected by .			SHIVA TEST HO						
[d] Sampling Location			Collected from Near	at the sop of T	ejasavi Building (Town	ship)			
[e] Method of Sampling			1S 5182 (Part-14)		<u> </u>				
[f] Sampling Environment:	al Condition		Temp. (⁰ C)	26	Humidity (%)	52			
[g] No. & Type of Contains			One poly Jar						
[h] Instrument ID		•	RDS-4, FPM-4						
(i) Sample Quantity		•	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)						
[j] Sample Code			A-6980						
[k] Sample Condition on Re	eceipt		Fit for Analysis						
[I] Items required to be tes			As per contract						
[m] Whether any specific M been suggested by the p		st has	No						
[n] Date of receiving the sa			04.03.23						
[o] Analysis Start Date / Ar		pletion Date	04.03.23/07.03.23						
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	, Near a	ing Station / Resu 4 the top of Tejasa Ming (Towaship)				
 Carbon Monoxide (CO) 	mg/m³	+	IS 5182 (Part-10)		0.34				
2. Benzene (C₅H₅)	μg/m³	5	IS 5182 (Part-11)						
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12) 0,19						
4. Arsenic (As) ng / m³ 6			AAS Method 0.17						
Nickelas Ni ng / m³ 20			AAS Method 2.84						
6. Mercury (Hg)	ηg / m³	Not Specified	US EPA (Method IO-5)		0.37				

Charles TERRE Sanloy Kurner

The Terreson (Sanloy Kurner

The Terreson (Sanloy

On General Manager (ENG)

Private Spirit, and Sanler (ENG)

INFO Linked, Manager (ENG)

SHIBESHW Digitally signed by ASHIBESHWARPRASAD DIGITAL TO 125.03.21 AD 15-58[2] A05'30"

Verified by : Technical Manager



Shreyasee Prasad Objectly signed by Streystee Presad / Detg. 7023,0321 16313F+05'30' Authorized Signstory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the lests and not the product cartilicate.

Test Report can not be reproduced partially or full for regulational purpose without written permission of the Laboratory.

Cepteer us:

123-C, Aastha, Road No. 5A, Padiputta Colony, Patria - 400 013 (Bilisar)

Mob., +912676826249 ; +919431047908 Email: <u>subcount d'enhou co.in</u> , <u>entrébule sess</u>.com

Website: www.shivetest.com; www.shivateshowe.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MARFOC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND SMAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7110	Dt.: 21.0	3.2023 Your Wo	ork Order No. 400028506				
[a] Name and address of the	: Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample	·			oritoring (4s per NAAQS)			
[c] Sample Collected by			SHIVA; TEST HOUSI	E on 06.03.23			
[d] Sampling Location			Collected from Near at A	he top of Tejasari Building (Township)			
[e] Method of Sampling _	<u></u>	·	IS 5182 (Part-14)				
[f] Sampling Environments	l Condition		Temp. (%C)	28 Munnidity (%) 52			
[g] No. & Type of Containe	à · .		.One poly Jan				
[h] Instrument ID	٠.		RDS-4, FPM-4	. '			
[i] Sample Quantity			30 m) x 6 for each (N	IO2, SO2, NH3)			
[j] Sample Code	::	,	A-7110				
[k] " Sample Condition on Re	eeipt :	:	Fit for Analysis				
[l] Items required to be test	ed		As per contract				
[m] Whether any specific M been suggested by the p		st haş	No				
[n] Date of receiving the sai			07.03.23				
[o] Analysis Start Date / An			07.03.23/10.03.23	·			
	J. :			Sampling Station / Result			
Parameters	Uniț	Limit as per NAAQS 2009	Method of Test	Near at the top of Tojasavi Building (Township)			
 Particulate Matter (PM₁₀) 	μ́g/m³	100	IS 5182 (Part-23)	70.1			
2. Particulate Matter (PM _{2.8})	μg /:m³	60	CPCB (GMAAP Vol.1):	38.6			
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	14.9			
i. Nitrogen Dioxide as NO ₂ μg / m³ 80			IS 5182 (Part-6) 35.7				
5. Lead (Pb)	μg/m³	1	IS 5182 (Part-22)	0.10			
8. Ammonia as NH ₂	μg//m³:	400	IS 5182 (Part-5)	6.0			
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	23.4			

कर कारा Santoy Kumar कर महामध्या (के एक जी) Dy. General Hanager (EMG) क्रमें के क्रिकेट नार्व कार्यपुर- १५५५२। HTPC LINEAL HOUR KINSHAM EQ. 5.25

SHIBESHW | Digitally signed by SHIBESHWAR PRASAD . AR PRASAD Date: 2023.03.21

.Verified by: Technical Manager



Shreyasee Prasad

Authorized Signatory Quality Manager

END OF TEST REPORT

This report applies only to sample tested as above. Total Liability of our Laboratory is limited to invoced amount.

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory,

Contact us:

1224C, Aastha, Road No. SA, Pathough Colony, Pane - 800 013 (Bilean)

. Mob., +918676886249 , +919431047908

Website www.slimblest.com , www.shivatesthouse.

shuma (@vuhou.co.u. ; jn/o@shrvaten.eo.



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MCEFCC, GOVE, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BEHAR AND BHAR STATE POLICITION CONTROL BOARD

test report

Ref. N	o. STH/TR/22-23/7110(A)	Dt : 21.0	13.2023 Your W	Vark Order No. 400028				
[a]	Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321						
[b]	Details of Sample			Ambient Air Qual	ity Monite	ring (As per NAAQ	S)	
[c]	Sample Collected by			SHIVA TEST HO				
[6]	Sampling Location			Collected from Near	et the rep of	Tejasani Butiding (Tox	wesleip)	
[e]	Method of Sampling			IS 5182 (Part-14)		•		
[1]	Sampling Environment	al Condition		Temp. (°C)	28	Humidity (%)	52	
[g]	No. & Type of Contains			One poly Jar	•	• • • • • • • • • • • • • • • • • • • •	•	
[h]	Instrument ID			RDS-4, FPM-4				
(i)	Sample Quantity			30 ml x 6 for each	(NO ₂ , SC) ₂ , NH ₃)		
ÜL	Sample Code			A-7110				
[k]	Sample Condition on R	eceipt.		Fit for Analysis				
<u>m</u>	Items required to be test			As per contract				
(m)	Whether any specific M been suggested by the p		st has	No				
[n]	Date of receiving the sa		-	07.03.23				
[6]	Analysis Start Date / Ar	nalysis Com	pletion Date	07.03.23/10.03.23				
	Parameters	Unjt	Limit as per NAAQS 2009	Method of Test	Near	pling Station / Res at the top of Tejus ailding (Township)	องวั	
1. Ca	rbon Monoxide (CO)	mg/m³	4	(\$ 5182 (Part-10)	0.46			
	плене (СьНь)	μg/m³	5	(\$ 5182 (Part-11)				
3. Benzo(a) Pyrene ng / m³ 1			(S 5182 (Part-12):					
4. Arsenic (As) ng / m³ 6			AAS Method	1				
5. Ni c	kel as Ni	AAS Method 4.13						
6. M e	roury (Hg)	ng/m³	Not Specified	US EPA (Method (O-5)		0.22		

Ment Spart Spart (Surrent of Chief)

Dy. Carrieral Manager (EMG)

Period Spart of Spart of Chief

Period Spart of Chief

Per NTPC Limited, North Name Parts 675 121

> $SHIBESHW^{1}_{\Lambda SHBESHWARPRASAD}$ AR PRASAD Date 2023.05.21

> > Verified by : Technical Monager



Prasad

Shreyasee Shreyasee Pracad Date: 2023.03.21 16:23:55 +05'30"

Authorized Signatory Quality Manager

END OF TEST REPORT -

This report applies only to sample tested as above,

Total Liability of our Laboratory is firnled to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or fell for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C. Aastha, Road No. SA. Patliputra Colony, Patris – 800 013 (Bahar)

Mob. +918676886249 , +919431047908

phone l'arrabo co.m ; info@shivatest com

Website : www.shibutest.com , www.shibusesticuse.com

A 100 11 11 11





(Serving state 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MCEFCC, GOVE, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1965, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/12-23/7117	Dt : 21,83.3	023 Your Work	Order No. 4000285067-0	037-101	9 . Dt : 31.0	7.2022		
(a) Name and address of the	Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample : :			Ambient Air Quality M		ng (As per NAAOS)			
[c] Sample Collected by			SHIVA TEST HOUS					
[d] Sampling Location	:		Collected from Near at t	he top of	Tejetavi Building (7	овизаци)		
[e] Method of Sampling			IS 5182 (Part-14)					
	Sampling Environmental Condition				Humidity (%)	52		
	No. & Type of Commissor					:		
h] Instrument ID			One poly Jar RDS-4, FPM-4					
i) Sample Quantity			30 ml x 6 for each	(NO₂, i	SO ₂ , NH ₃)			
j) Sample Code			A-7117	•		•		
k] Sample Condition on Re	ceip?	"-	Fit for Analysis					
 Items required to be teste 	xd kd		As per contract					
m) Whether any specific Me been suggested by the pa		x has	No					
n] Date of receiving the san			08.03 23					
o] Analysis Start Date / Ana	dysis Com	pletion Date	08.03.23/11.03.23					
Parameters	Uniț	Limit as per NAAQS 2009	Method of Test	Ne	mpling Station / ar at the top of T	ejasavi		
1. Particulate Matter (PM ₁₀)	un (m²	100	IS 6192 (Deet 22)		Building (Towns	ы ф)		
es occada e martes (r milo) .	μg / m³	100	IS 5182 (Part-23)		74.9			
2. Particulate Matter (PM _{2.5})	μ g <i>l</i> m³	60	CPCB. (GMAAP Vol. I)		39.3			
 Sulphur Dioxide as SO₂ 	_ μ g / m³ :	80	IS 5182 (Part-2)		14.4			
. Nitrogen Dioxide as NO ₂ μg / m ³ 80			IS 5182 (Part-6) 34.2					
i. Lead (Pb)	μ g / m³	1	IS 5182 (Part-22)		. 0.09			
. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)		6.9			
7. Ozorie (Q ₃)	μg / m³	180	IS 5182 (Part-9)		21.6	: .		

and Mark Sanjoy Kumar Dy General Nonester (SMG) ASSESSED THE PROPERTY CONTRACTOR MIPG LINES HOTE SALVANT POSTS

SHIBESHW Olgitally signed by SHIBESHWAR PRASAD

AR PRASAD Date: 2023.03.21

Verified by : Technical Manager



END OF TEST REPORT --

Prasad

Shreyasee Shreyasee Prasad Oate 2023,03,21 16:26:08 +05'30'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involced amount.

Test Pieport endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C. Assite. Road Ng. SA. Paliperts Colony, Paus - 800-013 (Bihar)

Mob., +918676886249 , +91943104790\$ Empet: sthown a lich value of in (in 600) stanvares, com

Website: .www.shirmest.com; ; www.shirmestbouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MICEFCC, GOVT, OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1906, DEPTE OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-13/7117	(A) Dt : 21.	.03.2023 Your \	Work Order No. 40002	85067-037-1019 Dt: 31.07.2022		
[a] Name and address of	the Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Qua	lity Monitoring (As per NAAQS)		
[c] Sample Collected by	1		SHIVA TEST HO	USE on 07.03.23		
[d] Sampling Location			Collected from Near	at the top of Telasavi Building (Township)		
[e] Method of Sampling			IS 5182 (Part-14)			
[f] Sampling Environme			Temp. (°C)	26 Humidity (%) 52		
[g] No. & Type of Conta	niner		One poly Jar	· · · · · · · · · · · · · · · · · · ·		
[h] Instrument ID			RDS-4, FPM-4			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₆)			
[] Sample Code			A-7117			
[k] Sample Condition or	Receipt		Fit for Analysis			
[1] Items required to be	tested		As per contract			
[m] Whether any specific been suggested by the		st has	No			
[n] Date of receiving the			08.03.23			
[o] Analysis Start Date /	Applysis Com	pletion Date	08.03.23/11.03.2	23		
			Method of	Sampling Station / Result		
Parameters	Unit	Limit as per NAAQS 2009	Melinod of Test	Near at the top of Tejasavi		
		NAACS 2009	1 631	Building (Township)		
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	0.46		
2. Benzene (C ₆ H ₆)	µg/m³	5	IS 5182 (Part-11)	0.19		
3. Benzo(a) Pyrene ng / m³ 1		IS 5182 (Part-12) 0.19				
4. Arsenic (As)				0.18		
5. Nickel as Ni				1.42		
6. Mercury (Hg)	ng / m³	Not Specified	US EPA (Melhod IO-5)	0.17		

Sanjoy Kurrat Sanjoy Kurrat Sanjoy Kurrat Sanjoy (Sanjoy (Sanjo) Sanjoy (Sanjoy (S ALLAC PARAMETER PRINCIPAL ROOMS

> SHIBESHW | District segred by SHIBESHWARPRASAD AR PRASAD Dene 2021/09/21

> > Verified by : Technical Manager



Prasad

Shreyasee | Digitally signed by | .Date: 2023.03.21 16/26/22 +06/30

Authorized Signatory Quality Manager

- END OF TEST REPORT -This report applies only to sample tested as above,

Total Listing of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product cartificate.

Test Report can not be reproduced partially or full for inguitions purpose without written permission of the Laboratory.

Contáct as :

122-C, Aastha, Road No. SA, Patisputra Colory, Petro - 900-013 (Biltar)

Mob : +918676886249 ; +91943104790\$ sthuttta hiikuhoo.co.m ; info@shirotest.com

Website www.shlvntest.com; www.shlvntesthouss.com







(Serving since 1988)

RECOGNISED AS EDIVIRONMENTAL L'ABORATORY BY MOÉFCE, GOVT, OF INDIA, L'HIDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT.
OF NIDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7370	Di: 27.0	3.2023 Your Wo	ork Order No. 400028506	7-037-1019 Dt : 31.07.2022			
(a) Name and address of th	e.Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
(b) Details of Sample				lonitoring (As per NAAQS)			
[c] Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location			Collected from Near at t	he top of Tejasari Building (Township)			
[e] Method of Sampling	. :		19 3182 (Part-14)				
(f) Sampling Environment	al Condition	: .	Temp. (⁰€)	26 Humfdity (%) 58			
g) No & Type of Containe		· · · · ·	One poly Jan				
[h] Instrument LD:	:: ::	. :	ROS-1, FPM-1	· · · · ·			
[i] Sample Quantity			30 ml x 6 for each (N	102, SO2, NH3)			
[j] Sample Code	.:		A-7370				
(k) Sample Condition on Re	eceipt	. ·	Fit for Analysis				
[1] Items required to be less	led		As per contract				
(m) Whether any specific M been suggested by the p		st has	No				
[n] Date of receiving the sa			18.03.23				
[o] Analysis Start Date / Ar	alysis Com	pletion Date .	18.03.23/20.03.23	:			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi Building (Tewnship)			
Particulate Matter (PM ₁₀)	μ g / m³	100	IS 5182 (Part-23)	70.8			
2. Particulate Matter (PM ₂₆)	μg/ m³	60	CPCB (GMAAP Vol. I)	39.1			
3. Sulphur Dioxide as SO ₂	μg / m³	: 80	IS 5182 (Part-2)	15.2			
4. Nitrogen Dioxide as NO ₂ .	. μg / m³	80	(S 5182 (Part-6)	36.2			
5. Lead (Pb)	μg/m³	1 :.	(S 5182 (Part-22)	0.09			
6. Ammonia as NH ₃	μ g / m³	: 400	(S 5182 (Part-5)	: 6:6			
7. Ozone (O ₃)	μ g / m³	180	IS 5182 (Part-9)	18.5			

Cy Senter Senting (Carrier School)

Of Content Manager (Carrier School)

Of Content Manager (Carrier School)

Of Content Manager (Carrier School)

SHIBESHW | Digitally signed by SHIBESHWAR PROSAD DATE: 2023-03-27 AR PRASAD DATE: 51:28-109/30

Verified by : Technical Manager



Shreyasee 7 Prasad

Digitally signed by Shreyasee Prasad Date: 2023.03.27 13:31:46 +05'30'

Authorized Signatory
Quality Manager

END OF TEST REPORT

This report applies only to sample leated as above.

Total Linkility of our Laboratory is limited to invoiced amount.
 Test Report endurand only the tests and not the product certificate.

. Test Report can not be reproduced particity or full for legal/court purpose without written permission of the Laboratory.

Contact us:

1224G, Aasthe, Road No. SA, Pathiputra Colony, Pance - 400 013 (Bäter)

Mob.: +913676236249 ; +919431047908 Epunit - <u>stimettu kiikvalvon co in</u> ; <u>infreiiski vätta kom</u>

Website: www.shivetest.com; www.shiveteithione.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF SHAR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No.	STH/TR/22-23/7370(A)	Dt: 27.0	13.2023 Your V	iork Order No. 400021	85067-037-1	1 019 Dt : 31.	07.2022	
[4]	Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand• 825 321				
Ы	Details of Sample			Ambient Air Qua	lity Monitor	ing (As per NAAG	25)	
[c]	Sample Collected by		•	SHIVA TEST HO				
ΙďΙ	Sampling Location			Collected from Near	at the top of ?	ejesavi Bullding (To	wuskip)	
[e]	Method of Sampling			IS 5182 (Part-14)				
ឲ្យ	Sampling Environments	d Condition		Temp. (°C)	26	Hurnidity (%)	68	
[8]	No. & Type of Containe			One poly Jar				
[h]	Instrument ID			ROS-1, FPM-1				
(i)	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
ti)	Sample Code			A-7370				
[k]	Sample Condition on Re	eceipt		Fit for Analysis				
[1]	Items required to be test	ted		As per contract				
[m]	Whether any specific M been suggested by the p		st has	No				
[a]	Date of receiving the sa			18.03.23				
[0]	Analysis Start Date / An		pletion Date	18.03.23/ 20.03.23				
	•		Limit on soc	lillotten el est	Sampl	ing Station / Re	sult	
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test		t the top of Teja lding (Township		
1. Çart	on Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)	. 0.18			
2. Ben	zene (C _s H _s)	μ g / m 3	5	18 5182 (Part-11)	0.13			
3. Bent	3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12)				
	4. Arsenic (As) ng / m ³ 6			AAS Method				
5. Nick	5. Nickel as Ni ng / m³ 20			AAS Method	d 2.75			
6. Merc	cury (Hg)	ng / m³	Not Specified	US EPA (Method Ю-5)		0.16		

Dy General Hampler (EMG) AND THE PROPERTY OF THE PARTY O MTPC Library Horse but the business business

> SHIBESHW A Makeship signed by Ashessawar Prusap AR PRASAD 125 69 + 0530

> > Verified by: Technical Manager



Shreyasee Prasad

Oigitally signed by Shrayasae Prasad Day: 2023.03.27 13:32:05 +05'30' Authorized Signatory

Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or he for legal/court purpose without written permission of the Laboratory.

Contact us:

177-C. Aastha, Koad No. SA, Pathputra Colony, Patria – 800 Q13 (Bilian)

Mob.: +918676886249 , +919431047908 sthorna havshoo.co.in ; info@shnotest.com

Website: www.shirages.com , www.shiragesticuse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MICEPCC, GOVT. OF MOTA, UNDER ENVIRONMENT (PROTECTION) ACT 1968, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BOLAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7399	Dt: 17.83	.2023 Your Wo	k Otder No. 400028508			
[a] Name and address of the Customer			North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample		•	Ambient Air Quality I	Honitoring (As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HOUS			
[4] Sampling Location			Collected from Near at	the top of Tejasari Building (Township)		
[e] Method of Sampling			IS 5182 (Part-14)			
[f] Sampling Environment	tal Conditio	n	Teimp. (°C)	26 Humidity (%) 52		
[g] No. & Type of Contain	er		One poly Jar	· .		
[h] Instrument ID			RDS-1, FPM-1			
[i] Sample Quantity			30 ml x 6 for each	(NO_{2}, SO_{2}, NH_{b}) \vdots \cdot \cdot \cdot		
[j] Sample Code			A-7399			
[k] Sample Condition on F	teceipt		Fit for Analysis			
[1] Items required to be tes	sted		As per contract			
[m] Whether any specific N been suggested by the		est has	No			
[n] Date of receiving the a			19.03.23			
[o] Analysis Start Date / A	nalysis Con	apletion Dete	18.03.23/22.03.23			
		Limit as per	Method of	Sampling Station / Result		
Parameters	Unit	NAAQS 2009	Test	Near at the top of Tejnsavi Building (Township)		
1. Particulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	73.2		
 Particulate Matter (PM_{2,6}) 	μg / m ³	60	CPCB (GMAAP Vol. I)	37.6		
3. Sulphur Dioxide as SO ₂	μg / m³	80	IS 5182 (Part-2)	15.8		
4. Nitrogen Dioxide as NO ₂	μg / m³	.90	IS 5182 (Part-6)	32.5		
5. Lead (Pb)	μg / m³	1 .	IS 5182 (Part-22)	0.09		
6. Ammonia as NH₃	μg/m³	400	18 5182 (Part-5)	6.7		
7. Ozone (Q ₃)	μg/m³	180	IS 5182 (Part-9)	24.6		

Garden Marie of (E) AND THE REAL PROPERTY. MTPC Linders, Model Funds shows a Complete

SHIBESHW | Digitally signed by | SHIBESHWAR PRASAD AR PRASAD Date: 2023.03.27 1256:24 +05'30'

Verified by : Technical Manager



- END OF TEST REPORT.

Prasad

Shreyasee) Shreyasse Project BME 2023.03.27 13 34:27 +05'30"

> Authorized Signatory · Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is landed to aveoload amount.

Test Report endorsed only like tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Road No. 5A, Patliputra Colony, Panta - 200 (1)3 (Baker).

Mob. +918676#86249 .+9194310N79081 Silvana l Gradece co in ; info@shirmlest com

Website: www.shrvatesr.com; www.shrvatesthouse.com

A Later

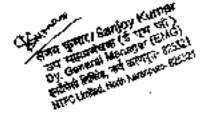


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTY, OF INDIATRY, FORESTS & ENVIRONMENT, GOVT. OF BRIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7399(A) Dt : 27.	.03.2 02 3 Your V	Work Order No. 400028					
[a] Name and address of the	Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample					ing (As per NAA()S)			
[c] Sample Collected by			SHIVA TEST HOU					
[d] Sampling Location					cjarani Building (Township)			
[e] Method of Sampling			IS 5182 (Part-14)					
[f] Sampling Environment	al Condition		Temp. (°C)	26	Humidity (%) 52			
[g] No. & Type of Contain	er	_	One poly Jar					
[h] Instrument ID			RDS-1, FPM-1					
[i] Sample Quantity		•	30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)					
[j] Sample Code			A-7399					
[k] Sample Condition on P	sceipt		Fit for Analysis					
[1] Items required to be tes	ted		As per contract					
[m] Whether any specific N been suggested by the		st hax	No					
[n] Date of receiving the si			19.03.23					
[o] Analysis Start Date / A	nalysis Com	pletion Dare	19.03.23/22.03.23					
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Neur 2	ing Station / Result the top of Tejasavi Iding (Tewnship)			
1. Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)		0,34			
2. Benzene (C ₈ H ₆)	μg / m ³	5	IS 5182 (Part-11) 0.18					
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12) . 0.21					
4. Arsenic (As) ng / m³ 6			AAS Method 0.17					
s. Nickelas Ni ng / m ³ 20			AAS Method 2.84					
8. Mercury (Hg)	ng / m³	Not Specified	US EPA (Mothod KI-5)		0.25			



SHIBESHW | Digitally digited by SHIBESHWAR PRASAD | Date: 2023;03:27 | Date: 405:90

Verified by : Technical Manager



END OF TEST REPORT

Shreyasee Prasad Digitally signed by Ashreyason Presad
Bete: 2023.03.27
13:35:56 +09/30*

Authorized Signatory
Quality Manager

This report applies only to sample lested as above.

2. Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legalicount purpose without written permission of the Laboratory.

Contact as:

122-C, Aastha, Road No. SA, Pathipuers Colony, Panez - 300 b13 (Bijher)

Mob : +918676886249 ; +919451047905 Email : sripsinal@yebox.co in , leito@ebreares.com

Website: prove shiretest.com; www.shiretesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MICEFOC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DIGHTT. OF INDUSTRY, FORESTS & BIVIROWHENT, GOVT, OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref.	No. STH/TR/22-23/7537	Dt: 28.0	3.2023 Your Wo	ork Order No. 40002850			
(a)	Name and address of th	e Ĉusto me r	•	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[ь]	Details of Sample		-		Monitoring (As per NAAQS)		
[c]	Sample Collected by			SHIVA TEST HOUS			
[4]	Sampling Location			Collected from Near as	the top of Tejasavi Building (Township)		
[¢]	Method of Sampling			IS 5182 (Part-14)	·		
[6]	Sampling Environments	d Condition	n	Temp. (⁴C)	28 Humidity (%) 52		
[g]	No. & Type of Contains			One poly Jar			
h	Instrument ID			ROS-1, FPM-1			
.[i].	Sample Quantity			30 ml x 6 for each (NO _{2.} SO _{2.} NH ₃)		
[تا	Sample Code			A-7537			
[k]	Sample Condition on Re	eceipt		Fit for Analysis			
'n	Items required to be test	ted		As per contract			
[m]	Whether any specific M been suggested by the p		est has	No .			
[n]	Date of receiving the sa			23.03.23			
[0]	Analysis Start Date / Ar	alysis Con	npletion Date	23.03.23/26.03.23			
			Limit as per	Method of	Sampling Station / Result		
	Parameters	Unit	NAAQS 2009	Test ·	Near at the top of Tejasavi Building (Township)		
f. Pa	rticulate Matter (PM ₁₀)	μg / m ³	100	IS 5182 (Part-23)	67.7		
	rticulate Matter M _{2.5})	μg / m³	60	CPCB (GMAAP Vol. I)	36.3		
3. Su	Iphur Dioxide as SO ₂	μ g / m³	80	IS 5182 (Part-2)	17.6		
4. Nit	4. Nitrogen Dioxide as NO ₂ μg / m³ 80			IS 5182 (Part-6) 34.2			
5. Le	ad (Pb)	μg/m³	1	IS 5182 (Part-22)	0.12		
6. An	nmonia as NH ₃	μ g / m i³	400	18 5182 (Part-5)	5.8		
7. Oz	one (Os)	μġ/m³	18Q	IS 5182 (Part-9)	23,1		

St. Milliante (4) ALTONOMY STATE STA HTPC Language March Action Programme Committee

SHIBESHW Olgstally signed by SHIBESHWAR PRASAD D.Gate. 2023.03.28 12:43:49 +05'30"

> Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyasee Prased Gage: 2028.03.28 13:53:18 +05'30" Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liebility of our Laboratory is limited to involved amount.

Tool Report endorsed only the tests and not the product certificate. Test Report can not be reproduced pertitily or full for legal/court purpose without written permission of the Laboratory.

Conduct us:

123-C, Aastha, Road No. SA, Padipura Colony, Pana - \$00 013 (Bihar)

Mob.: +918676236249 ; +91943 | 047908 salmaceal @coateo co un : info@shivaceal com

Website: www.thivatest.com; www.shiv.nesthouse.com



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY, OF INDIA, UNDER CONTROL BOARD OF INDIA, UNDER CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7537(A)	Dt: 28.0	3.2023 Your W	ork Order No. 400028	5067-037-	1019 Dt : 31.4	97.2022
(a) Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b] Details of Sample		_	Ambient Äir Quali	ty Monitor	ing (As per NAAC	(S)
[c] Sample Collected by	•		SHIVA TEST HOU			·
[d] Sampling Location			Collected from Near a	t the top of 2	ejesevi Bulleting (To	ensteljo)
[e] Method of Sampling			IS 5182 (Part-14)			
[f] Sampling Environments	d Condition		Temp. (°C)	28	Humicity (%)	62
[g] No. & Type of Contains	a		One poly Jar			
[h] Instrument (D			RDS-1, FPM-1			
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₂)			
[j] Sample Code :			A-7537			
[k] Sample Condition on R	eceipt		Fit for Analysis			
[J] Items required to be test			As per contract			
 (m) Whether any specific M been suggested by the p 		st has	No			
[n] Date of receiving the sa			23.03.23			
[o] Analysis Start Date / Ar	nalysis Com	pletion Date	23.03.23/ 26.03.23			:
	Γ'	Limit as per	Method of	Samp	ling Station / Red	sult"
Parameters	Unit	NAAQS 2009	Test		it the top of Teja: Iding (Township	
Carbon Monoxide (CO)	mg/m³	. 4	IS 5182 (Part-10)		0.57	٠.
2. Benzene (CuHu)	μg / m³	5	IS 5182 (Part-11) 0.20			
3. Benzo(a) Pyrene ng / m³ 1			IS-5182 (Part-12) 0.23			
4. Arsenic (As)	AAS Method 0.24					
5. Nickel as Ni	ng / m³	20	AAS Method 4.26			
8. Mercury (Hg)	ng / m²	Not Specified	US EPA (Welhed (O-5)		0.29	

CAME SAIR SONON KURNER

ON GENERAL MELENING (E.M.)

ON GENERAL MELENING (E.M.)

HTP: Carred Man Sonon (E.M.)

HTP: Carred Man Sonon (E.M.)

SHIBESHW | Clostally algred by SHIBESHWAR PRASAD Date: 2023.03.03.26

Verified by : Technical Manager



Shreyasee Prasad

) | Edghady skyradiky Stragonau | Tanad | -Char: Hychith 20 (345-5) | 405-57

Authorized Signatory

Quality Manager

- END OF TEST REPORT -

1. This report applies only to sample tested as above.

2. Total Liability of our Laboratory is limited to involced amount.

Teet Report endorsed only the lests and not the product certificate.

. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact to :

122-C, Asistha, Read No. SA, Pallapuera Colony, Panea — 800 013 (Bihar)

Mob.: +918676886249; +919401047994 Email: sthretrat@veheo.on.in; info@divatest.com

Website: serve shirietest.com; seven shirutesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7586	Dt: 28.05	.2023 Your Wo	rk Order No. 400028506	7-037-1019 Dt : 31.07.2022			
[a] Name and address of the	ne Custome	r	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample .				donitoring (As per NAAQS). :			
[c] Sample Collected by			SHIVA TEST HOUS				
[d] Sampling Location			Collected from New at	the top of Tojasavi Bullding (Tovuship)			
[e] Method of Sampling			18 5182 (Part-14)	• • • • • • • • • • • • • • • • • • • •			
[e] Method of Sampling [f] Sampling Environment	al Conditio	<u>in</u>	Temp. (⁰C)	29 Hurridity (%) 51			
[g] No. & Type of Contain	ĊT .		One poly Jan				
[h] Instrument ID		·	: RDS-1, FPM-1				
(i) Sample Quantity			30 ml x 6 for each	(NO ₂ , SO ₂ , NH ₃)			
(j) Sample Code	:		A-7586				
[k] Sample Condition on R	eccipt		Fit for Analysis				
[f] Items required to be tes			As per contract				
[m] Whether any specific N been suggested by the p		est has	No -				
[n] Date of receiving the sa			24 03 23				
[o] Analysis Start Date /.A	naiysis Cor	npletion Date	24.03.23/27.03.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Tejasavi Building (Township)			
1. Particulațe Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	65.5			
 Particulate Matter (PM₂₅) 	μg / m³	60 ^{:.}	CPCB (GMAAP Vol. I)	34.2			
3. Sulphur Dioxide as SO ₂	μg / m³	80 :	IS 5182 (Part-2)	16.5			
4. Nitrogen Dioxide as NO ₂	μg / m ³	80	IS 5182 (Part-6)	35.1			
5. Lead (Pb)	μg / m³	1	IS 5182 (Part-22)	0.16			
6. Ammonia as NH ₂	μg / m³	400	IS 5182 (Part-5)	6.2			
7. Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	24.3			

Andread House Little

SHIBESHW Digitally signed by SHIBESHWAR PRASAD AR PRASAD Dots 2023 01 28 12:45:37 405:30"

> Verified by : Technical Monager



Shreyasee Prasad

Digitally signed by Shreyasee Pirasad Cute. 2023.03.28 1356.37 +05'30' Authorized Signatory Quality Manager

This report applies only to earnpie tested as above.

Total Liability of our Laboratory is limited to involved amount.

Test Report endorsed only the years and not the product certificant.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

123-C, Aastha, Road No. SA, Palilputta Colony, Patra = 200 0)3 (Behar)

Mob.: +9[8670830249 ; +9[943]047908

Website: www.shirvnest.cism; green shirvnesshouse.com



Page 1 of 1:



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT, OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7586(A)	Dt: 28.	03.2 0 23 Your Y	Vork Order No. 40002					
[a] Name and address of th	Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample					ing (As per NAAQS) ·		
[c] Sample Collected by			SHIVA TEST HO	USE on 23.0	13.23			
[d]. Sampling Location			Collected from Near	at the top of T	ejasavi Bullaing (Tom	nak(p)		
[e] Method of Sampling			IS 5182 (Part-14)		<u> </u>			
[f] Sampling Environments	d Condition		Terrip. (°C)	29	Humdity (%)	51		
[g] No. & Type of Contains			One poly Jan	· .				
[h] Instrument ID			ROS-1, FPM-1					
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)					
(j) Sample Code	-		A-7586					
[k] Sample Condition on Re	ecelpt .		Fit for Analysis					
[I] Items required to be test	ted		As per contract					
(m) Whether any specific M been suggested by the p		st has	No					
[n] Date of receiving the sa			24.03.23					
[o] Analysis Start Date / Ar	ndysis Com	piction Date	24.03.23/27.03,2	23	: -			
		Limil as per	Method of		ing Station / Res			
Parameters	Unk	NAAQS 2009	Test :		t the top of Tejas: iding (Township)			
1. Carbon Monoxide (CC)	mg/m³	4 -	IS 5182 (Part-10)		0.34			
2. Benzene (C _d H ₆)	μg/m³	5	(\$ 5182 (Part-11) 0.22					
3. Benzo(a) Pyrene	IS 5182 (Part-12) 0.21							
4. Arsenic (As)					AAS Method 0.17			
5. Nickél as Ni	ing/m³	20	AAS Method 1.42					
6. Mercury (Hg)	ng/m³	Not Specified	US EPA (Method IO-6)		0.19			

Office and the state of the sta

SHIBESHW Chartally segred by SHIBESHWAR PRASAD BOOK 2023 43 28

Verified by : Technical Manager



Shreyasee Prasad Digitally signed by \SPreyases Proced Duty: 2023-08-28 13.56.56 +08/30*

Authorized Signatory

Quality Manager

- END OF TEST REPORT -

This report applies only to cample tested as above.

Total Liability of our Laboratory is limited to involed amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Austhy, Road No. 5A, Patliputra Colony, Pana – 800 013 (Bihar)

Mob.: +918676886249; +919431047998 Estant: allegation/epistensors on ; links@shrvates.com

Website : www.shiratesr.com : www.shiratesthouse.com

English Attended





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL CARGRATORY BY MORFCC; GOVT, OF MINA, UNDER ENVIRONMENT (PROTECTION) ACT 1906, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BRIAIT AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6915	Dt: 21-0	3.2023 Your Wo	rk, Order No. 400028506	7-037-1019 Dt: 31.07.2022			
(a) Name and address of the	Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chaira Jharkhand: 825 321				
[b] Details of Sample				Honitoring (As per HAAQS)			
[c] Sample Collected by		. : : '	SHIVA TEST HOUS	E on 02.03.23			
[d] Sampling Location			Collected from Near at	the sop of Time Office (klain Plant)			
[e] Method of Sampling	• • • •		- IS 5182 (Part-14)	z i lak a li i i i			
[f] Sampling Environmenta	Condition	·	Temp. (°C)	25 Humidity (%) 54			
[g] No. & Type of Containe	f +.	1	One poly Jar,	:			
(h) Instrument ID:			RDS-2, FPM-2	•			
[i] Sample Quantity			30 ml x 6 for ĕach (f	NO2, SO2, NH3)			
[j] Sample Code	···	· :	A-6915				
[k] Sample Condition on Re			Fit for Analysis				
[f] Items required to be test			. As per contract .				
(m) Whether any specific Me been suggested by the pa		st has	No:- ":.":				
[n] Date of receiving the sar		•	03.03.23				
[0] Analysis Start Date / An	alysis Com	pletion Date	03.03.23/06.03.23				
Parameters	Unit	Limit es per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)			
1. Particulate Matter (PM ₁₀)	iμ g / m³	, 100	IS 5182 (Part-23)	75.1			
2. Particulate Matter (PM _{2.5})	μg / m³	60	CPCB (GMAAP Vol. I)	40.0			
s. Sulphur Dioxide as SO ₂	· μ g / m³	80	IS 5182 (Part-2)	14.2			
4. Nitrogen Dioxide as NO ₂	μg/m³	BÖ	IS 5182 (Part-6)	: 34,8			
5. Lead (Pb)	μg / m³ :	. 1	IS 5182 (Part-22)	: 0.06			
6. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	6.1			
7. Ozone (O ₃)	:μ g / m³	180	IS 5182 (Part-9)	19.7			

SHIBESHW Digitally argined by SHIBESHWAR PRASAD AR PRASAD 15:54-19 +05-30

Verified by : Technical Manager



Prasad

Shreyasee Shreyasee Prasad Date: 2023.03.21 16:04:21 +05'30"

Authorized Signatury Quality Manager ...

END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for logar/court purpose without written parmission of the Laborato

122-C. Assing, Road No. 5A, Padipuire Colony, Pause - 400 013 (Biliar)

Mob.: +913676836249 ; +919431047908 . Epuil :.

Webrite: www.shith/est.com; www.shivatesth





RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, WHOER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF PROUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/6915(A)	Dt : 21.	03. 2023 You V	Nork Order No. 40002	65067-037-1019	Dr. 31,	07,202	
[a] Name and address of th	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra						
			Jharkhand- 82				
[b] Details of Sample			Ambient Air Quai	lity Monitoring (As per NAAQ	<u>so</u>	
[c] Sample Collected by			SHIVA TEST HO				
[d] Sampling Location			Collected from Near	at the top of Time (Office (Main Pla	rte()	
[e] Method of Sampling			IS 5182 (Part-14)				
[f] Sampling Environment	al Condition		Temp. (°C)	25 Ha	umidity (%)	54	
[g] No. & Type of Contain	<u>er</u>		One poly Jár				
[h] Instrument LD			RDS-2, FPM-2				
[i] Sample Quantity			30 ml x 6 for each	1 (NO ₂ , \$0 ₂ , NH	a)		
[j] Sample Code			A-6915				
[k] Sample Condition on R	eceipt		Fit for Analysis				
[1] Items required to be tes	ied		As per contract				
[m] Whether any specific M been suggested by the p		st has	No .				
[n] Date of receiving the sa			03.03.23				
[o] Analysis Start Date / Ar		pletion Date	03.03.23/08.03.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at the (Station / Restop of Time (up Plant)		
Carbon Monoxide (CO)	mg / m³	4	IS 5182 (Part-10)		0.34		
2. Benzene (C ₆ H ₆)	μg / m ³	5	IS 5182 (Part-11)				
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12) 0.21				
e. Arsenic (As) ng / m³ 6			AAS Method 0.19				
s. Nickel as Ni	AAS Method 2,75						
6. Mercury (Hg)	ng / m ³	Not Specified	IN FRA				

TOTAL SERVICE STREET, Mileston Merindan in State of State of the s Digitally signed by SHIBESHWAR PRASAD Dam: 2023.03.21 15:54:41 +05:30

> Verified by : Technical Manager



Prasad

Shreyasee | Digitally signed by Shreyasee Praised .Date: 2023.03.21 16:07:55 +05'30"

> Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact es:

122-C. Aastha, Road No. S.A. Pathapata Colony, Patha - 800 013 (Bilbar)

Mob., +918676886249; +91943104790\$

· Website . www.shipstost.com; www.shipstosthouse.com

<u>sthouteal/signation.co.m : Info@shiveteau.com</u>





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFOC, GOVT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1886, DEPTT. OF HIGHERT, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BIHAR STATE POLLLITION CONTROL BOAAD

TEST REPORT

Ref. N	o. STH/TR/22-23/6977	Dt: 21.03	.2023 Your Wor	k Order No.: 400028504				
(a)	Name and address of the	e Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b]	Details of Sample			Ambient Air Quality	Monitoring (As per NAAQS)			
[0]	Sample Collected by			SHIVA TEST HOU:	SE on 03 03 23			
[d]	Sampling Location			Collected from Near at	the top of Time Office (Main Plant)			
(e)	Method of Sampling.			[S 5182 (Part-14)				
្រា	Sampling Environment	al Condition	П	Temp. (°C)	26 Humidity (%) 52			
[g]	No. & Type of Contains			One poly Jan	:			
[h]	Instrument ID			 RD\$-1, FPM-1 	· :			
[i]	Sample Quantity		•	30 ml x 6 for each (NO2, SO2, NH3)			
[i]	Sample Code			A-6977				
.[k]_	Sample Condition on R	cocipt .		Fit for Analysis				
[1]	Items required to be test			As per contract				
[m]	Whether any specific M been suggested by the p		est has	No				
[n]	Date of receiving the sa			94.03.23				
[0]	Analysis Start Date / Au		npletion Date	04.03.23 / 07.03.23				
	Parameters .	Unit	Limit es per	Method of	Sampling Station / Result Near at the top of Time Office			
			NAAQS 2009	Test	(Main Plant)			
1. Par	rticulate Matter (PM ₁₀)	μg / m³	100	IS 5182 (Part-23)	72,4			
2. Pa	rticulate Matter M ₂₆)	μg/m ³	60	CPCB (GMAAP Vol. I)	39.6			
	(phur Dioxide as SO ₂	jug / m³	80	IS 5192 (Part-2)	13.3			
	rogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6) 33.8				
	ad (Pb)	μg / m³	1 "	IS 5182 (Part-22) 0.12				
	nmonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	· · · 6.9			
	cone (O ₃)	μg/m³	180	IS 5182 (Part-9)	22.6			

STOC LABOUR HOSE HOSE

SHIBESHW A DEGICARY SAPING BY AR PRASAD 040: 2023-03-21

Verified by : - Technical Manager



- END OF TEST REPORT -

Prasad

Shreyasee Shreyasee Presad Date: 2023,03:21 14:09:45 +05'30'

Authorized Signatory Ouality Manager

This report applies only to sample tested as above.

Total Liability of cor Laboratory is limited to invoced amount.

Test Report endorsed only the tests and not the product combate.

Test Report can not be reproduced partially or full for legal/court purpose without written permusion of the Laboratory.

Contact us :

122-C, Aastha, Road No. SA, Poligedya Colony, Patra – 600 013 (Bihar)

Mob.: +918676186249 , +919431047908 schpannad @yahoo.co.in ; imfo@sh-vacesr.com Email:

Website: www.shristost.com : www.shristosthouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVE OF UNDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVE OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

<u>TEST REPORT</u>

Ref, No.	STH/TR/22-23/6977(A)	Dt : 21	.43.2023 Your	Work Order No. 40002	285067-037-10	19 Dt: 31.0	7.2022	
[a]	Name and address of the		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
[b]	Details of Sample			Ambieni Air Quai	lity Monitoring	(As per NAAQS	Ŋ	
[c]	Sample Collected by			SHIVA TEST HO				
[d]	Sampling Location			Collected from Near	at the top of This	Office (Main Plan	K).	
[e]	Method of Sampling			IS 5182 (Part-14)				
<u>[f]</u>	Sampling Environments	I Condition		Temp. (⁰ C)	26	(Humidity (%)	52	
[g]	No. & Type of Containe	:r		One poly Jar	•	•		
[h]	Instrument ID			RDS-1, FPM-1				
[i]	Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
(ii)	Sample Code		•	A-6563				
[k]	Sample Condition on Re	ceipt		Fit for Analysis				
[1]	Items required to be test	ed		As per contract				
[m]	Whether any specific M been suggested by the p		et bas	No				
[n]	Date of receiving the sar			04.03.23				
[0]	Analysis Start Date / An	alysis Com	pletion Date	04.03.23/07.03.23				
			Limit as per	Method of		g Station / Res		
	Parameters	Unit	NAAQS 2009	T est		e top of Time O Isin Plant)	filce	
1. Carb	on Manoxide (CO)	mg/m³	4 '	IS 5182 (Part-10)	0.23			
2 Ben	zene (C _s H _s)	μg/m³	5	IS 5182 (Part-11)				
3. Bent	Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12)				
4. Arse	4. Arsenic (As) ng / m³ 6			AAS Method 0.25				
5. Nick	5. Nickelas Ni ng/m³ 20			AAS Method 1.40				
6. Merc	cury (Hg)	րց/ա	Not Specified	US EPA (Mathed (O-5)		0.21		

SHIBESHW CHIERTHWARPRASAD AR PRASAD 1857/10 +05/80*

Verified by : Technical Manager



Shreyasee ! Prasad

e Olghally signed by Shreyasce Prasad
Deep 2023 03 21
1609:59 +05'30'
Authorized Signatory
Ouglity Manager

END OF TEST REPORT --

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.
 Test Report can not be reproduced partially or full for legalicourt purpose without written permission of the Laboratory.

Page I of 1

Contact us:

122-C, Assika. Road No. SA, Pathiputra Colony, Pana - 800 013 (Bihar)

Mob., +918676486249 , +919431047908 Email: stimeten li@vehoc.co.in ; in fo@deivatest.com

Website: www.shwajesi.com; www.shmaesihouse.com

Market Process





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVE OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1886, DEPTE. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BRIAR STATE POLLUTION CONTROL SOARD

TEST REPORT

Ref. No. STH/TR/22-23/710	7 Dt : 21.03	2023 Your Wo	rk Order No. 40002850			
[a] Name and address of	of the Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample			Ambient Air Quality	Monitoring (As per NAAQS):		
[c] Sample Collected b	y		SHIVA TEST HOU	SE on 06.03.23		
[d] Sampling Location			Collected from Near a	(the top of Time Office (Main Plant)		
[e] Method of Samplin	g		 IS 51\$2 (Part-14) 			
[f] Sampling Environm	ental Conditio	п	Temp. (*C)	28 Humidity (%) 52		
[g] No. & Type of Com			One poly Jár			
[h] Instrument ID			RD\$-2, FPM-2	•		
[i] Sample Quantity			30 ml x 6 for each -	(NO ₂ , SO ₂ , NH ₃)		
[t] Sample Code			A-7207			
[k] <u>Sample Condition</u> of			Fit for Analysis			
[1] Items required to be			As per contract			
[m] Whether any specifi been suggested by t		est has	No			
[n] Date of receiving th			07.03.23			
[o] Analysis Start Date	/ Analysis Con	ipletion Date	07.03.23/ 10.03.23			
•		Limit as per	Method of	Sampling Station / Result		
Parameters	Unit	NAAQS 2009	Test	Near at the top of Time Office (Main Plant)		
1. Particulate Matter (PM-	ω) μg/m³	100	IS 5182 (Part-23)	73.4		
Particulate Matter (PM _{2.6})	μg / m³	60	CPCB (GMAAP Vol. I)	38.7		
3. Sulphur Dioxide as SO ₂ µg / m ³ 80			IS 5182 (Part-2)	12,8		
4. Nitrogen Dioxide as NO ₂ μg / m ³ 80			IS 5182 (Part-6)	33.7		
5. Lead (Pb) μg / m³ 1			IS 5182 (Part-22)	0.07		
8. Ammonia as NH ₃ µg / m ³ 400			I\$ 5182 (Part-5)	5.7		
7. Ozone (O ₃)	μg / m³	180	IS 5182 (Part-9)	20.6		

Gor with the base to the state of the state Can wan Managar SHIBESHW | Digitally signed by SHIBESHWAR PRASAD

AR PRASAD 18-2023-03-21 15:58:39 +05/30

> Verified by : Technical Manager



Shreyasee Prasad

Digitally signed by Shreyatee Prased Dug: 2023.03.21 16/18/12 +05/30 Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to imraced amount.

Test Report endorsed cary the tests and not the product certificate.

Yest Report can not be reproduced partially or All for regal/court purpose without written permission of the Laboratory.

Contact us:

122-C, Aptiba, Road No. SA, Patliputta Colony, Patra - \$00-013 (Bihar)

Mob : 14918676886249 . +919431047908 Email: sthpsinal @vehco.co;in . im@@shreatesi.com -

Website . www.shmalou.com ; www.shmaesthouse.com



RECOGNSED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOVT, OF MOIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7107(A)	Dt: 21.	13.2023 Your V	Work Order No. 48002			.07.2022
[a] Name and address of th	é Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample		·	Ambient Air Qua	lity Monio	oring (As per NAA)) (SS)
[c] Sample Collected by			SHIVA TEST HO	USE on Ø	6.63.23 :	
[d] Sampling Location			Collected from Near	at the top o	Tinu Office (Main Pi	aut)
[e] Method of Sampling			IS 5182 (Part-14)			
[f] Sampling Environment:	al Condition		Temp. (PC).	28	Humidity (%)	52
[g] No. & Type of Contain	er		One poly Jan	·. ·		•
(h) Instroment ID		<u> </u>	RDS-2, FPM-2	•	•	
[i] Sample Quantity			30 ml x 6 for each	h (NO₂, S() _{2,} NH ₃)	
[j] Sample Code			A-7107			
(k) Sample Condition on R	eceipt		Fit for Analysis			
[I] Items required to be test	ted		As per contract			
[m] Whether any specific M been suggested by the p		st has	No			
n Date of receiving the sa	mple		07.03.23			
[o] Analysis Start Date / Ar	nalysis Com	pletion Date	07.03.23/ 10.03.23			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test		pling Station / Re t the top of Time ((Main Plant).	
Carbon Menoxide (CO)	mg/m³	4	IS 5182 (Part-10)	0.23		
2. Benzene (C ₆ H ₆)	<u>да / m³</u>	. 5	IS 5182 (Part-11)	0.11		
Benzo(a) Pyrene ng / m³ . 1			IS 5182 (Part-12)			
4. Arsenic (As) ng / m ³ 6			AAS Method	0.16		
5. Nickel as Ni	AAS Method 1.37					
6. Mercury (Hg)	US EPA (Method (0-5) 0.16					

Grideler Wangage EM STREET STREET, STEET SE PROPERTY HOUSE ENGINEERS SECTION

BESHW (Digitally signed by) SHIBESHWAR PRASAD Daję: 2023.03.21 AR PRASA 15:59:26 +05'30'

Verified by: **Technical Manager**



Shreyasee Prasad

Digitally signed by Shreyasae Pracad Date: 2023.03.21 16(18:58 +05'30' -Authorized Signatory Quality Manager

<u>END OF TEST REPORT</u>

This report applies only to sample tested as above: Total Liability of our Laboratory is limited to invoked amount,

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written parmission of the Laboratory.

Contact us:

122-C, Aastin, Road No. 5A, Pathyanya Colony, Pana - 800-0(3 (Bihar)

Mob.: +918676886249 ; +919431047904 ethoenna lighvahoo.co.m ; unfo@sh-vasesu.com

Welstite: www.shiristest.com; www.shiresesthouse.com





(Serving since 1988)

RECOGNISED AN ENVIRONMENTAL LABORATORY BY MOSECC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1886, DEPTT. OF INDIASTRY, FORESTS & ENVIRONMENT, GOVT. OF BINAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7114	Dt: 20.03.2	1023 Your Work	Order No. 4000285067-			
[a] Name and address of the	: Customer		North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b] Details of Sample	 -			donkoring (As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HOUS			
[d] Sampling Location			Collected from Near at	the top of Time Office (Main Plant)		
[e] Method of Sampling		•	IS \$182 (Part-14)			
[f] Sampling Environmenta	Condition		Temp. (⁰ C)	26 Humidity (%) 52		
[g] No. & Type of Containe			One poly Jar			
[h] Instrument ID			RDS-1, FPM-1	•		
[i] Sample Quantity			30 ml x 6 for each (I	NO2, SOz. NH3)		
[j] Sample Code			A-7114			
[k] Sample Condition on Re	ce <u>ipt</u>		Fit for Analysis			
[1] Hems required to be test			As per contract			
[m] Whether any specific M been suggested by the pa		si has	No			
[n] Date of receiving the sar			08.03.23			
[o] Analysis Start Date / An	alysis Com	pletion Date	08.03.23/11.03.23			
		Limil as per	Method of	Sampling Station / Result		
Parameters	Unit	NAAQS 2009	Test	Neur at the top of Time Office (Main Plant)		
1. Particulate Matter (PM ₁₀).	·μg / m³	1.100	IS 5182 (Part-23)	71,9		
2 Particulate Matter (PM _{2.6})	μ g / m³.	60	CPCB (GMAAP Vol. I)	38.7		
B. Sulphur Dioxide as SO₂ pg / m³ 80		IS 5182 (Part-2)	14.2			
4. Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6) 34.1			
5. Lead (Pb) μg / m ³ 1			(S 5182 (Part-22)	9,13		
6. Ammonia as NH ₃	μg / m³··	400	\$5 5182 (Part-5)	7.1		
7. Ozone (O ₃)	μg/m³	180	IS 5182 (Part-9)	23.2		

Clare of the Control of the Control

SHIBESHW | Dight-My righted by AR PRASAD 16,0206,05'30'

Verified by : Technical Manager



- END OF TEST REPORT-

Shreyasee Prasad

Digestly signed by Sheepscee . Fransi Diges 2020/07/10 18/24/20 449/24

Authorized Signatory

Quality Manager

. This report applies only to sumple tested as above.

2. Total Linklity of our Laboratory is limited to involced percent

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Candial max

122-C. Aasthe, Road No. SA, Padiputra Colony, Putpa = 100 013 (Bihor)

sitesme 144 yahoo oo in , mikatishiyanaa com

Website: www.shivatest.com; www.shivatesthouse.com



RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFICE, GOVT, OF INDIA, LINDER ENVIRONMENT (PROTECTION) ACT 1968, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT, OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7114(A)	Di : 21.	03.2023 Your \	Vork Order No. 40002				
[a] Name and address of the	[a] Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321		
[b] Details of Sample			Ambient Air Qua	lity Monttorin	g (As per NAAQS)		
[c] Sample Collected by	· · · · · · · · · · · · · · · · · · ·		SHIVA TEŞT HÖ				
[d] Sampling Location			Collected from Near	as the top of Tis	ne Office (Main Flans)		
[e] Method of Sampling			IS 5182 (Part-14)				
[f] Sampling Environmenta	I Condition		Temp. (°C)	26	Humidity (%) 62		
[g] No. & Type of Contains	<u> </u>		One poly Jar				
[h] Instrument (D			RDS-1, FPM-1				
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₅)				
[j] Sample Code			A-7334				
[k] Sample Condition on Re	recipt		Fit for Analysis				
[1] Items required to be test	ted		As per contract				
[m] Whether any specific M been suggested by the p		st has	No ·				
[n] Date of receiving the sa		""	08.03.23				
[o] Analysis Start Date / At	alysis Com	pletion Date	08.03.23/11.03.23				
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	NAME OF THE PART OF THE A MINE			
1. Carbon Monoxide (CO)	mg / m³	4 .	IS 5182 (Part-10)	. 0.34			
2. Benzene (C ₆ H ₆) μg / m ³ 5			18 5182 (Part-11)	0.18			
3. Benzo(a) Pyrene ng / m³ 1			(S 5182 (Part-12)	0.16			
4. Arsenic (As) <u>ng / m³</u> 6			AAS Method	0.24			
5. Nickel as NI ng / m ³ 20			AAS Method 2.80				
6, Mercury (Hg)	μg / m²	Not Specified	US EPA (Method IO-5)		0.20		

STATE THE PARTY OF THE STATE OF HIPC LEASE, MAN PARKET PRESE

SHIBESHW & Degitally signed by AR PRASAD Bate 2023 08 21

> Venified by : Technical Manager



Shreyasee Prasad

e (Kilotin 1624 et estate

Paze I of I

Authorized Signatory Quality Manager

- END OF TEST REPORT

This report applies only to eample leated as above,

Total Liability of our Laboratory is limited to involced amount.

Test Phiport endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Eutomitory:

Contact as :

122-C, Aastha, Kood No. 5A, Pelipetra Colcey, Panne - 800 013 (Bihari

Mcb., +918676886249 , +919431047908 Email: ethodinal@vahos.co.in < inf@@daivalest.com

Website: www.shrvatest.com; www.shrvatesthouse.com

Buch Beerley





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEPCC, GOVT, OF INDIA, UNDER BARRONNEHT (PROTECTION) ACT 1986, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOVT: OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref.	No. STH/TR/22-23/7367	Dt: 27.4	3.2023 Your Wo	rk Order No.: 40002859 6	7-037-1018 Dt : 31.07.2022		
		٠.	:	Project	a Super Thermal Power		
[a]	Name and address of the	Customer		At: Tandwa	· -		
	.:	.: •		Dist- Chatra	• • • • • • • • • • • • • • • • • • • •		
				Jharkhand- 825			
Ы	Details of Sample	· · · ·	<u> </u>		Monitoring (As per NAAQS)		
[c]	Sample Collected by			SHIVA TEST HOUS			
[d]	Sampling Location	:	•		the top of Time Office (Main Plant)		
e	Method of Sampling	٠		IS 5182 (Part-14)			
Ŋ	Sampling Environmenta	Condition	. : -	Temp. (^b C)	26 Humidity (%) 56		
[8]	No. & Type of Containe	г		One poly Jar			
h]	Instrument ID			RDS-2, FPM-2	:		
ü	Sample Quantity		::	30 ml x 6 for each (NO2, SO2, NHa)		
il	Sample Code			A-7367			
k]	Sample Condition on Re	cent		Fit for Analysis As per contract No			
[I]	Items required to be test						
[m]	Whether any specific Me been suggested by the pa		st has				
[n]	Date of receiving the san			18.03.23			
0]	Analysis Start Date / An		pletion Date	18.03.23/20.03.23	·		
	Parameters	Unit :	Limit as per NAAQS 2009	Method of :	Sampling Station / Result Near at the top of Time Office (Main Plant)		
ı. Pari	ticulate Matter (PM ₁₀)	μ g / m³	100	IS 5182 (Part-23)	74.0		
. Par	rticulate Malter (PM _{2.0})	μg / m³	60	CPCB (GMAAP Vol. i)	40.0		
Sulphur Dioxide as SO ₂ μg / m ³ 80				IS 5182 (Part-2)	13.3 ji si		
4. Nitrogen Dioxide as NO ₂ μg / m ³ 80				JS 5182 (Part-6)	:. ··· 34.1 :		
Lead (Pb) μg / m³ 1				(S 5182 (Part-22)	0.08		
, Am	monia as NH,	μg / m³	400	IS 5182 (Part-5)	6. 1 .		
. Ozo	one (O ₃)	μg / m³	180	IS 5182 (Part-9)	21.6		

(, Digitally signed by . || SPEESHWAR PRASAD &Hibeshw Date: 2023.03.27

Verifted by : **Technical Manager**



Shreyasee Prasad

Digitally signed by Shreyasee Prasad Date: 2025.08.27 13:50:06 +05'90'

Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Liability of our Laboratory is similed to involved emotion.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legislacourt purpose without written permission of the Laboratory.

Contact us: 122-C. Aastle, Road No. SA, Pattigutta Colony, Patra — 800 013 (Bihar).

Nob.: +91\$6768\$6249 (+919431047908) sthratnal@vahoo.co.in; info@shvatest.com

Website : www.shiveless.com - www.shivelesshouse.com



Page I of 1.



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MCEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, Deptt. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BHAR AND BHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7367(A)	Dt : 27.	03.2423 Your V	Work Order No. 40002	8 50 67-037-40	19 Dt: 31.0	07.2022
(a) Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321					
(b) Details of Sample			Ambiént Air Quai	lity Monttoring	g (As per NAAO)	S)
[c] Sample Collected by			SHIVA TEST HO			
[d] Sampling Location		•	Collected from Near	et the top of That	e Office (Main Ma	ne)
[e] Method of Sampling			IS 5182 (Part-14)			
[f] Sampling Environments	d Condition		Temp. (°C)	26	Humidity (%)	58,
[g] No. & Type of Contains			One poly Jar			
[h] Instrument ID			RDS-2, FPM-2			
[i] Sample Quantity			30 mil x 6 for each	1 (NO ₂ , SO ₂ , N	lH ₂ >	
[j] Sámple Code			A-7362			
[k] Sample Condition on Re	eceipt		Fit for Analysis			
[f] Items required to be test	ed	·	As per contract			
[m] Whether any specific M been suggested by the p		st has	No.			
[n]. Date of receiving the sar	mple		18.03.23			
[o] Analysis Start Date / An	álysis Com	pletion Date	18.03.23/ 20.03.23			
Parameters	Unit	Limit es per NAAQS 2009	Method of Test	Near at th	g Station / Res c top of Time () dain Plant)	
t. Carbon Monoxide (CO)	mg / m³	4	18 5182 (Part-10)	0.34		
2. Berizene (C ₆ H ₆)	_μg/m³	5	IS 5182 (Part-11) 0.10			
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12) . 0.17			
4. Arsenic (As) ng / m³ 6			AAS Method 0.15			
5. Nickel as Ni	AAS Method 2.75					
6. Mercury (Hg)	""-"				0.18	

HIPC HARM

SHIBESHW Country signed by SHIPESHAHAR PAASAD Butte: 2023.03.27 AR PRASAD 1253:19+0530

> Verified by : Technical Manager



Prasad

Shreyasee Shreyasee Prasad Date: 2023-03.27 13:30:27 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is writted to invoiced amount.

Test Report endorsed only the tests and not the product certificale.

Test Report can not be reproduced paretally or full for legislacoun purpose without written permission of the Laboratory.

Contract us:

172-C, Aasthe, Hoad No. SA, Polimetra Colony, Paus - 800 013 (Bihar).

Mob. +918676886749; +919431047948

sthoetus Kötvehoe, on in ; jerfotöski vatesu, oog A Sugar

Website: www.shivmest.com; www.shivmesthouse.com





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOYT, OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTY. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No	STH/TR/22-23/73%	Dt: 27.03	2023 Your Woo	rk Order No. 400028500	57- 0 37-1019	Dt : 31.07.2022
[a]	Name and address of the	e Customer	Г	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321		
[6]	Details of Sample			Ambiém Air Quality		NAAOS)
[c]	Sample Collected by			SHIVA TEST HOU		<u>*</u>
(d)	Sampling Location			Collected from Near a	the top of Time Office	t (Main Plant)
[ci	Method of Sampling	•		IS 5182 (Pert-14)		<u> </u>
[f]	Sampling Environments	d Condition	ń	Temp. (⁰C)	26 Humidi	ly (%) 52
[8]	No. & Type of Contains			One poly Jer		
-[h]	Instrument ID			RDS-1, FPM-1		
[i]	Sample Quantity			30-milx 5 for each (NO ₂ , SO ₂ , NH ₂)		
[i]	Sample Code			A-7396		
[k]	Sample Condition on Re	eceipt		Fit for Analysis		
[1]	Items required to be test	bet		As per contract		
[m]	Whether any specific M been suggested by the p		est has	No ·		
[n] .	Date of receiving the sai			19.03.23		
[9]	Analysis Start Date / Ac	alysis Con	pletion Date	19.03.23/22.03.23		
				Mathad of	Sampling Sta	ition / Result
	Parameters	Unit	Limit as per NAAQS 2009	Method of Test		of Time Office Plant)
1. Parl	iculațe Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	72	.3
2. Par (PN	ticulate Matter	μg / m³	60	CPCB (GMAAP Vol. I)	36	1.3
3. Sul	phur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2)	14	1.7
	ogen Dioxide as NO ₂	μg / m³	80	IS 5182 (Part-6)	33	.5
	d (Pb)	μg / m³	1	IS 5182 (Part-22)	· 0 .	09
	monia as NH₃	μg / m³	400	IS 5182 (Part-5)		4
	ne (O ₃)	μg / m³	180	IS 5182 (Part-9)		1.2

Digitally signed by SHIBESHIWAN PRASAD D.Date 2023.03.27 12:55:05 +06"50"

Verified by :

Technical Manager

Petria 600013

Shreyasee Prasad

Digitally signed by Shreyasee Presed Clarte: 2023,08.27 13:32:40 +05'30'

Authorized Signatory Quality Manager

Page 1 of 1

- END OF TEST REPORT -This report applies only to sample lested as above.

Total Liability of our Laboraisey is limited to invoiced amount.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for tegat/court purpose without written permission of the Laboratory.

*Contact us :

122-C, Aastha, Road No. SA, Parliputta Colony, Petna - 200 013 (Bilian)

Mob.: +918676886249 : +919431047908** <u>stipana i Svenco so m ; intedistrivitta kom</u>

Website: www.shivatest.com; www.shivates@ionic.com

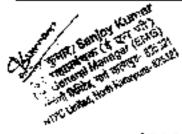


(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF INDIATRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND SHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7396(A)	D1: 27.	03.2023 Your \	Vork Order No. 40002	85067-037-	019 De: 31.0	77.2022			
[a] Name and address of the	Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321				
[b] Details of Sample					ing (As per NAAQ)	5)			
[c] Sample Collected by			SHIVA TEST HO			•			
[d] Sampling Location			Collected from Near	at the top of T	lme Office (Main Plan	m7			
[e] Method of Sampling			IS 5182 (Part-14)						
[f] Sampling Environments	al Condition	_	Temp. (⁰C)	26.	Humidity (%)	52			
[g] No. & Type of Contains					One poly Jar				
[h] Instrument ID			RDS-1, FPM-1						
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , \$O ₂ , NH ₃)						
(j) Sample Code .			A-7396						
[k] Sample Condition on Re	oceipt		Fit for Analysis						
[1] Items required to be test			As per contract .						
[m] Whether any specific M been suggested by the p		st has	No						
[n] Date of receiving the sa		·	19.03 23						
[o] Analysis Start Date / Ar		pletion Date	19.03.23/22.03.23						
Parameters	Únil	Limit as per NAAQS 2009	Method of Test	Near at 1	ing Station / Res the top of Time O (Main Plant)				
 Carbon Monoxide (CO) 	mg / m ³	4	IS 5182 (Part-10)		0.57				
≥ Benzene (C ₆ H ₆)	μg/m³	5	IS 5182 (Part-11)		0,13				
Benzo(a) Pyrene	ng / m³	1 ::	IS 5182 (Part-12)		0.20				
4. Arsenic (As)	ng / m³	6	AAS Method		0.32				
5. Nickel as Ni	ng / m³	20 -	AAS Method		1.40				
6. Mercury (Hg)	μg /ˈm²	Not Specified	US EPA (Method IC-5)		0.28				



SHIBESHW SHIBESHWAR PRASAD PRASAD 1255:16 +06'30'

Verified by : Technical Manager



Shreyasee Prasad Olgillady signed by Shreyware Punted (Paig: 2023,03.27 13:32:56 +05'30'

Authorized Signatory
Quality Manager

- END OF TEST REPORT-

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to invoiced amount:.

Test Report endorsed only the tests and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact as:

173-C, Assite, Road No. 5A. Padiputta Golony, Palos - 900 013 (Bihar).

Mob., +912676826249 ; +919431047998 Email: sticked to visco to at

Website . www.shivanss.com , www.shivateshouse.com

salusano Lubranco co. m ; infesdishi rasest com

#1200 Account

Page I of I





(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MORFCC, GOYT, OF MICH, UNDER ENVIRONMENT (PROTECTION) ACT 1988, DEPTT. OF SIGNATORY, FORESTS & ENVIRONMENT, GOVT, OF BEIAR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7534	Dt : 28,03	.2023 Your Wo	rk Order No. 40<u>002850</u>	57-037-1019 Dt : 31.07-2022	
(a) Name and address of th	e Customer	.::	North Karanpur Project At: Tandwa Dist- Chatra Jharkhand- 825	a Super Thermal Power	
(b) Details of Sample			Ambient Air Quality Monitoring (As per NAAQS)		
[c] Sample Collected by			SHIVA TEST HOU	SE on 22.03.23	
[d] Sampling Location			Collected from New M	the top of Their Office (Main Plant)	
[e] Method of Sampling			IS 5182 (Pan-14)		
[f] Sampling Environment	al Condition		Temp. (%C)	28 Humidity (%) 52	
[g] No. & Type of Contain	д		One poly Jar	: :	
[h] · Instrument JD			RDS-2, FPM-2		
[i] Sample Quantity			30 ml x 6 for each (NO2, 502, NH3)	
[j] Sample Code	•		A-7534		
(k) Sample Condition on R	eceipt		Fit for Analysis		
(f) Items required to be tes	ted		As per contract		
[m] Whether any specific M been suggested by the p		est has	No		
[n] Date of receiving the sa	mple		23.03.23		
[o] Analysis Start Date / Ar	nalysis Con	pletion Date	23.03.23/26:03.23	AMORE ASSESSMENT	
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)	
1. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	69.0	
 Particulate Metter (PM_{2.5}) 	μg/m³	60	CPCB (GMAAP Vol. I):	36.6	
3. Sulphur Dioxide as SO ₂	μg/m³	80,	IS 5182 (Part-2)	13.8	
4. Nitrogen Dioxide as NO ₂	·μg / m³	80	IS 5182 (Part-8)	35.1	
5. Lead (Pb)	μg/m³	. 1	IS 5182 (Part-22)	0.13	
5. Ammonia as NH ₃	μg/m³	400	IS 5182 (Part-5)	8.1	
7. Ozone (Oa)	μg/m³	. 180	IS 5182 (Part-9)	23.2	

SHIBESHW SHIRESHWAR PRASAD AR PRASAD 12:02:14 +05'30'

Verified by : Technical Manager



Shreyasëe Prasad

Digitally signed by Streyasee Prased Date: 2023-03.28 13:51:34 +05'30' Authorized Signatory Quality Manager

This report applies only to sample tested as above.

Total Lieblity of our Leborglory is limited to involced emount

Test Report endorsed only the tests and not the product certificate. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us:

122-C; Ágsmá, Road No. 5A, Patliputta Colony, Patris – 800 013 (Balgir)

Mob.: +91\$6768\$6249 , +919431047908

Website: www.shiveess.com . you while menhance.com

#Pounds Stychoo.co.in ; info@shin###1.com

Page 1 of 1



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF MUNA, UNDER ENVIRONMENT (PROTECTION) ACT 1966, DEPTT. OF MUNICIPAL POLICITION CONTROL BOARD

TEST REPORT

Ref. N	o. STH/TR/22-23/7534(A)	Dt : 28.	03.2023 Your V	Vork Order No. 40002			
[a] Name and address of the Customer				North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321			
[b]	Details of Sample			Ambient Air Qual	ity Monito	ring (As per NAAQ	(S).
[0]	Sample Collected by	•	:	SHIVA TEST HO			
[d]	Sampling Location			Collected from Near	at the top of	Time Office (Majn Pla	MW()
[e]	Method of Sampling			IS 5182 (Part-14)			
[f]	Sampling Environments	I Condition		Temp. (⁰C)	28	Humidity (%)	52
[g] No. & Type of Container				One poly Jan 🔆	·	•	
[h] :	Instrument ID		•	RDS-2, FPM-2			
[6]	Sample Quantity			30 mf x 6 for each (NO ₂ , SO ₂ , NH ₃)			
[i]	Sample Code			A-7534			
[k]	Sample Condition on Re	ecerpt .		Fit for Analysis			
[I]	Items required to be test	ted.		As per contract			
[m]	Whether any specific M been suggested by the p		st has	No 23.03.23 23.03.23/26.03.23			
[D ''	Date of receiving the sa	mple					
[e]	Analysis Start Date / An	ialysis Com	pletion Date				
	Parameters	Unit :	Limit as per NAAQS 2009	Method of Test		pling Station / Red t the top of Time ((Main Plant)	
1. Ca	rbon Monoxide (CO) 🗀	rng / m³	. 4	IS 5182 (Part-10)	•	0.34	•
2. Be	nzene (C ₆ H ₆)	μ g / m 3	. 2	IS 5182 (Part-11)		0.16	
3. Benzo(a) Pyrene ng / m ² 1		(S 5182 (Part-12)	:	0.18			
4. Arsenic (As) ng / m ³ 6		AAS Method		0.24			
	kel as Ni	ng/m³	20	AAS Meithod		2.80	
6. M e	roury (Hg)	ng/m³	Not Specified	US EPA (Method 10-5)	:	0.12	

Charge and Santon Kontrakt

SHIBESHW Digitally signed by SHIBESHWAR PRASAD 12:42:58 +05:30

Verified by : Technical Manager



Shreyasee Prasad

L Digitally signed by
Siveyasee Presed
Date: 2023-03-28
13:52:00 +05'30'
Authorized Signatory

Quality Manager

END OF TEST REPORT -

This report applies only to sample tested as above.

Yotal Limbiley of our Laboratory is firmled to invoiced amount.
 Test Report andorsed only the tests and not the product certificate.

. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Aastha, Road No. 5A, Polliptilira Colony, Pausa — 800 013 (Bihar)

Mob : +918676386249 ; +919431047904 Boyad : sthpstnali@vahoo.co in ; safo@shrvacest.com

Website: www.shinittist.com; www.shimmesthouse.com

Page I of I





(Serving since 1988)

10-46802

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF BIOLETRY, FORESTS & ENVIRONMENT, GOVT. OF BINAR AND BINAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7583	Dt - 28.03	.2023 Your We	rk Order No.: 400028500	57-037-1019 Dt : 31.07.2022	
: [a] Name and address of th	e Customer	r	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321		
[b] Details of Sample				Monttoring (As per NAAQS)	
[c] Sample Collected by			SHIVA TEST HOU		
[d] Sampling Location			Collected from Near at	the top of Time Office (Main Plant)	
[e] Method of Sampling	-		IS 5182 (Part-14)	: • • • • • • • • • • • • • • • • • • •	
[f] Sampling Environment	al Conditio	π	Temp. (⁰ C)	29 Humidity (%) 51	
[g] No. & Type of Contain	द ि .		One poly Jar		
h Instrument LD			RDS-1, FPM-1	·: .	
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)		
[j] Sample Code .			A-7583		
[k] Sample Condition on R	eceipt		Fit for Analysis		
[f] Items required to be tes	ted		As per contract		
[m] Whether any specific Moon suggested by the		est has	No		
[n] Date of receiving the sa			24.03.23		
[o] Analysis Stan Date / A		npletion Date	24.03.23/27.09.23		
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Sampling Station / Result Near at the top of Time Office (Main Plant)	
1. Particulate Matter (PM ₁₀)	μg/m³	100	IS 5182 (Part-23)	88.5	
2. Particulate Malter (PM _{2.5})	μg/m³	60	CPCB (GMAAP Vol. I)	34.5	
3. Sulphur Dioxide as SO ₂	μg/m³	80	IS 5182 (Part-2)	15.1	
4. Nitrogen Dioxide as NO ₂	μg/m³	80	IS 5182 (Part-6)	33.9	
5. Lead (Pb)	μg/m³	1	IS 5182 (Part-22)	. 0:16	
8. Ammonia as NH3	μg/m³	400	IS 5182 (Part-5)	8.6	
7. Ozone (O ₃)	.μg/m³	180	IS 5182 (Part-9)	22.6	

CARREST TOTAL SERVICE SERVICE

SHIBESHW) SHEETSHWAR PRASAD AR PRASAD 12-7424 + 05730

Verified by : Technical Manager



Shreyasee Prasad Oigitally signed by Shreyasee Prasad .0etg: 2023.03.28 13-54.00+05/30* shorted Signature

Page I of I

Authorized Signatory

Quality Monoger

. . . . - END OF TEST REPORT

This report applies only to sample leated as above.

Total Liability of our Laboratory is limited to invoceed amount.

Test Report endorsed only the tests and not the product certificate..

Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us :

122-C, Ansthe Road No. 3A, Pathjeetre Colony, Pance - 800 013 (Buhir)

. Mob.: +918676886249 . •919431047908" Email: : <u>athoritual diverboo.co.in</u> ; <u>info@shivntest.com</u>

Website: www.shirialest.com; www.shiriatesthouse.com

:. .



(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF MINA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF MOUSTRY, FORESTS & ENVIRONMENT, GOYT, OF BRUR AND BRIAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Ref. No. STH/TR/22-23/7583(A) Dt: 28.0	03.2023 Your V	Vork Order No. 400028	36067-037-1	019 Dt : 31.0	7.2022	
[a] Name and address of the	North Karanpura Super Thermal Power Project At: Tandwa Dist- Chatra Jharkhand- 825 321						
[b] Details of Sample					ing (As per NAAQ)	5)	
[c] Sample Collected by	•		SHIVA TEST HO			· .	
[d] Sampling Location			Collected from Near	at the top of T	ime Office (Main Plat	H)	
[e] Method of Sampling			IS 5182 (Part-14)		•		
					Humidity (%)	51	
[g] No. & Type of Contain	One poly Jár						
[h] Instrument ID	RDS-1, FPM-1						
[i] Sample Quantity			30 ml x 6 for each (NO ₂ , SO ₂ , NH ₃)				
[j] Sample Code		•	A-7563				
(k) Sample Condition on R	teceipt		Fit for Analysis				
[1] Items required to be tes	nted _		As per contract				
[m] Whether any specific N been suggested by the p		st has	No				
[n] Date of receiving the sa		•	24.03.23				
[o] Analysis Start Date / A		pletion Date	24.03.23/27.03.2	· ·			
Parameters	Unit	Limit as per NAAQS 2009	Method of Test	Near at	ing Station / Res the top of Time O		
. Ct Mid- (CC)		_	10 5400 (0.4.40)		(Main Plant)		
Carbon Monoxide (CO)	mg/m³	4	IS 5182 (Part-10)			· · .:	
2. Bertzene (C ₆ H ₆) μg / m ³ 5			(\$ 5182 (Part-11)	0.16			
3. Benzo(a) Pyrene ng / m³ 1			IS 5182 (Part-12)		0.20		
4. Arsenic (As) og / m³ 8			AAS Method	0.17			
5. Nickel as Ni ng / m ³ 20			AAS Method		4.20		
6. Mercury (Hg)	µg / m³	Not Specified	US EPA (Method IO-5)		0.20		

Will breed the best of

SHIBESHW SHIBESHWARPIASAD AR PRASAD 150 2023.03.28 12-44(36 +05'30'

Verified by : **Technical Manager**



Shrevasee Prasad

Olymolly signed by Shreyasee Prased Date: 2023.03.28 1355:09 +05'30'

Authorized Signatory Quality Manager

- END OF TEST REPORT -

This report applies only to sample tested as above.

Total Liability of our Laboratory is limited to involced amount Yest Report endorsed only the lesss and not the product certificate.

Test Report can not be reproduced partially or full for legal/court purpose will out written permission of the Leboratory.

Contact us:

122-C, Aastha. Road No. 5A, Pathipetra Colony, Panca - \$00 013 (Balair).

Mob.: +918676236249 . +919431047908 stimetral Grandos co.in : info@shivprest.com

Website: www.shratest.com; www.shratesthouse.c

Page I of I

Final Report

Hydrogeological study around ash dyke, plant site and monitoring of surface and groundwater for NKSTPS (3 X 660 MW)

(Based on Pre and post-monsoon data of 1st and 2nd year of monitoring)

Submitted to

NTPC North Karanpura Super Thermal Power Project

Post: Tandwa, District: Chatra, Jharkhand



Submitted by
Prof. Manoj Kumar Jain (PI)
Prof. Brijesh Kumar Yadav (Co-PI)



DEPARTMENT OF HYDROLOGY

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE ROORKEE (UTTARAKHAND), INDIA JANUARY 2023



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final report Issue date: January 27, 2023

Page: 0

Title Hydrogeological study of area around ash dyke, plant site

and monitoring of surface and ground water for North Karanpura Super Thermal Power Station (3 x 660 MW) of

NTPC

A study conducted by the Department of Hydrology, Indian Institute of Technology Roorkee, Roorkee – 247667

(Uttarakhand)

Client NTPC Limited

Disclaimer While every opportunity has been taken to ensure the

accuracy of the material presented in this document, IIT-R cannot be held responsible for errors or omissions but reserve the right to provide further clarification or

consultation.

Document No. HYD-6007/2020-21/FR

PO reference 5500036701-037-1028

Consultants Prof. Manoj Kumar Jain, Department of Hydrology

Prof. Brijesh K. Yadav, Department of Hydrology

Indian Institute of Technology, Roorkee, Uttarakhand

247667, India

Quality Prof. Manoj Kumar Jain, Department of

Assurance Hydrology

Prof. Brijesh K. Yadav, Department of

Hydrology

Department of Hydrology, Indian Institute of Technology

Roorkee, Roorkee – 247667, Uttarakhand, India

Date 27 January 2023



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report

Issue date: January 27, 2023

Page: 1

EXECUTIVE SUMMARY

THE STUDY AREA

North Karanpura Super Thermal Power Project is located between the Magadh coal block and Garhi river near the village Kamta / Tandwa in the Simaria subdivision of the Chatra district, Jharkhand. at 23°51′02″N, 85°00′44″E. The area surrounding the power plant is fairly levelled and sparsely populated. The surrounding area is mostly a monsoon-fed agricultural area with a single crop. The geographic extent of the study area has been taken as an area within 10 km from the periphery of the project boundary. The study area is covered in Survey of India toposheets 73E/1 & 73A/1.

OBJECTIVES OF THE STUDY

The main objectives of the study consist of the following:

- Identification and delineation of Aquifer geometry and Drainage pattern,
 Watershed of the study area
- 2. Establishment of groundwater level monitoring stations (at a distance of 500 m, 2.0 Km and 5 km from plant site area) and their monitoring on a half-yearly basis.
- 3. Surface water level monitoring using already existing Scale/gauge at Check Dam site of Garhi Nadi monitoring on a half-yearly basis.
- 4. Total 30 Nos of Sampling including surface water and groundwater regime for monitoring of heavy metals on half-yearly basis.
 - a) Local stream (natural drain)- flowing close to the eastern part of proposed ash pond- Upstream and Downstream
 - b) Garhi Nadi- Upstream and Downstream
 - c) Confluence of Local drainage and Garhi Nadi
 - d) Groundwater-Dug-wells, tube-wells/Bore-well/Hand pumps (existed in and around Plant site area).





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report

Issue date: January 27, 2023

Page: 2

- 5. If piezometers are required, location and design and installation of 2 nos. of shallow Piezometers in the dip direction of the Ash Dyke will be provided.
- 6. Hydrogeological Report preparation including Quality monitoring data (frequency-Half yearly).
- 7. Suggest specific remedial measures based upon the monitoring report of water samples for any deterioration observed during the sampling period." unquote

SUMMARY OF THE STUDY

Drainage Pattern and Watershed of the Study Area

The drainage pattern of the study area was studied using Survey of India topographic sheets and satellite data/google earth images of the current year. A Digital Elevation Model (DEM) of the study area was also utilized to study the existing drainage pattern. The drainage network extracted from Survey of India toposheets was compared with recent drainage information derived from DEM and Google earth images/other available satellite images. No significant change in the drainage pattern was noticed. The plant area is drained by the Garhi Nadi, which is a tributary of the Damodar River. The Garhi Nadi is formed after the confluence of Barki Nadi and Chandru Nadi near the north-eastern boundary of the plant. The Garhi Nadi meets the Damodar river at about 5 km south of the project area near the village Kingra.

The watershed of the Garhi Nadi was delineated using SRTM DEM. The confluence of Garhi Nadi with the Damodar River was taken as the outlet of the watershed. The total area of the Garhi watershed at its outlet point at the confluence with the Damodar River is 559.68 km².





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report

Issue date: January 27, 2023

Page: 3

Establishment of groundwater level monitoring stations and their monitoring

The groundwater table was monitored directly in existing open wells and tube wells of the study area during pre-monsoon and post-monsoon seasons using a dipmeter. The water table contour maps of both the seasons of the study area show flow regimes similar to the previous groundwater flow regimes reported in the past. Also, the groundwater contour map of the entire Chatra district during pre- and post-monsoon seasons (2012-13) reported by CGWB shows a comparable groundwater fluctuation pattern with the current observations of the area. This indicates that the dynamic groundwater resources of the study area are not depleted during the past decade because of the plant development in the area. Due to differential groundwater extraction patterns, the groundwater flow pattern seems to change locally during the pre and post-monsoon periods. In general, the groundwater flow follows the surface drainage pattern and flows mostly in the south and southeast direction to the plant.

Surface water level monitoring at Check Dam site of Garhi Nadi

The existing staff gauge was monitored during pre and post-monsoon visits to record the status of stored water in the Check dam. A site photograph showing the staff gauge and water level was taken during each visit, and the same is provided in the report for the record.

Surface water and groundwater monitoring of heavy metals

Surface water and groundwater samples from the plant site and its surrounding areas were collected and brought to the laboratory of IIT Roorkee. The samples were analysed in the Institute Instrumentation centre of IIT Roorkee for monitoring heavy metals. The concentration of heavy metals in the pre and post-monsoon periods in the years 2021 and 2022 were analysed. Some trace metals show variations while comparing





Doc. No. HYD-6007/2020-21/FR

Doc. Type: Final Report Issue date: January 27, 2023

Page: 4

the yearly and seasonal data, such as arsenic (As) and Manganese (Mn). In comparison to the BIS (2012) limit, some traces of Arsenic (As) were reported in the post-monsoon period of 2021; however, in the other periods (pre-monsoon 2021, pre- and post-monsoon 2022), Arsenic was not observed or found within the prescribed BIS (2012) limits for drinking water. The concentration of Mn, Cd, and Pb reduced significantly in post-monsoon period sampling during both years showing the dilution impact. Major cations and anions, on the other hand, were studied before and after the monsoon season, and it was noticed that the majority of the ions were within the BIS permissible limit (2012). Although sulfate, fluoride, and nitrate concentrations were marginally higher in a few samples of the pre-monsoon period of 2021, they appear to be diluted in the post-monsoon period of 2021. A similar pattern was also observed for the year 2022. Overall, the geological formations of the area and the presence of coal mines in the near vicinity of the study area could be the possible reason for the presence of some trace metals in water samples.

No significant change in the water quality parameters is observed in the study area during the pre and post-monsoon seasons of the last two years (i.e. 2021 and 2022). The presence of trace metals like Al and Fe is found in some water samples. Fe was found mainly in the old hand pumps, which seems to be due to rusting of the well cashing. The aggressive purging process reduced the Fe level in these sampling points. Aluminium seems to be high due to the geogenic formation of the area and shall be treated for potable water supply. No deterioration trend is observed from Pre-monsoon 2021 to pre-monsoon 2022 in the area.

Hydrogeology of the Area

The Chatra district's Tandwa region is surrounded by a complicated tectonic structure and a variety of geological formations. The lower and upper Gondwanas comprise the geological formations of carbonaceous shale, sandstone, coal seams, and red clay. Groundwater occurs mostly in





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 5

phreatic conditions in all lithological units of the area and sometimes locally in semiconfined and confined conditions in deeper aquifers.

Specific remedial measures based upon the monitoring report of water samples for any deterioration observed during the sampling period

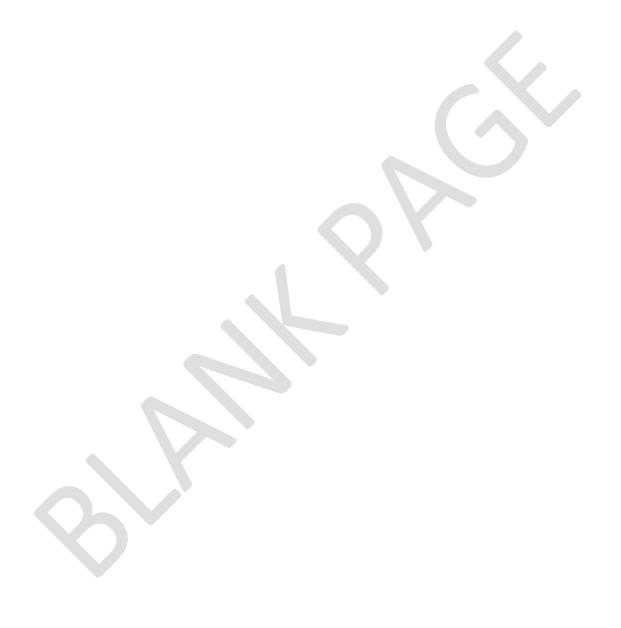
No deterioration trend of the water resources is observed from Pre-monsoon 2021 to post-monsoon 2022 in the area. Some of the sampling sites are observed to have poor maintenance conditions and need to be avoided for further sampling. Trace metals like Al and Fe have been present in some water samples during the last three seasons. An aggressive purging process is required for further monitoring of the area to avoid the possible existence of the Fe in well casings.





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 6







Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 7

Table of Contents

EXE	CUTIVE SUMMARY	1
LIST C	OF TABLES	9
LIST C	OF FIGURES	11
1	INTRODUCTION	13
1.1	North Karanpura Super Thermal Power Project (NKSTPP)	13
1.2	NTPC TERMS OF REFERENCE	14
1.2	.1 Geographical Extent of the Study Area	15
2	Drainage pattern and Watershed of the study area	17
2.1	The drainage pattern of the study area	17
2.2	Watershed area	17
3	IDENTIFICATION AND SELECTION OF MONITORING POINTS	21
4 a h	Establishment of groundwater level monitoring stations and their monitoring alf-yearly basis	_
4.1	Groundwater table monitoring during 1 st year (pre-monsoon 2021)	24
4.2	Groundwater table monitoring during 1 st year (post-monsoon 2021)	25
4.3	Groundwater level monitoring during 2 nd year (pre-monsoon 2022)	27
4.4	Groundwater level monitoring during 2 nd year (post-monsoon 2022)	29
5 site	Surface water level monitoring using already existed Scale/gauge at Check I of Garhi Nadi monitoring on a half-yearly basis	
5.1	Surface water level during pre-monsoon 2021	30
5.2	Surface water level during post-monsoon 2021	31
5.3	Surface water level during pre-monsoon 2022	32
5.4	Surface water level during post-monsoon 2022	33
6 mo	Analysis of water samples including surface water and groundwater regime nitoring of heavy metals on a half-yearly basis	
6.1	Pre-monsoon 2021 water quality results	36
6.2	Post-monsoon 2021 water quality results	41
6.3	Analysis of results of pre and post-monsoon 2021 water quality	46
6.4	Pre-monsoon 2022 water quality results	47





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023
Page: 8

6.5	Post-monsoon 2022 water quality results52
6.6	Overall analysis of results of pre and post monsoon 2021 & 2022 water quality 58
7 for	Specific remedial measures based upon the monitoring report of water samples any deterioration observed during the sampling period
8 are	Identification and delineation of Aquifer geometry, Geological Setup of the study a 60
8.1	Geophysical investigation of the study area62
8.2	Pump and recovery test analysis79
	ndix-A: Photographs of sampling sites around NTPC North Karanpura (Tandwa),





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 9

LIST OF TABLES

TABLE 1. STATUS OF THE POWER STATION AS OF NOVEMBER 2022	13
Table 2. Sampling locations around NTPC North Karanpura plant site	21
Table 3. Groundwater level measured below ground level (BGL) in meters during the pre-monsoon period (.	Jan
2021)	24
Table 4. Groundwater level measured below ground level (BGL) in meters during the post-monsoon period	(Nov
2021)	26
Table 5. Groundwater level measured below ground level (BGL) in meters during the pre-monsoon period (May
8-10, 2022)	28
Table 6. Groundwater level measured below ground level (BGL) in meters during the post-monsoon period	
(SEPTEMBER 22-24, 2022)	29
Table 7. Location of sampling sites for In-situ/Ex-situ during the pre-monsoon period	36
Table 8. Mean values of pH, EC, TDS, DO, and temperature obtained in the water samples from In-situ analy	SIS
DURING THE PRE-MONSOON PERIOD 2021	37
Table $9.M$ ean concentration of elements obtained in the water samples during the pre-monsoon period 202	21
FROM ICP-MS ANALYSIS WITH BIS LIMITS OF IS 10500:2012	39
Table 10. Mean concentration of elements (Chloride, Nitrate, Sulphate, and Fluoride) obtained in the wate	R
SAMPLES DURING THE PRE-MONSOON PERIOD 2021 FROM IC ANALYSIS COMPARED WITH BIS LIMITS OF IS 10500:2	.012
	40
TABLE 11. LOCATION OF SAMPLING SITES FOR IN-SITU/EX-SITU ANALYSES DURING THE POST-MONSOON PERIOD	41
TABLE 12. MEAN VALUES OF PH, EC, TDS, DO, AND TEMPERATURE OBTAINED IN THE WATER SAMPLES FROM IN-SITU ANAL	YSIS
DURING THE POST-MONSOON PERIOD 2021.	42
Table ${f 13.}$ Mean concentration of elements obtained in the water samples during the post-monsoon period ${f 2}$	2021
FROM ICP-MS ANALYSIS WITH BIS LIMITS OF IS 10500:2012	44
Table 14. Mean concentration of elements (Chloride, Nitrate, Sulphate, and Fluoride) obtained in the wate	R
SAMPLES DURING POST-MONSOON PERIOD 2021 FROM IC ANALYSIS COMPARED WITH BIS LIMITS OF IS 10500:201	2.45
Table 15. Location of sampling sites for In-situ/Ex-situ analyses during the post-monsoon period	48
TABLE 16. MEAN VALUES OF PH, EC, TDS, DO, AND TEMPERATURE OBTAINED IN THE WATER SAMPLES FROM IN-SITU ANAL	YSIS
DURING THE PRE-MONSOON PERIOD IN 2022.	49
Table $17.\ Mean$ concentration of elements obtained in the water samples during the pre-monsoon period 20)22
FROM ICP-MS ANALYSIS WITH BIS LIMITS OF IS 10500:2012	50
Table 18. Mean concentration of elements (Chloride, Nitrate, Sulphate, and Fluoride) obtained in the wate	R
SAMPLES DURING PRE-MONSOON PERIOD 2022 FROM IC ANALYSIS COMPARED WITH BIS LIMITS OF IS 10500:2012	51
Table 19. Location of sampling sites for In-situ/Ex-situ analyses during the post-monsoon period (September	R
2022)	54





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023

Page: 10

TABLE 20. MEAN VALUES OF PH, EC, TDS, DO, AND TEMPERATURE OBTAINED IN THE WATER SAMPLES FROM IN-SITU ANALYSIS	;
DURING THE POST-MONSOON PERIOD (SEPTEMBER 2022)	55
TABLE 21. MEAN CONCENTRATION OF ELEMENTS OBTAINED IN THE WATER SAMPLES DURING THE POST-MONSOON PERIOD 2023	2
FROM ICP-MS ANALYSIS WITH BIS LIMITS OF IS 10500:2012	6
Table 22. Mean concentration of elements (Chloride, Nitrate, Sulphate, and Fluoride) obtained in the water	
SAMPLES DURING POST-MONSOON PERIOD 2022 FROM IC ANALYSIS COMPARED WITH BIS LIMITS OF IS 10500:2012. 5	57
TABLE 23. VES LOCATIONS, ALONG WITH THEIR RESPECTIVE COORDINATES	52
Table 24. Field survey data collection from location SJ1	55
TABLE 25. PROBABLE LITHOLOGY BASED ON RESISTIVITY AND LAYER THICKNESS AT SITE SJ1	58
Table 26. Field survey data collection from location SJ2	59
TABLE 27. PROBABLE LITHOLOGY BASED ON RESISTIVITY AND LAYER THICKNESS AT SITE SJ2	1
Table 28. Field survey data collection from location SJ3	12
TABLE 29. PROBABLE LITHOLOGY BASED ON RESISTIVITY AND LAYER THICKNESS AT SITE SJ3	74
Table 30. Field survey data collection from location SJ4	76
TABLE 31. PROBABLE LITHOLOGY BASED ON RESISTIVITY AND LAYER THICKNESS AT SITE SJ4	78





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 11

LIST OF FIGURES

FIGURE 1. INDEX MAP SHOWING THE LOCATION OF NTPC NORTH KARANPURA PLANT
FIGURE 2. THE GEOGRAPHIC EXTENT OF STUDY AREA SHOWN ON SURVEY OF INDIA TOPOSHEETS
Figure 3. The DEM of the area surrounding the NTPC North Karanpura plant site
FIGURE 4. THE DRAINAGE PATTERN OF THE STUDY AREA
Figure 5. Watershed of the Garhi Nadi situated nearby of the plant site
Figure 6. Sampling network used for this investigation for surface and groundwater resources monitoring. $.22$
Figure 7. Groundwater level monitoring stations present in and around the plant site23
Figure $8.$ Groundwater level and flow direction in and around the plant area during pre-monsoon 2021.25
Figure 9. Groundwater level and flow direction in and around the plant area during post-monsoon 2021 27
Figure $10.$ Groundwater level and flow direction in and around the plant area during pre-monsoon $2022 28$
Figure $11.$ Groundwater level and flow direction in and around the plant area during post-monsoon 202230
Figure 12. Site photograph of water level gauge and check dam on January 25, 2021, during the pre-monsoon period (1 st year)
FIGURE 13. SITE PHOTOGRAPH OF WATER LEVEL GAUGE CAPTURED ON NOVEMBER 27, 2021, DURING THE POST-MONSOON
PERIOD (1 st YEAR)
Figure 14. Site photograph of water level gauge captured on May 9, 2022, during the pre-monsoon period (2^{ND}
YEAR)33
FIGURE 15. SITE PHOTOGRAPH OF WATER LEVEL GAUGE CAPTURED ON SEPTEMBER 23, 2022, DURING THE POST-MONSOON
PERIOD (2 ND YEAR)
Figure 16. Map depicting locations of surface and groundwater sampling points
Figure 17. Geological map of Jharkhand (adopted from ismenvis.nic.in)
Figure 18. Geological map of North Karanpurs coalfield
FIGURE 19. POINT LOCATION OF VES SITE AROUND PLANT SITE
Figure 20.The resistivity of the first layer (pa / p1) versus the ratio of the electrode spacing to the thickness of
THE FIRST LAVED (A / 7)
THE FIRST LAYER (A / Z)64
FIGURE 21. LOG SHEET PLOT OF APPARENT RESISTIVITY VERSUS CURRENT ELECTRODE SPACING FOR SITE SJ1
FIGURE 21. LOG SHEET PLOT OF APPARENT RESISTIVITY VERSUS CURRENT ELECTRODE SPACING FOR SITE SJ1
FIGURE 21. LOG SHEET PLOT OF APPARENT RESISTIVITY VERSUS CURRENT ELECTRODE SPACING FOR SITE SJ1
FIGURE 21. LOG SHEET PLOT OF APPARENT RESISTIVITY VERSUS CURRENT ELECTRODE SPACING FOR SITE SJ1
FIGURE 21. LOG SHEET PLOT OF APPARENT RESISTIVITY VERSUS CURRENT ELECTRODE SPACING FOR SITE SJ1
FIGURE 21. LOG SHEET PLOT OF APPARENT RESISTIVITY VERSUS CURRENT ELECTRODE SPACING FOR SITE SJ1
FIGURE 21. LOG SHEET PLOT OF APPARENT RESISTIVITY VERSUS CURRENT ELECTRODE SPACING FOR SITE SJ1





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023
Page: 12

FIGURE 30. LOG SHEET PLOT OF APPARENT RESISTIVITY VERSUS CURRENT ELECTRODE SPACING FOR SITE SJ4	. 77
FIGURE 31. MODEL DERIVED INTERPOLATED LAYER THICKNESS AND RESISTIVITY FOR SITE SJ4	. 77
Figure 32. Stratigraphic representation of site SJ4	. 78
FIGURE 33. PUMPING TEST DATA FOR DETERMINATION OF AQUIFER PARAMETERS	. 80
FIGURE 34. RECOVERY TEST DATA PLOT.	. 81





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 13

1 INTRODUCTION

NTPC Ltd. is a Public Sector Undertaking (PSU) engaged in generating electricity and allied activities. It is the largest power company in India, with an electric power generation capacity of 68,961.68 MW. From fossil fuels, it has forayed into generating electricity via hydro, nuclear and renewable energy sources. NTPC currently operates 51 power stations, including 23 coal based, 7 gas based, 1 hydro, 1 wind, 18 solar, and 1 small hydro plant. Further, it has 9 coal and 4 gas station, 8 hydro-based and 5 renewable energy projects owned by joint ventures or subsidiaries. In May 2010, NTPC was conferred Maharatna status by the Union Government of India.

1.1 North Karanpura Super Thermal Power Project (NKSTPP)

North Karanpura Super Thermal Power Project (NKSTPP) of NTPC Limited is an upcoming coal-based thermal power plant located between the Magadh coal block and Garhi river near the village Kamta / Tandwa in the Simaria subdivision of the Chatra district, Jharkhand. North Karanpura Super Thermal Power Project is located at 23°51′02″N, 85°00′44″E. The area surrounding the power plant is fairly levelled and sparsely populated. The surrounding area is mainly a monsoon-fed agricultural area with a single crop. The planned capacity of the power plant is 1980 MW (3x660 MW). The present status of the power station is given in Table 1.

Table 1. Status of the power station as of November 2022

Stage	Unit Number	Capacity (MW)	Status
1 st	1	660	Synchronized
1 st	2	660	Under construction
1 st	3	660	Under construction





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report

Issue date: January 27, 2023 Page: 14

The NKSTPP is well connected by air, train, and road. The nearest airport Ranchi is 100 km from the plant. The nearest railway station Ray on the Sone Nagar – Daltonganj section of Eastern Railways, is located approximately 20 km away from the power plant. The power plant and township are accessible from NH-33 connecting Hazaribagh and Ranchi. The water requirements of the power plant are met from the dam/reservoir constructed across the Garhi river, a tributary of the Damodar River. The coal requirement for NKSTPP shall be met from the Magadh block of the North Karanpura coal fields of CCL. The coal would be transported from the coal block to the plant through the Pipe Conveyor system.

1.2 NTPC TERMS OF REFERENCE

NTPC has specified the following TOR for the hydrogeological study.

Quote "The Scope of Services shall be "Hydrogeological study of the area around ash dyke and around plant site and monitoring of surface water and groundwater for North Karanpura Super Thermal Power Station (3 \times 660 MW)" which consists of the following

- Identification and delineation of Aquifer geometry and Drainage pattern,
 Watershed of the study area
- 2. Establishment of groundwater level monitoring stations (at a distance of 500 m, 2.0 Km and 5 km from plant site area) and their monitoring on a half-yearly basis.
- 3. Surface water level monitoring using already existing Scale/gauge at Check Dam site of Garhi Nadi monitoring on a half-yearly basis.
- 4. Total 30 Nos of Sampling including surface water and groundwater regime for monitoring of heavy metals on half-yearly basis.
 - e) Local stream (natural drain)- flowing close to the eastern part of proposed ash pond- Upstream and Downstream
 - f) Garhi Nadi- Upstream and Downstream
 - g) Confluence of Local drainage and Garhi Nadi



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 15

- h) Groundwater-Dug-wells, tube-wells/Bore-well/Hand pumps (existed in and around Plant site area).
- 5. If piezometers are required, location and design and installation of 2 nos. of shallow Piezometers in the dip direction of the Ash Dyke will be provided.
- 6. Hydrogeological Report preparation including Quality monitoring data (frequency-Half yearly).
- 7. Suggest specific remedial measures based upon the monitoring report of water samples for any deterioration observed during the sampling period." unquote

1.2.1 Geographical Extent of the Study Area

The geographic extent of the study area shall consist of an area within 10 km from the periphery of the project boundary. Figure 1 shows the index map of the plant location, and Fig 2 shows the 10 km geographic extent of the study area drawn on Survey of India toposheets (73E/1 & 73A/1).

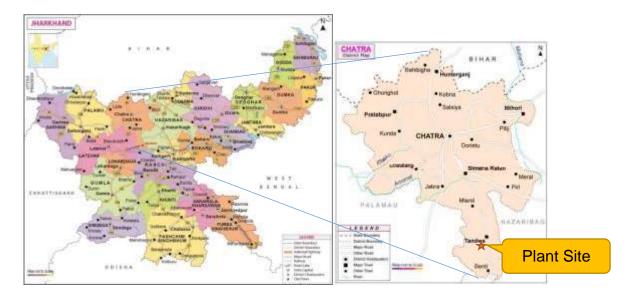


Figure 1. Index map showing the location of NTPC North Karanpura Plant



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 16

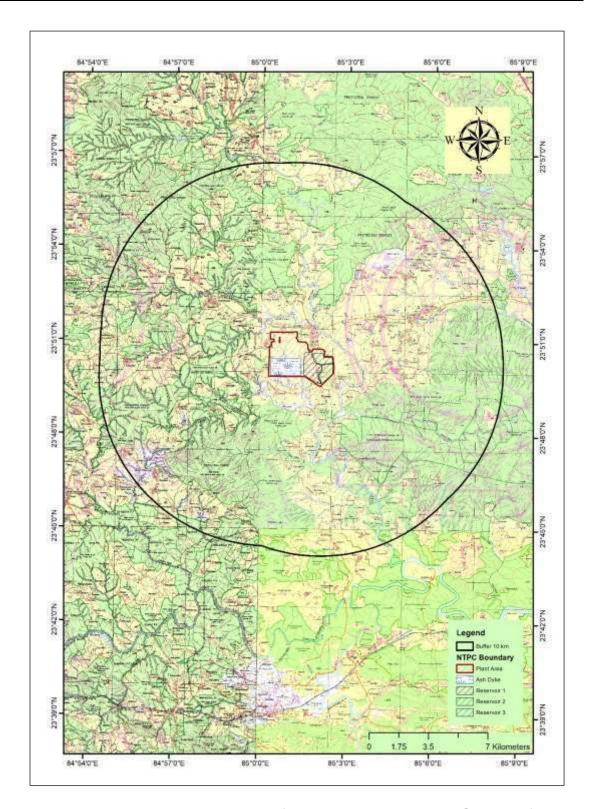


Figure 2. The geographic extent of study area shown on Survey of India toposheets.





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report

Issue date: January 27, 2023

Page: 17

2 Drainage pattern and Watershed of the study area

2.1 The drainage pattern of the study area

The drainage pattern of the study area was studied using Survey of India topographic sheets (shown in Figure 2) and satellite data/google earth images of the current year. A Digital Elevation Model (DEM) of the study area was also utilized to study the existing drainage pattern. A DEM of the area is shown in Figure 3. As shown in Figure 3, the area in the vicinity of NTPC North Karanpura is hilly in its southeast and southwest directions. The eastern side of the plant also has a high elevation. The drainage network extracted from Survey of India toposheets was compared with recent drainage information derived from DEM and Google earth images/other available satellite images. No significant change in the drainage pattern was noticed. The plant area is drained by the Garhi Nadi, which is a tributary of the Damodar River. The Garhi Nadi is formed after the confluence of Barki Nadi and Chandru Nadi near the north-eastern boundary of plant. The drainage pattern of Garhi Nadi within a 10 km radius of the plant boundary is shown in Figure 4. As can be seen from Figure 4, the study area is located about 2 km from the right bank of the Garhi Nadi, and many minor drains originating in and around the study area finally meet the Garhi Nadi at its right bank. The Garhi Nadi meets the Damodar river at about 5 km south of the project area near the village Kingra.

2.2 Watershed area

The Garhi Nadi is the main river draining the area. The watershed of the Garhi Nadi was delineated using SRTM DEM, shown in Figure 3. The confluence of Garhi Nadi with the Damodar River was taken as the outlet of the watershed. The watershed of the Garhi Nadi is shown in Figure 5. The total area of the Garhi watershed at its outlet point at the confluence with the Damodar River is 559.68 km².





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 18

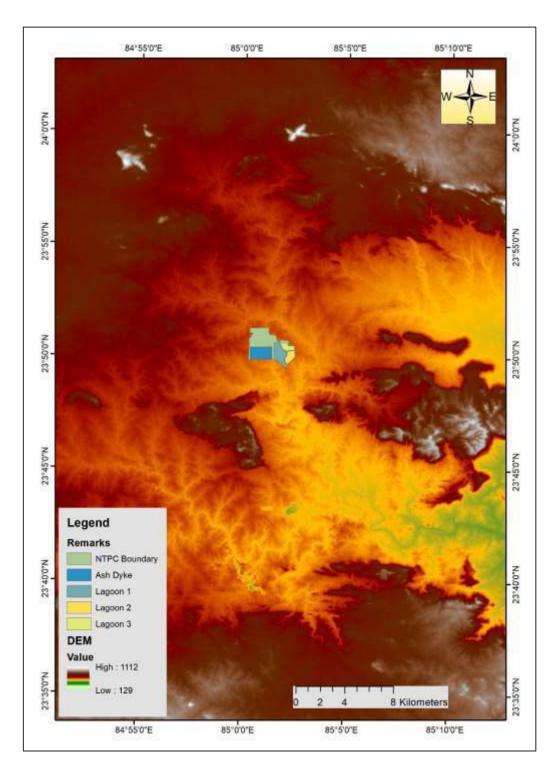


Figure 3. The DEM of the area surrounding the NTPC North Karanpura plant site.



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023 Page: 19

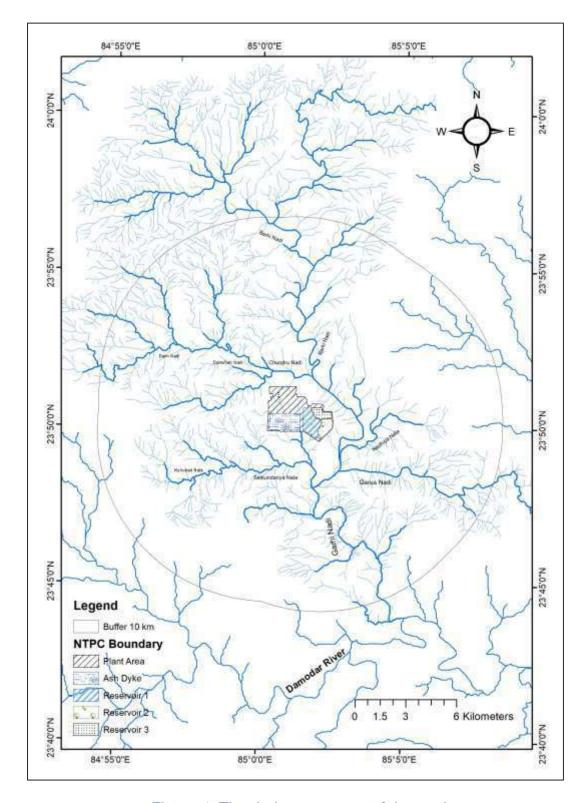


Figure 4. The drainage pattern of the study area





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023 Page: 20

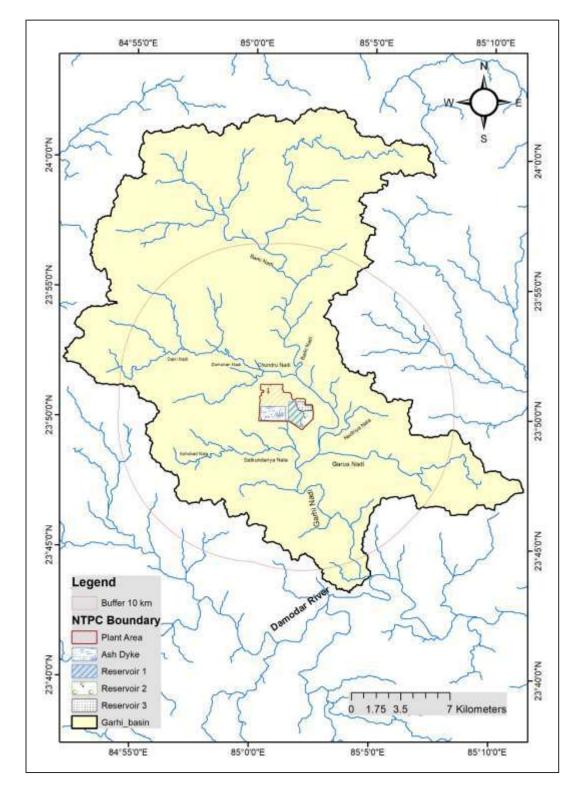


Figure 5. Watershed of the Garhi Nadi situated nearby of the plant site.





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report

Issue date: January 27, 2023

Page: 21

3 IDENTIFICATION AND SELECTION OF MONITORING POINTS

A reconnaissance survey of the NTPC North Karanpura (Tandwa, Jharkhand) plant area, ash dyke, and surrounding area of the plant, including the pumping station at Garhi Nadi, was undertaken. The team identified several observation points for data collection of surface and groundwater. Accordingly, water samples from surface ponds, rivers, open wells, hand pumps, and ash dyke areas were collected from the identified data collection points in and around the plant boundary. Identified sampling points with their locations are given in Table 2. The location of identified observation points is shown on a map in Figure 6.

Table 2. Sampling locations around NTPC North Karanpura plant site

S. No.	Site code	Type of site/location	Latitude	Longitude	Type of Analysis
1	OS-1	Open Well/Raham	23°49'29.46"	85°0'31.86"	In-situ/Water Level
2	OS-2	Hand pump/Raham	23°49'28.68"	85°0'33.66"	In-situ and Ex-situ
3	OS-3	Hot spring/Raham	23°49'16.14"	85°0'16.92"	In-situ and Ex-situ
4	OS-4	Open well/Raham	23°49'30"	85°0'12.96"	Water level
5	OS-5	Open well/Raham	23°49'30.9"	85°0'14.52"	Water level
6	OS-6	Open Well/Kamta	23°51'2.22"	85°0'13.98"	In-situ/Water Level
7	OS-7	NTPC solar pump/ Kamta	23°51′0.00"	85°0'12.48"	In-situ and Ex-situ
8	OS-8	Hand pump/Kamta	23°50'46.86"	85°0'2.88"	In-situ and Ex-situ
9	OS-9	Open Well/Garilaung	23°51'29.7"	85°0'40.98"	In-situ/Water Level
10	OS-10	Tube Well/Garilaung	23°51'29.7"	85°0'40.98"	In-situ and Ex-situ
11	OS-11	Reservoir (site for water level observation).	23° 51′ 18.34″	85° 2' 6.13"	Water Level Gauge
12	OS-12	Garhi River/Tandwa	23°51'24.28"	85° 2'0.10"	Ex-situ
13	OS-13	Tandwa	23°51'10.08"	85°1'56.52"	Water Level
14	OS-14	Garhi River/Kasaha DPS	23°51'53.64"	85° 0'7.17"	In-situ and Ex-situ
15	OS-15	Open Well/Tandwa	23°50'49.92"	85°1'46.74"	In-situ and Ex-situ
16	OS-16	Open Well/Tandwa	23°50'51.54"	85°1'41.82"	In-situ
17	OS-17	Open Well/Tandwa	23°50'45.78"	85°1'46.86"	In-situ
18	OS-18	Inside plant/Tandwa	23°50'54.42"	85°1'33.3"	In-situ/Water Level
19	OS-19	Inside plant/Tandwa	23°50'54.42"	85°1'33.3"	Water Level
20	OS-20	Handpump/Asnatari	23°48' 45.72"	85°1'33.53"	In-situ and Ex-situ
21	OS-21	Handpump	23°47'40.74"	85°1'15.74"	In-situ and Ex-situ
22	OS-22	Handpump	23°46'28.52"	85°1'28.27"	In-situ and Ex-situ
23	OS-23	Garhi River	23°47'24.39"	85°2'35.59"	In-situ and Ex-situ





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023
Page: 22

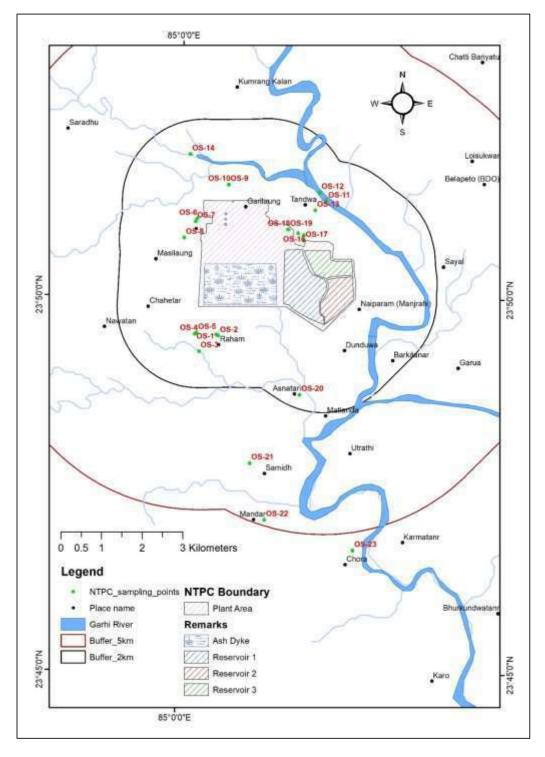


Figure 6. Sampling network used for this investigation for surface and groundwater resources monitoring.



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 23

4 Establishment of groundwater level monitoring stations and their monitoring on a half-yearly basis

The boundary of the plant site area was established on the base map drawn using Survey of India toposheets, and buffer zones at a distance of 2 km and 5 km were established. *Dip directions from the ash dyke area were established*, and the location of water level monitoring stations was identified. The identified locations are marked with codes OS-1, OS-20, and OS-22, located at a distance of 500 m, 2 km and 5 km, respectively, from the power station. The location of identified monitoring stations is shown in Figure 7.

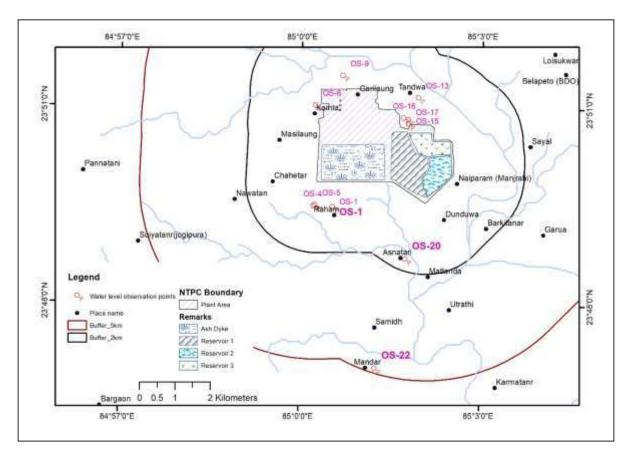


Figure 7. Groundwater level monitoring stations present in and around the plant site.





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 24

4.1 Groundwater table monitoring during 1st year (pre-monsoon 2021)

During the pre-and post-monsoon site visits, groundwater table from various identified locations was observed using a dip meter. The observed groundwater level during the pre-monsoon 2021 period is listed in Table 3. The observed groundwater levels were plotted, and the groundwater flow direction was computed. The observed groundwater table and flow direction for pre-monsoon 2021 are shown in Figure 8. As can be seen from Figure 8, the groundwater flows mainly in the south and south-east direction to the plant.

Table 3. Groundwater level measured below ground level (BGL) in meters during the pre-monsoon period (Jan 2021).

Sr. No.	Name of Site (Location)	Latitude	Longitude	Type of site	Depth in BGL (m)
1	OS-1(Raham)	23°49'29.46"	85°0'31.86"	Open Well	4.60
2	OS-4 (Raham)	23°49'30"	85°0'12.96"	Open Well	5.12
3	OS-5 (Raham)	23°49'30.9"	85°0'14.52"	Open Well	5.52
4	OS-6 (Kamta)	23°51'2.22"	85°0'13.98"	Open Well	9.52
5	OS-9 (Garilaung)	23°51'29.7"	85°0'40.98"	Open Well	5.61
6	OS-13 (Tandwa)	23°51'10.08"	85°1'56.52"	Open Well	0.64
7	OS-15 (Tandwa)	23°50'49.92"	85°1'46.74"	Open Well	0.87
8	OS-16 (Tandwa)	23°50'51.54"	85°1'41.82"	Open Well	3.05
9	OS-17 (Tandwa)	23°50'45.78"	85°1'46.86"	Open Well	4.53
10	OS-18 (Tandwa)	23°50'54.42"	85°1'33.3"	Open Well	1.20
11	OS-19 (Tandwa)	23°50'54.42"	85°1'33.3"	Bore Well	21.59



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 25

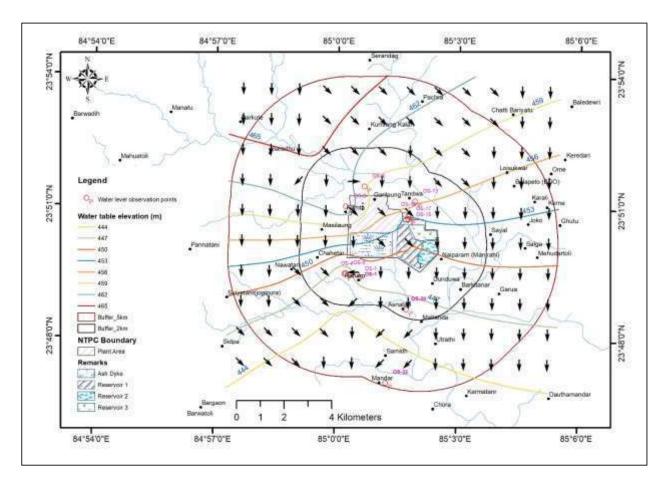


Figure 8. Groundwater level and flow direction in and around the plant area during pre-monsoon 2021.

4.2 Groundwater table monitoring during 1st year (post-monsoon 2021)

A post-monsoon visit during the first year of observation was undertaken during November 2021. The observed groundwater levels in identified wells are listed in Table 4. The observed groundwater levels were plotted, and the groundwater flow direction was computed. The observed groundwater table and flow direction for post-monsoon 2021 is shown in Figure 9. As seen from Figure 9, the groundwater flows mostly south and south-east direction to the plant. The groundwater contour map of the entire Chatra district during pre- and post-monsoon seasons (2012-13) reported by CGWB shows a comparable





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023

Page: 26

groundwater fluctuation pattern with the current observations of the area. This indicates that the dynamic groundwater resources of the study area are not depleted during the past decade because of the plant development in the area. Due to differential groundwater extraction patterns, the groundwater flow pattern seems to change locally during the pre and post-monsoon periods.

Table 4. Groundwater level measured below ground level (BGL) in meters during the post-monsoon period (Nov 2021)

		•	•		
Sr. No.	Name of Site	Latitude	Longitude	Type of	Depth BGL
	(Location)			site	(m)
1	OS-1(Raham)	23°49'29.46"	85°0'31.86"	Open Well	3.46
2	OS-4 (Raham)	23°49'30"	85°0'12.96"	Open Well	2.9
3	OS-5 (Raham)	23°49'30.9"	85°0'14.52"	Open Well	3.4
4	OS-6 (Kamta)	23°51'2.22"	85°0'13.98"	Open Well	5.44
5	OS-9 (Garilaung)	23°51'29.7"	85°0'40.98"	Open Well	3.08
6	OS-13 (Tandwa)	23°51'10.08"	85°1'56.52"	Site skipped	
7	OS-15 (Tandwa)	23°50'49.92"	85°1'46.74"	Open Well	0.76
8	OS-16 (Tandwa)	23°50'51.54"	85°1'41.82"	Open Well	1.75
9	OS-17 (Tandwa)	23°50'45.78"	85°1'46.86"	Open Well	3.62



Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023

Page: 27

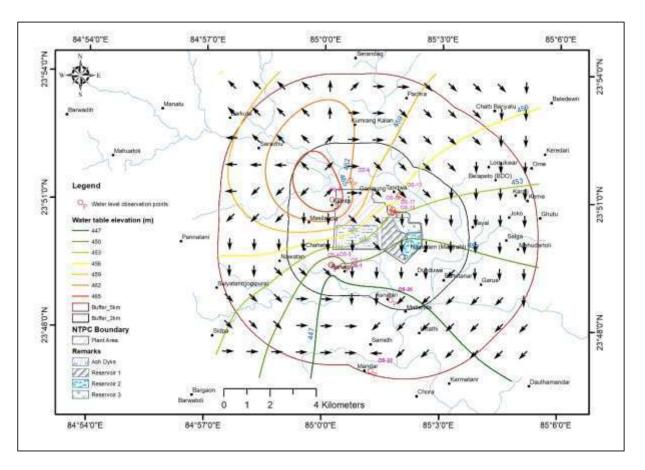


Figure 9. Groundwater level and flow direction in and around the plant area during post-monsoon 2021.

4.3 Groundwater level monitoring during 2nd year (pre-monsoon 2022)

The groundwater level was measured in the identified monitoring points during the pre-monsoon 2022 site visit during May 8-10, 2022. Observed groundwater levels are listed in Table 5. The observed groundwater levels were plotted, and the groundwater flow direction was computed. The observed groundwater table and flow direction for pre-monsoon 2022 is shown in Figure 10. As can be seen from Figure 10, the groundwater flows mostly to the south and south-east direction of the plant, and no significant change has been observed as compared to the groundwater flow regime of the year 2021.





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023
Page: 28

Table 5. Groundwater level measured below ground level (BGL) in meters during the pre-monsoon period (May 8-10, 2022)

Sr. No.	Name of Site (Location)	Latitude	Longitude	Type of site	Ground elevation (m)	Depth BGL (m)
1	OS-1(Raham)	23°49'29.46"	85°0'31.86"	Open Well	453	6.4
2	OS-4 (Raham)	23°49'30"	85°0'12.96"	Open Well	451	6.11
3	OS-5 (Raham)	23°49'30.9"	85°0'14.52"	Open Well	468	1.19
4	OS-6 (Kamta)	23°51'2.22"	85°0'13.98"	Open Well	473	11.55
5	OS-9 (Garilaung)	23°51'29.7"	85°0'40.98"	Open Well	465	5.67
6	OS-13 (Tandwa)	23°51'10.08"	85°1'56.52"	Open well	457	2.4
7	OS-15 (Tandwa)	23°50'49.92"	85°1'46.74"	Open Well	456	2.05
8	OS-16 (Tandwa)	23°50'51.54"	85°1'41.82"	Open Well	457	1.83
9	OS-17 (Tandwa)	23°50'45.78"	85°1'46.86"	Open Well	456	4.17

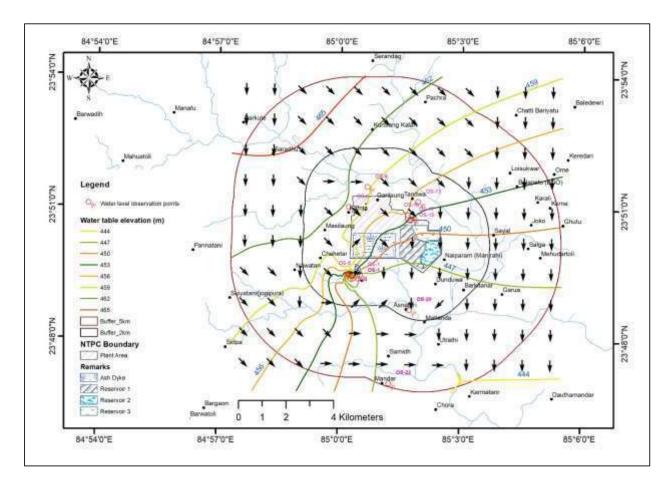


Figure 10. Groundwater level and flow direction in and around the plant area during pre-monsoon 2022.



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 29

4.4 Groundwater level monitoring during 2nd year (post-monsoon 2022)

The groundwater level was measured in the identified monitoring points during the pre-monsoon 2022 site visit during September 22-24, 2022. Observed groundwater levels are listed in Table 6. The observed groundwater levels were plotted, and the groundwater flow direction was computed. The observed groundwater table and flow direction for pre-monsoon 2022 are shown in Figure 11. As can be seen from Figure 11, the groundwater flows mostly to the south and south-east direction of the plant, and no significant change has been observed as compared to the groundwater flow regime of the year 2021.

Table 6. Groundwater level measured below ground level (BGL) in meters during the post-monsoon period (September 22-24, 2022)

Sr.	Name of Site	Latitude	Longitude	Type of	Ground	Depth
No	(Location)			site	elevation (m)	BGL (m)
1	OS-1 (Raham)	23°49'29.46"	85°0'31.86"	Open Well	453	0.85
2	OS-4 (Raham)	23°49'30"	85°0'12.96"	Open Well	451	0.58
3	OS-5 (Raham)	23°49'30.9"	85°0'14.52"	Open Well	468	1.01
4	OS-6 (Kamta)	23°51'2.22"	85°0'13.98"	Open Well	473	0.7
5	OS-9 (Garilaung)	23°51'29.7"	85°0'40.98"	Open Well	465	1.67
6	OS-13 (Tandwa)	23°51'10.08"	85°1'56.52"	Open well	457	0.5
7	OS-15 (Tandwa)	23°50'49.92"	85°1'46.74"	Open Well	456	0.65
8	OS-16 (Tandwa)	23°50'51.54"	85°1'41.82"	Open Well	457	0.3
9	OS-17 (Tandwa)	23°50'45.78"	85°1'46.86"	Open Well	456	2.27
10	OS-19(Inside plant)	23°50'54.42"	85°1'33.3"	Borewell	457	13.75
11	OS-20 (Asnatari)	23°48' 45.72"	85°1'33.528"	Open Well	432	2.37
12	OS-22 (Mandar)	23°46'28.524"	85°1'28.272"	Open Well	442	2





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report

Issue date: January 27, 2023

Page: 30

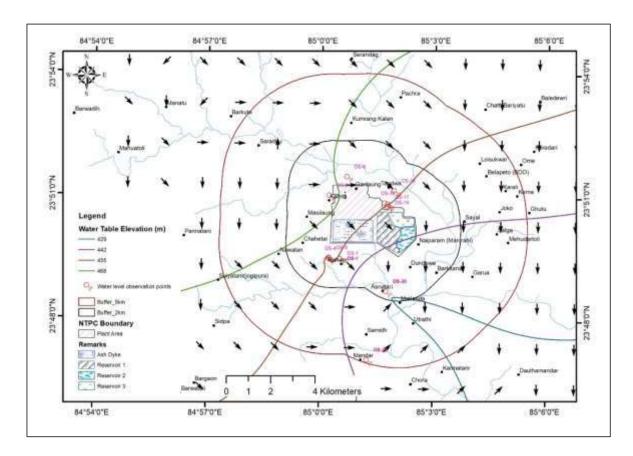


Figure 11. Groundwater level and flow direction in and around the plant area during post-monsoon 2022.

5 Surface water level monitoring using already existed Scale/gauge at Check Dam site of Garhi Nadi monitoring on a half-yearly basis

The surface water level in the Dam on Garhi Nadi was monitored during preand post-monsoon visits. The photograph taken during the site visit and the gauge reading are given below.

5.1 Surface water level during pre-monsoon 2021

The team visited the check dam site on January 25, 2021, and found the gates of the check dam open, allowing minor base flow to pass to the downstream side, and the water level was found below the lowest marking level of the staff





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report

Issue date: January 27, 2023

Page: 31

gauge installed in the check dam as shown in Figure 12. So, the dam was empty during the pre-monsoon 2021 visit, and the gauge reading was 433 m, which corresponds to ground level in the dam.





Figure 12. Site photograph of water level gauge and check dam on January 25, 2021, during the pre-monsoon period (1st year).

5.2 Surface water level during post-monsoon 2021

The team visited the check dam site on November 27, 2021, and the water level was found at the lowest marking level of the staff gauge installed in the check dam, as shown in Figure 13. So, the dam was empty during the post-monsoon 2021 visit, and the gauge reading was 433.0 m, which corresponds to the minimum water level/ground level in the dam.





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report

Issue date: January 27, 2023

Page: 32



Figure 13. Site photograph of water level gauge captured on November 27, 2021, during the post-monsoon period (1st year)

5.3 Surface water level during pre-monsoon 2022

The team visited the check dam site on May 9, 2022, and the check dam was found empty. The water was found only in a few depressions at the lowest marking level of the staff gauge installed in the check dam, as shown in Figure 14. So, the dam was empty during the pre-monsoon 2022 visit, and the gauge reading was 433.0 m, which corresponds to the minimum water level/ground level in the dam.





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 33



Figure 14. Site photograph of water level gauge captured on May 9, 2022, during the pre-monsoon period (2nd year)

5.4 Surface water level during post-monsoon 2022

The team visited the check dam site on September 23, 2022, and the water level was found at the lowest marking level of the staff gauge installed in the check dam, as shown in Figure 15. The dam was empty during the postmonsoon 2022 visit, and the gauge reading was 433.0 m, which corresponds to the minimum water level/ground level in the dam.





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report

Issue date: January 27, 2023

Page: 34



Figure 15. Site photograph of water level gauge captured on September 23, 2022, during the post-monsoon period (2nd year)

6 Analysis of water samples including surface water and groundwater regime for monitoring of heavy metals on a half-yearly basis

Based on the reconnaissance site survey of the plant area and the prevailing groundwater flow direction, surface and groundwater sampling locations were identified, as shown in Figure 16. The same locations were used to collect surface and groundwater data both for pre and post-monsoon seasons. Out of 23 sampling sites visited around the NTPC plant site area, in-situ analysis of 13 samples was performed using a multi-parameter probe. Based on their relevant locations, 11 samples were selected to perform the detailed ex-situ analysis in the laboratory of IIT Roorkee during the pre and post-monsoon period.



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023 Page: 35

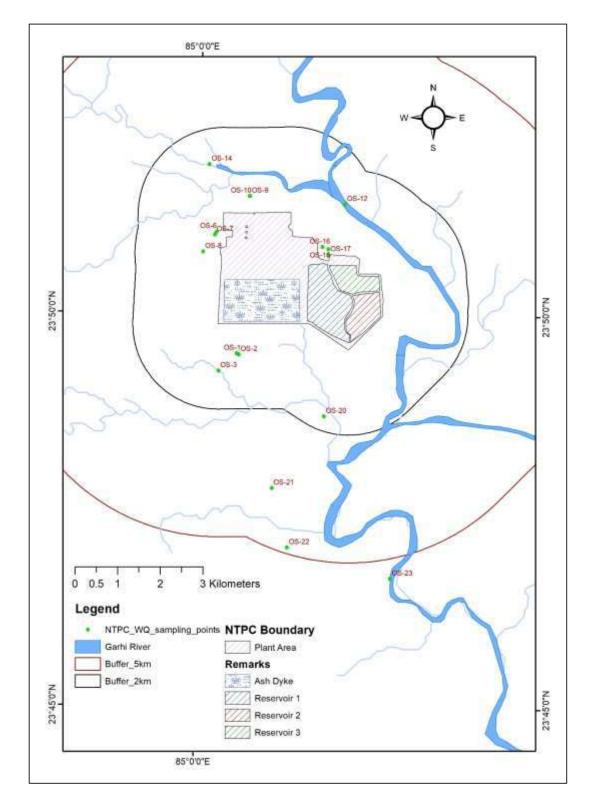


Figure 16. Map depicting locations of surface and groundwater sampling points.





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 36

6.1 Pre-monsoon 2021 water quality results

Sampling locations for pre-monsoon groundwater quality analysis are listed in Table 7. During the In-situ analysis of the samples, pH, TDS (Total dissolved solids), EC (Electrical Conductivity), DO (Dissolved Oxygen), and temperature were measured at the water collection site using the multimeter electrode. The result of the In-situ analysis for the pre-monsoon period is listed in Table 8.

Table 7. Location of sampling sites for In-situ/Ex-situ during the pre-monsoon period

S. No.	Site code	Type of site/location	Latitude	Longitude	Type of Analysis
1	OS-1	Open Well/Raham	23°49'29.46"	85°0'31.86"	In-situ
2	OS-2	Hand pump/Raham	23°49'28.68"	85°0'33.66"	In-situ and Ex-situ
3	OS-3	Hot spring/Raham	23°49'16.14"	85°0'16.92"	In-situ and Ex-situ
4	OS-6	Open Well/Kamta	23°51'2.22"	85°0'13.98"	In-situ
5	OS-7	NTPC solar pump/Kamta	23°51′0.00"	85°0'12.48"	In-situ and Ex-situ
6	OS-8	Hand pump/Kamta	23°50'46.86"	85°0'2.88"	In-situ and Ex-situ
7	OS-9	Open Well/Garilaung	23°51'29.7"	85°0'40.98"	In-situ
8	OS-10	Tube Well/Garilaung	23°51'29.7"	85°0'40.98"	In-situ and Ex-situ
9	OS-12	Garhi River/Tandwa	23°51'24.28"	85° 2'0.10"	Ex-situ
10	OS-14	Garhi River/Kasaha DPS	23°51'53.64"	85° 0'7.17"	In-situ and Ex-situ
11	OS-15	Open Well/Tandwa	23°50'49.92"	85°1'46.74"	In-situ and Ex-situ
12	OS-16	Open Well/Tandwa	23°50'51.54"	85°1'41.82"	In-situ
13	OS-17	Open Well/Tandwa	23°50'45.78"	85°1'46.86"	In-situ
14	OS-20	Handpump/Asnatari	23°48'42.31"	85°1'44.71"	Ex-situ

(Note: observation points OS-4, OS-5, OS-11, OS-13, OS-18 and OS-19 were used only for ground water table monitoring)





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report

Issue date: January 27, 2023

Page: 37

Table 8. Mean values of pH, EC, TDS, DO, and temperature obtained in the water samples from In-situ analysis during the pre-monsoon period 2021.

Site	Type of site	рН	EC(mS)	TDS(ppm)	DO(mg/l)	Saturation%	Temperature(°C)
code							
OS-1	Open Well	6.98	0.78	-	5.11	_	23.9
OS-2	Hand pump	6.60	1.10	_	6.30	87.8	_
OS-3	Hot spring	6.74	0.83	-	5.85	103.5	40.9
OS-6	Open Well	7.26	1.20	623	_	_	_
OS-7	NTPC solar pump	7.23	0.70	340	_	_	29.1
OS-8	Hand pump	6.63	1.04	510	5.63	89.4	_
OS-9	Open Well	6.94	0.98	390	5.26	76.0	22.1
OS-10	Tube Well	6.40	0.58	290	6.78	90.8	25.8
OS-14	Garhi River	7.57	0.37	170	7.18	80.1	_
OS-15	Open Well	7.12	1.17	580	6.73	86.6	_
OS-16	Open Well	7.49	0.61	310	5.76	77.2	-
OS-17	Open Well	7.40	0.40	190	5.33	74.2	19
BIS	AL	6.5-8.5	-	500	-	-	-
Limits	PL	NR	-	2000	-	-	-

AL: acceptable limit; PL: permissible limit in the absence of alternate source; NR: no relaxation

Samples collected during pre-monsoon season for ex-situ analysis were examined using inductively coupled plasma mass spectrometry/Microwave plasma atomic emission spectroscopy (ICP-MS/MP-AES) and Ion Chromatography (IC) for finding the concentration of heavy metals and other elements in the water samples during the pre-and post-monsoon periods. All the samples were first acid digested, diluted to a suitable degree, filtered through a 0.45-micron filter, and then proceeded for ICP-MS/MP-AES analysis. The purpose of acid digestion is to destroy the matrix, which otherwise interferes during atomization. Also, digestion converts all forms of metal into a single oxidation state. Samples are analyzed using ICP-MS for Li, B, Na, Mg,





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 38

AI, K, Ca, Cr, Cd, Mn, Fe, Co, Ni, Cu, Zn, As, Sr, Ag, Ba, Hg, Pb, Rh, and results after correction are listed in Table 9. Apart from the ICP-MS, samples were analyzed using ion chromatography (IC) for Cl, SO42-, F, and NO3- and results of pre and post-monsoon periods are listed in Table 10. The eluent used in the IC analysis for digestion purposes was 3.2 mM Na₂CO₃ mixed with 1mM NaHCO3. All the water quality analysis results are compared with the Bureau of Indian Standards (BIS) code IS 10500:2012 to check the groundwater utility for drinking purposes.





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 39

Table 9. Mean concentration of elements obtained in the water samples during the pre-monsoon period 2021 from ICP-MS analysis with BIS limits of IS 10500:2012

D	11.21					Site Code					BIS Limit	S
Parameter	Unit	OS-2	OS-3	OS-7	OS-8	OS-10	OS-12	OS-14	OS-16	OS-20	AL	PL
Lithium (Li)	ppm	0.027	0.352	0.253	0.034	0.129	0.036	0.049	0.040	0.410	N:	S
Boron (B)	ppm	0.073	0.067	0.113	0.043	0.055	0.060	0.063	0.105	0.111	0.5	1
Aluminium (Al)	ppm	0.080	0.190	4.040	0.150	1.320	0.510	0.410	1.940	0.280	0.03	0.2
Chromium (Cr)	ppm	0.007	0.016	0.031	0.015	0.027	0.017	0.016	0.018	0.015	0.05	NR
Magnesium (Mn)	ppm	0.014	0.034	0.179	0.022	0.567	0.012	0.012	0.089	0.053	0.1	0.3
Iron (Fe)	ppm	0.081	0.259	3.123	0.202	0.768	0.742	0.700	1.108	0.198	0.3	NR
Cobalt (Co)	ppm	BDL	BDL	0.002	BDL	0.002	BDL	BDL	0.005	BDL	N:	S
Nickel (Ni)	ppm	0.004	0.007	0.015	0.008	0.016	0.011	0.009	0.012	0.007	0.02	NR
Copper (Cu)	ppm	0.004	0.004	0.019	0.004	0.013	0.009	0.011	0.013	0.004	0.05	1.5
Zinc (Zn)	ppm	0.088	0.085	0.909	0.073	0.124	0.063	0.066	0.540	0.789	5	15
Arsenic (As)	ppm	0.001	BDL	0.003	BDL	0.001	0.013	0.037	0.003	BDL	0.01	0.05
Strontium (Sr)	ppm	0.267	0.485	1.951	0.254	0.250	0.074	0.074	6.559	0.985	N:	5
Silver (Ag)	ppm	BDL	0.007	0.001	BDL	BDL	0.001	0.001	0.001	0.001	0.1	NR
Cadmium (Cd)	ppm	BDL	BDL	0.142	BDL	0.001	0.002	0.003	0.162	BDL	0.003	NR
Barium (Ba)	ppm	0.080	0.693	0.262	0.171	0.144	0.039	0.031	0.102	0.598	0.7	NR
Mercury (Hg)	ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.001	NR
Lead (Pb)	ppm	0.002	0.006	0.072	0.005	0.018	0.015	0.011	0.023	0.006	0.01	NR
Rhodium (Rh)	ppm	1.55	1.60	1.63	1.59	1.65	3.21	2.97	1.65	1.53	N:	5





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 40

Table 10. Mean concentration of elements (Chloride, Nitrate, Sulphate, and Fluoride) obtained in the water samples during the pre-monsoon period 2021 from IC analysis compared with BIS limits of IS 10500:2012

Darameter	Linit					Site Code					BIS Limits	
Parameter	Unit	OS-2	OS-3	OS-7	OS-8	OS-10	OS-12	OS-14	OS-16	OS-20	AL	PL
Sodium (Na)	ppm	57.6	42.82	32.25	46.66	33.01	19.49	19.11	68.85	56.48		NS
Magnesium (Mg)	ppm	36.31	24.66	36.83	48.99	21.47	11.05	12.23	47.54	22.36	30	100
Potassium (K)	ppm	12.46	24.52	26.75	4.32	7.74	2.47	2.08	2.09	24.92		NS
Calcium (Ca)	ppm	54.42	29.33	111.36	53.73	33.01	11.19	11.76	150.24	23.07	75	200
Chloride (CI)	ppm	39.68	43.6	27.47	74.52	43.72	13.33	16.68	41.39	33.65	250	1000
Nitrate (NO ₃)	ppm	BDL	43.34	142.67	349.11	168.3	22.72	100.46	139.94	25.49	45	NR
Sulphate (SO ₄)	ppm	1006.66	265.1	439.01	527.13	198.57	121.92	96.34	107.57	243.56		NS
Fluoride (F)	ppm	BDL	3.38	3.8	BDL	BDL	1.58	1.24	1.28	4.4	1	1.5





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023

Page: 41

6.2 Post-monsoon 2021 water quality results

Sampling locations for post-monsoon groundwater quality analysis are listed in Table 11. During the In-situ analysis of the samples, pH, TDS (Total dissolved solids), EC (Electrical Conductivity), DO (Dissolved Oxygen), and temperature were measured at the water collection site using the multimeter electrode. The result of the In-situ analysis for the post-monsoon period is listed in Table 12.

Table 11. Location of sampling sites for In-situ/Ex-situ analyses during the postmonsoon period

S. No.	Site code	Type of site/location	Latitude	Longitude	Type of Analysis
1	OS-1	Open Well/Raham	23°49'29.46"	85°0'31.86"	In-situ
2	OS-2	Hand pump/Raham	23°49'28.68"	85°0'33.66"	In-situ and Ex-situ
3	OS-3	Hot spring/Raham	23°49'16.14"	85°0'16.92"	In-situ and Ex-situ
4	OS-6	Open Well/Kamta	23°51'2.22"	85°0'13.98"	In-situ
5	OS-7	NTPC solar pump/Kamta	23°51′0.00"	85°0'12.48"	In-situ and Ex-situ
6	OS-8	Hand pump/Kamta	23°50'46.86"	85°0'2.88"	In-situ and Ex-situ
7	OS-9	Open Well/Garilaung	23°51'29.7"	85°0'40.98"	In-situ
8	OS-10	Tube Well/Garilaung	23°51'29.7"	85°0'40.98"	In-situ and Ex-situ
9	OS-12	Garhi River/Tandwa	23°51'24.28"	85° 2'0.10"	Ex-situ
10	OS-14	Garhi River/Kasaha DPS	23°51'53.64"	85° 0'7.17"	In-situ and Ex-situ
11	OS-15	Open Well/Tandwa	23°50'49.92"	85°1'46.74"	In-situ and Ex-situ
12	OS-16	Open Well/Tandwa	23°50'51.54"	85°1'41.82"	In-situ
13	OS-17	Open Well/Tandwa	23°50'45.78"	85°1'46.86"	In-situ
14	OS-20*	Handpump/Asnatari	23° 48' 45.72"	85°1' 33.53"	In-situ and Ex-situ
15	OS-21	Handpump	23°47'40.74"	85°1'15.74"	In-situ and Ex-situ
16	OS-22	Handpump	23°46'28.52"	85°1' 28.27"	In-situ and Ex-situ
17	OS-23	Garhi River	23°47'24.39"	85° 2' 35.59"	In-situ and Ex-situ





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 42

Table 12. Mean values of pH, EC, TDS, DO, and temperature obtained in the water samples from In-situ analysis during the post-monsoon period 2021.

Site code	Type of site	рН	EC(mS)	TDS(ppm)	DO(mg/l)	Elevation	Temperature(°C)
OS-1	Open Well	6.94	0.72	350	6.2	453	23.9
OS-2	Hand pump	6.62	1.55	770	3.96	453	26.1
OS-3	Hot spring	6.32	0.74	370	3.72	440	42.5
OS-6	Open Well	7.11	1.18	580	6.63	473	23.6
OS-7	NTPC solar pump	7.04	0.65	320	7.13	474	24.2
OS-8	Hand pump	6.52	0.99	490	4.46	474	24.7
OS-9	Open Well	6.56	1.22	600	5.5	465	20.5
OS-10	Tube Well	5.99	0.57	280	6.1	465	20.3
OS-14	Garhi River	7.98	0.4	190	9.25	451	18.2
OS-15	Open Well	7.04	1.34	670	6.25	456	21.4
OS-16	Open Well	7.48	0.66	320	5.93	457	22.1
OS-17	Open Well	7.61	0.37	180	7.3	456	20.8
OS-20	Hand pump	6.46	0.61	300	4.38	-	26.1
OS-21	Hand pump	5.81	0.57	280	4.34	453	26.7
OS-22	Hand pump	6.52	0.78	390	5.01	449	25.9
OS-23	Garhi River	7.64	0.35	170	6.87	-	24.1
BIS Limits	AL	6.5-8.5	-	500	-	-	-
	PL	NR	-	2000	-	-	-

AL: acceptable limit; PL: permissible limit in the absence of alternate source; NR: no relaxation

(Note: observation points OS-4 and OS-5 were used only for groundwater table monitoring; *The coordinates of OS-20, the hand pump site, have been changed due to disruption activities at the earlier site)

Samples collected for ex-situ analysis were examined using inductively coupled plasma mass spectrometry/Microwave plasma atomic emission spectroscopy (ICP-MS/MP-AES) and Ion Chromatography (IC) for finding the concentration of heavy metals and other elements in the water samples during the pre-and post-monsoon periods. All the samples were first acid digested, diluted to a suitable degree, filtered through a 0.45-micron filter, and then proceeded for





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 43

ICP-MS/MP-AES analysis. The purpose of acid digestion is to destroy the matrix, which otherwise interferes during atomization. Also, digestion converts all forms of metal into a single oxidation state. Samples are analyzed using ICP-MS for Li, B, Na, Mg, Al, K, Ca, Cr, Cd, Mn, Fe, Co, Ni, Cu, Zn, As, Sr, Ag, Ba, Hg, Pb, Rh, and results after correction are listed in Table 13. Apart from the ICP-MS, samples were analyzed using ion chromatography (IC) for Cl, SO42-, F, NO3-, and PO42- and results of pre and post-monsoon periods are listed in Table 14. The eluent used in the IC analysis for digestion purposes was 3.2 mM Na2CO3 mixed with 1mM NaHCO3. All the water quality analysis results are compared with the Bureau of Indian Standards (BIS) code IS 10500:2012 to check the groundwater utility for drinking purposes.





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 44

Table 13. Mean concentration of elements obtained in the water samples during the post-monsoon period 2021 from ICP-MS analysis with BIS limits of IS 10500:2012

							Site code	9					BIS Limit	ts
Parameter	Unit	OS-2	OS-3	OS-7	OS-8	OS-10	OS-14	OS-16	OS-20	OS-21	OS-22	OS-23	AL	PL
Lithium (Li)	ppm	0.020	0.291	0.302	0.032	0.132	0.062	0.052	0.392	0.250	0.092	0.016	N:	S
Boron (B)	ppm	0.746	0.136	0.233	0.191	0.385	0.281	0.461	0.042	0.332	0.140	0.228	0.5	1
Aluminium (Al)	ppm	0.980	1.550	1.250	1.040	1.140	1.340	1.280	0.830	0.900	0.930	1.410	0.03	0.2
Chromium (Cr)	ppm	0.020	0.023	0.021	0.019	0.020	0.021	0.022	0.025	0.017	0.019	0.023	0.05	NR
Manganese (Mn)	ppm	0.032	0.031	0.055	0.029	0.105	0.023	0.021	0.017	0.052	0.034	0.023	0.1	0.3
Iron (Fe)	ppm	0.447	0.490	0.431	0.437	0.392	0.425	0.411	0.275	0.734	0.948	0.397	0.3	NR
Cobalt (Co)	ppm	0.002	0.003	0.001	0.001	0.002	0.002	0.003	0.001	0.002	0.002	0.000	N:	S
Nickle (Ni)	ppm	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.003	0.002	0.004	0.02	NR
Coper (Cu)	ppm	0.002	0.001	0.002	0.001	BDL	0.002	0.001	0.001	0.001	BDL	BDL	0.05	1.5
Zinc (Zn)	ppm	3.147	2.298	3.078	4.911	2.780	3.770	2.928	2.361	2.779	2.622	3.466	5	15
Arsenic (As)	ppm	0.040	0.019	0.050	0.069	0.065	0.068	0.035	0.071	0.045	0.079	0.060	0.01	0.05
Strontium (Sr)	ppm	0.303	0.457	0.729	0.298	0.180	0.150	0.811	0.695	0.201	0.253	0.143	N:	S
Silver (Ag)	ppm	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.1	NR
Cadmium (Cd)	ppm	0.005	0.006	0.007	0.009	0.009	0.008	0.010	0.009	0.012	0.012	0.012	0.003	NR
Barium (Ba)	ppm	0.070	0.200	0.070	0.072	0.059	0.048	0.058	0.052	0.055	0.148	0.055	0.7	NR
Mercury (Hg)	ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.001	NR
Lead (Pb)	ppm	0.004	0.012	0.002	0.000	0.001	0.003	0.005	0.000	0.001	0.001	0.003	0.01	NR
Rhodium (Rh)	ppm	1.644	1.701	1.503	1.357	1.623	2.757	1.940	1.563	1.324	1.764	1.114	N:	S





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023

Page: 45

Table 14. Mean concentration of elements (Chloride, Nitrate, Sulphate, and Fluoride) obtained in the water samples during post-monsoon period 2021 from IC analysis compared with BIS limits of IS 10500:2012

Darameter	Linit						Site code						BIS	Limits
Parameter	Unit	OS-2	OS-3	OS-7	OS-8	OS-10	OS-14	OS-16	OS-20	OS-21	OS-22	OS-23	AL	PL
Sodium (Na)	ppm	159.16	101.18	78.08	98.99	71.42	66.58	105.03	60.9	61.28	60.89	62.55	1	NS
Magnesium (Mg)	ppm	69.49	42.1	37.68	55.12	26.89	26.04	51.85	25.32	19.85	62.23	28.35	30	100
Potassium (K)	ppm	44.45	49.91	43.94	12.13	10.39	4.7	6.02	3.82	16.49	11.93	9.03	1	NS
Calcium (Ca)	ppm	32.6	18.15	15.21	20.51	14.65	11.65	14.62	18.05	12.05	18.07	12.79	75	200
Chloride (Cl)	ppm	38.18	23.04	12.45	34.73	18.11	2.36	11.00	9.35	21.64	3.21	2.26	250	1000
Nitrate (NO₃)	ppm	71.49	2.92	BDL	48.105	32.54	BDL	BDL	16.605	BDL	BDL	BDL	45	NR
Sulphate (SO ₄)	ppm	77.70	13.98	58.28	37.55	30.06	10.65	14.38	17.20	18.44	4.48	43.07	200	400
Fluoride (F)	ppm	BDL	1.5	1.46	BDL	BDL	0.415	0.49	BDL	0.47	BDL	BDL	1	1.5





Doc. No. HYD-6007/2020-21/FR

Doc. Type: Final Report Issue date: January 27, 2023

Page: 46

6.3 Analysis of results of pre and post-monsoon 2021 water quality

The pH ranged from 6.40 to 7.57 in pre-monsoon, while in post-monsoon, it varied from 5.81 to 7.98. Only one sample, i.e., OS-10 (6.40), shows a slightly acidic nature of water in comparison to BIS (2012) limits. In the post-monsoon period, three samples are found to have little acidic pH range, i.e. OS-3 (6.32), OS-10 (5.99), and OS-21 (5.81). The TDS concentration in the pre-monsoon period ranged from 170 ppm to 623 ppm, whereas in the post-monsoon period, it varied from 170 ppm to 770 ppm. No significant variation in the TDS is found between pre and post-monsoon seasons. Also, the samples were found well within the permissible limit of BIS (2012) with respect to TDS concentration.

The concentration of heavy metals in the pre-monsoon period was analysed. It was observed that some trace metals particularly AI had slightly higher concentrations when compared to BIS (2012) limits for drinking water. In contrast, in the post-monsoon period, some water samples had slightly higher concentrations of AI, Fe, As, and Cd when compared to the BIS limit.

In the pre-monsoon period, aluminium concentration ranges from 0.08 ppm to 4.04 ppm, whereas in the post-monsoon period, it ranges from 0.83 ppm to 1.55 ppm, which indicates that most of the samples are above the permissible limit of BIS excluding three samples of pre-monsoon period (OS-2, OS-3, OS-8). The Fe concentration ranges from 0.081 ppm to 3.123 ppm in the pre-monsoon period, while in the post-monsoon period, it ranges from 0.275 ppm to 0.948 ppm during the post-monsoon period. This is to be noted that this time the Fe level has reduced significantly as compared to the pre-monsoon period. This could be due to the dilution impact and aggressive purging of the groundwater undertaken during the post-monsoon season. The arsenic concentration was found to be marginally high in some of the sampling locations during the post-monsoon period, which was within the acceptable limit during the pre-monsoon season. The Cd ranges from 0.005 to 0.012 ppm in the study area during the





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report

Issue date: January 27, 2023

Page: 47

post-monsoon period. All the samples have little high Cd concentration as compared to the BIS limit.

In general, the high concentration of Mn and Fe in hand pump water samples indicates the poor quality and maintenance of hand pumps. Basically, the geological formations of the area and the presence of coal mines in the near vicinity of the study area could be the possible reason for the presence of some trace metals in water samples.

On the other hand, major cations and anions were also analysed in the pre and post-monsoon periods, and most of the ions were within the permissible limit of BIS (2012). However, sulfate and fluoride have shown marginally higher concentrations in a few of the samples of the pre-monsoon period, which seems to be getting diluted in the post-monsoon period. Fluoride-bearing minerals are the primary reason for fluoride contamination in groundwater. The nitrate concentration ranges from 22.72 ppm to 349.11 ppm in the pre-monsoon period, similarly in the post-monsoon period, it ranges from BDL-71.49 ppm; however, two samples (OS-2 and OS-8) have elevated concentration with respect to BIS in the post-monsoon season. This might be due to improper management of wells and excess use of nitrogenous-based fertilizers.

6.4 Pre-monsoon 2022 water quality results

Pre-monsoon water sampling was done during 8-10 May 2022. Sampling locations for pre-monsoon 2022 groundwater quality analysis are listed in Table 15. During the In-situ analysis of the samples, pH, TDS (Total dissolved solids), EC (Electrical Conductivity), DO (Dissolved Oxygen), and temperature were measured at the sample collection points using the multimeter electrode. The result of the In-situ analysis for the post-monsoon period in 2022 is listed in *Table 16*. Mean concentrations of heavy metal obtained in the water samples during the pre-monsoon period in 2022 are listed in *Table 17*, and the concentration of major ions are listed in *Table 18*.





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 48

Table 15. Location of sampling sites for In-situ/Ex-situ analyses during the postmonsoon period

S. No.	Site code	Type of site/location	Latitude	Longitude	Type of Analysis
1	OS-1	Open Well/Raham	23°49'29.46"	85°0'31.86"	In-situ
2	OS-2	Hand pump/Raham	23°49'28.68"	85°0'33.66"	In-situ and Ex-situ
3	OS-3	Hot spring/Raham	23°49'16.14"	85°0'16.92"	In-situ and Ex-situ
4	OS-6	Open Well/Kamta	23°51'2.22"	85°0'13.98"	In-situ
5	OS-7	NTPC solar pump/Kamta	23°51′0.00"	85°0'12.48"	In-situ and Ex-situ
6	OS-8	Hand pump/Kamta	23°50'46.86"	85°0'2.88"	In-situ and Ex-situ
7	OS-9	Open Well/Garilaung	23°51'29.7"	85°0'40.98"	In-situ
8	OS-10	Tube Well/Garilaung	23°51'29.7"	85°0'40.98"	In-situ and Ex-situ
9	OS-12	Garhi River/Tandwa	23°51'24.28"	85° 2'0.10"	Ex-situ
10	OS-14	Garhi River/Kasaha DPS	23°51'53.64"	85° 0'7.17"	In-situ and Ex-situ
11	OS-15	Open Well/Tandwa	23°50'49.92"	85°1'46.74"	In-situ and Ex-situ
12	OS-16	Open Well/Tandwa	23°50'51.54"	85°1'41.82"	In-situ
13	OS-17	Open Well/Tandwa	23°50'45.78"	85°1'46.86"	In-situ
14	OS-20*	Handpump/Asnatari	23° 48' 45.72"	85°1' 33.53"	In-situ and Ex-situ
15	OS-21	Handpump	23°47'40.74"	85°1'15.744"	In-situ and Ex-situ
16	OS-22	Handpump	23°46'28.52"	85°1' 28.27"	In-situ and Ex-situ
17	OS-23	Garhi River	23°47'24.39"	85° 2' 35.59"	In-situ and Ex-situ
18	OS-24	Tubewell/plant	23°50'52.1"	85°01'31.4"	In-situ and Ex-situ
19	OS-25	Tubewell/plant	23°50'50.2"	85°01'00.4"	In-situ and Ex-situ

(Note: observation points OS-4, OS-5 was used only for groundwater table monitoring; *The coordinates of OS-20 the hand pump site has been changed due to disruption activities at the earlier site)





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report

Issue date: January 27, 2023

Page: 49

Table 16. Mean values of pH, EC, TDS, DO, and temperature obtained in the water samples from In-situ analysis during the pre-monsoon period in 2022.

Site code	Type of site	рН	EC(mS)	TDS(ppm)	DO(mg/l)	Elevation	Temperature(°C)
OS-1	Open Well	6.64	0.86	420	4.77	453	27.3
OS-2	Hand pump	6.41	0.54	270	5.04	453	27.9
OS-3	Hot spring	6.33	0.72	360	3.04	440	46
OS-6	Open Well	7.17	1.03	540	4.27	473	28.3
OS-7	NTPC solar pump	7.18	0.63	310	5.50	474	32.3
OS-8	Hand pump	6.54	1.03	510	3.50	474	26.2
OS-9	Open Well	7.03	1.05	520	5.27	465	28.2
OS-10	Tube Well	6.22	0.50	270	6.81	465	32.6
OS-12	Garhi River/Tandwa	7.65	0.48	240	7.74	440	30.5
OS-14	Garhi River/Kasaha DPS	7.79	0.36	180	6.33	451	31.5
OS-15	Open Well	7.28	1.36	670	7.65	456	28.7
OS-16	Open Well	7.63	0.69	340	6.78	457	26.9
OS-17	Open Well	7.96	0.36	170	3.77	456	26.9
OS-20	Hand pump	6.53	0.54	270	3.36		28.3
OS-21	Hand pump	6.14	0.61	300	3.59	453	28.8
OS-22	Hand pump	6.52	0.71	350	7.23	449	27.3
OS-23	Garhi River	8.31	0.13	60	2.80		36.8
OS-24	Tubewell/plant	7.94	0.51	250	2.8	454	37.3
OS-25	Tubewell/plant	6.83	0.65	320	4.94	459	34.7
BIS Limits	AL	6.5-8.5	-	500	-	-	-
	PL	NR	-	2000	-	-	-

AL: acceptable limit; PL: permissible limit in the absence of alternate source; NR: no relaxation





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 50

Table 17. Mean concentration of elements obtained in the water samples during the pre-monsoon period 2022 from ICP-MS analysis with BIS limits of IS 10500:2012

Parameter	Unit						Sit	e Code						BIS Liı	nits
		OS-2	OS-3	OS-7	OS-8	OS-10	OS-12	OS-14	OS-16	OS-20	OS-21	OS-22	OS-23	AL	PL
Lithium (Li)	ppm	0.010	0.155	0.109	0.011	0.044	0.012	0.009	0.018	0.010	0.057	0.011	0.013	NS	
Boron (B)	ppm	0.860	0.884	0.946	0.901	0.736	0.065	0.065	0.105	0.111	0.451	0.256	0.326	0.5	1.0
Aluminium (Al)	ppm	0.900	0.312	4.060	0.923	1.425	0.523	0.261	1.864	0.812	1.452	1.240	0.321	0.03	0.2
Chromium (Cr)	ppm	0.045	0.018	0.033	0.024	0.032	0.021	0.012	0.023	0.016	0.017	0.020	0.035	0.05	NR
Manganese (Mn)	ppm	0.235	0.043	0.179	0.066	0.757	0.172	0.158	0.844	0.337	0.068	0.060	0.341	0.1	0.3
Iron (Fe)	ppm	0.842	0.665	3.684	0.590	0.728	0.833	0.712	1.273	0.196	0.737	0.988	0.889	0.3	NR
Cobalt (Co)	ppm	0.828	0.804	0.762	0.686	0.677	0.616	0.229	0.611	0.615	0.674	0.434	0.398	NS	
Nickle (Ni)	ppm	0.076	0.060	0.017	0.009	0.167	0.012	0.010	0.016	0.008	0.007	0.006	0.005	0.02	NR
Coper (Cu)	ppm	0.126	0.081	0.061	0.138	0.101	0.102	0.028	0.103	0.077	0.116	0.013	0.056	0.05	1.5
Zinc (Zn)	ppm	4.443	4.769	4.434	4.655	4.114	5.332	3.122	4.386	3.971	4.238	4.700	3.955	5	15
Arsenic (As)	ppm	0.001	BDL	0.004	BDL	0.002	0.018	0.004	0.003	BDL	0.046	0.007	0.006	0.01	0.05
Strontium (Sr)	ppm	0.327	0.762	1.921	0.416	0.395	0.331	0.188	0.562	0.199	0.308	1.319	0.218	NS	,
Silver (Ag)	ppm	0.004	0.002	0.004	0.004	0.006	0.087	0.004	0.001	0.005	0.004	0.004	0.004	0.1	NR
Cadmium (Cd)	ppm	BDL	BDL	0.011	0.013	0.003	0.001	0.003	0.016	BDL	0.013	0.016	0.007	0.003	NR
Barium (Ba)	ppm	BDL	0.664	0.264	0.184	0.149	0.042	0.033	0.109	0.571	0.564	0.245	0.054	0.7	NR
Mercury (Hg)	ppm	BDL	BDL	BDL	BDL	BDL	BDL	0.001	NR						
Lead (Pb)	ppm	0.003	0.007	0.004	0.006	0.019	0.014	0.001	0.024	0.006	0.001	0.001	0.003	0.01	NR
Rhodium (Rh)	ppm	1.410	1.642	1.536	1.642	1.745	3.321	3.463	1.741	1.563	1.452	1.792	1.126	NS	,





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023

Page: 51

Table 18. Mean concentration of elements (Chloride, Nitrate, Sulphate, and Fluoride) obtained in the water samples during premonsoon period 2022 from IC analysis compared with BIS limits of IS 10500:2012

Parameter	Unit		Site code							BIS	Limits			
		OS-2	OS-3	OS-7	OS-8	OS-10	OS-14	OS-16	OS-20	OS-21	OS-22	OS-23	AL	PL
Sodium (Na)	ppm	162.51	98.23	81.54	76.23	64.53	70.85	107.36	66.54	60.25	61.53	70.01	ı	NS
Magnesium (Mg)	ppm	70.5	44.25	41.35	54.36	27.84	29.43	55.23	24.65	20.05	63.78	30.31	30	100
Potassium (K)	ppm	46.56	51.5	44.85	11.56	12.56	6.3	7.26	4.56	17.65	12.75	1045	NS	
Calcium (Ca)	ppm	33.78	19.84	16.45	21.61	15.7	12.3	13.62	19.56	13.21	19.42	12.82	75	200
Chloride (Cl)	ppm	40.22	24.4	13.41	36.75	19.15	2.56	12.31	10.25	22.43	4.26	2.41	250	1000
Nitrate (NO3)	ppm	72.56	3.52	1.12	49.56	33.56	0.12	BDL	17.54	BDL	BDL	BDL	45	NR
Sulphate (SO4)	ppm	80.52	14.56	55.62	38.26	32.15	9.56	15.42	16.53	17.44	5.85	10.07	200	400
Fluoride (F)	ppm	BDL	1.6	0.78	BDL	0.15	0.23	0.56	BDL	0.75	1.23	0.41	1	1.5





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report

Issue date: January 27, 2023

Page: 52

The pH ranged from 6.22 to 7.96 in the pre-monsoon period of 2022. Only one sample, i.e., OS-10 (6.22) shows a slightly acidic nature of water in comparison to BIS (2012) limits. The OS-10 sampling tube well showed a similar trend in the year 2021. The TDS concentration ranges from 60 ppm to 670 ppm. All the samples were found well within the permissible limit of BIS (2012) with respect to TDS concentration.

The concentration of heavy metals in a few samples of the pre-monsoon period (2022) indicates little high concentration of trace elements, particularly Al and Fe, when compared to BIS (2012) limits for drinking water. The aluminium concentration ranges from 0.321 ppm to 4.06 ppm in the samples. The Fe concentration ranges from 0.196 ppm to 3.684 ppm. The Cd ranges from 0.001 to 0.016 ppm. Some samples have slightly higher Cd concentrations compared to the BIS limit. The Mn, Ni, and Pb concentrations have also been high in a few of the samples in the study area. In general, the high concentration of Mn and Fe in hand pump water samples indicates the poor quality and maintenance of hand pumps. Basically, the geological formations of the area and the presence of coal mines in the near vicinity of the study area could be the possible reason for the presence of some trace metals in water samples. The concentration of major ions indicates that most of the samples are within the permissible limit of BIS (2012). However, nitrate and fluoride have shown marginally higher concentrations in a few of the samples of the pre-monsoon period (2022). Two samples (OS-2 and OS-8) have an excess concentration of nitrate, i.e. 72.56 ppm and 49.56 ppm, respectively with respect to BIS. Only one sample, OS-3, showed a 1.6 ppm concentration of fluoride in the premonsoon period of 2022.

6.5 Post-monsoon 2022 water quality results

Post-monsoon water sampling was done during 22-24 September 2022. Locations of water samples collected from various points during the post-





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report

Issue date: January 27, 2023

Page: 53

monsoon season of the year 2022 are listed in Table 19. During the In-situ analysis of the samples, pH, TDS (Total dissolved solids), EC (Electrical Conductivity), DO (Dissolved Oxygen), and temperature were measured at the sample collection points using the multimeter electrode. The result of the In-situ analysis for the post-monsoon period in 2022 is listed in Table 20. The mean concentration of heavy metal obtained in the water samples during the post-monsoon period in 2022 is listed in Table 21, and the concentration of major ions is listed in Table 22.

The pH ranged from 6.11 to 7.96 in the post-monsoon period of 2022. Five samples, i.e. OS-10 (6.11), OS-3 (6.27), OS-8 (6.45), OS-21 (6.27), and OS-22 (6.44), show a slightly acidic nature of water in comparison to BIS (2012) limits. The OS-10 sampling tube well showed a similar trend in 2021 and pre-monsoon 2022. The TDS concentration ranges from 130 ppm to 710 ppm. All the samples were found well within the permissible limit of BIS (2012) with respect to TDS concentration. The concentration of EC ranges between 0.26-1.42 mS with an average value of 0.67 mS. The concentration of DO range from 1.7 mg/L to 6.86 mg/L, with a mean value of 4.41. The temperature during the sampling was also measured of samples which ranges between 27.2-44.2°C with a mean value of 30.51°C. As observed in earlier seasons, the maximum temperature was observed at hot spring sampling site (Raham).

The concentration of heavy metals in a few samples of the post-monsoon period of 2022 indicates a little high for some elements, particularly Al and Fe, compared to BIS (2012) limits for drinking water. The aluminium concentration ranges from 0.189 ppm to 0.892 ppm in the samples. The Fe concentration ranges from 0.143 ppm to 1.201 ppm. The Cd ranges from BDL to 0.018 ppm. Some samples have slightly higher Cd concentrations compared to the BIS limit. The Pb concentration is reported in one of the samples in the study area during the post-monsoon period of 2022. In general, a high concentration of Fe in hand pump water samples indicates the poor quality and maintenance of hand pumps. Basically, the geological formations of the area and the presence of coal mines in the near vicinity of the study area could be the possible reason





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 54

for the presence of some trace metals in water samples. The concentration of major ions indicates that most of the samples are within the permissible limit of BIS (2012). Only one sample OS-2 (49.63 ppm) has a slightly high concentration of nitrate in comparison to the BIS (2012) limit.

Table 19. Location of sampling sites for In-situ/Ex-situ analyses during the post-monsoon period (September 2022)

S.no	Code	Type of site	Latitude	Longitude	Type of Analysis
1	OS-1	Open Well/Raham	23°49'29.46"	85°0'31.86"	In-situ/Water Level
2	OS-2	Hand pump/Raham	23°49'28.68"	85°0'33.66"	In-situ and Ex-situ
3	OS-3	Hot spring/Raham	23°49'16.14"	85°0'16.92"	In-situ and Ex-situ
4	OS-6	Open Well/Kamta	23°51'2.22"	85°0'13.98"	In-situ/Water Level
5	OS-7	NTPC solar pump/Kamta	23°51′0.00"	85°0'12.48"	In-situ and Ex-situ
6	OS-8	Hand pump/Kamta	23°50'46.86"	85°0'2.88"	In-situ and Ex-situ
7	OS-9	Open Well/Garilaung	23°51'29.7"	85°0'40.98"	In-situ/Water Level
8	OS-10	Tube Well/Garilaung	23°51'29.7"	85°0'40.98"	In-situ and Ex-situ
9	OS-12	Garhi River/Tandwa	23°51'24.28"	85° 2'0.10"	Ex-situ
10	OS-14	Garhi River/Kasaha DPS	23°51'53.64"	85° 0'7.17"	In-situ and Ex-situ
11	OS-15	Open Well/Tandwa	23°50'49.92"	85°1'46.74"	In-situ and Ex-situ
12	OS-16	Open Well/Tandwa	23°50'51.54"	85°1'41.82"	In-situ
13	OS-17	Open Well/Tandwa	23°50'45.78"	85°1'46.86"	In-situ
14	OS-20	Handpump/Asnatari	23°48' 45.72"	85°1'33.53"	In-situ and Ex-situ
15	OS-21	Handpump	23°47'40.74"	85°1'15.74"	In-situ and Ex-situ
16	OS-22	Handpump	23°46'28.52"	85°1'28.27"	In-situ and Ex-situ
17	OS-23	Garhi River	23°47'24.39"	85°2'35.59"	In-situ and Ex-situ
18	OS- 24	Tubewell/ Inside township	23°50'52.1"	85°01'31.4"	In-situ and Ex-situ
19	OS-25	Tubewell/ Inside plant	23°50'50.2"	85°01'00.4"	In-situ and Ex-situ





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report

Issue date: January 27, 2023

Page: 55

Table 20. Mean values of pH, EC, TDS, DO, and temperature obtained in the water samples from In-situ analysis during the post-monsoon period (September 2022).

OS-1 Open Well/Raham 6.89 0.99 490 4.13 453 28.2 OS-2 Hand pump/Raham 6.53 1.42 710 2.79 453 27.8 OS-3 Hot spring/Raham 6.27 0.72 350 1.7 440 44.2 OS-6 Open Well/Kamta 6.92 0.9 450 4.09 473 28.2 OS-7 NTPC solar pump/Kamta 7.01 0.61 300 5.41 474 30.9 OS-8 Hand pump/Kamta 6.45 0.94 460 2.22 474 27.2 OS-9 Open Well/Garilaung 6.67 1.29 640 4.53 465 29.4 OS-10 Tube Well/Garilaung 6.11 0.52 250 4.75 465 31.7 OS-12 Garhi River/Kasaha DPS 7.79 0.27 130 5.34 440 31.5 OS-14 Garhi River/Kasaha DPS 7.79 0.27 130 6.86 451	Site code	Type of site/location	рН	EC(mS)	TDS(ppm)	DO(mg/l)	E(m)	T (°C)
OS-3 Hot spring/Raham 6.27 0.72 350 1.7 440 44.2 OS-6 Open Well/Kamta 6.92 0.9 450 4.09 473 28.2 OS-7 NTPC solar pump/Kamta 7.01 0.61 300 5.41 474 30.9 OS-8 Hand pump/Kamta 6.45 0.94 460 2.22 474 27.2 OS-9 Open Well/Garilaung 6.67 1.29 640 4.53 465 29.4 OS-10 Tube Well/Garilaung 6.11 0.52 250 4.75 465 31.7 OS-12 Garhi River/Tandwa 7.31 0.27 130 5.34 440 31.5 OS-14 Garhi River/Kasaha DPS 7.79 0.27 130 6.86 451 28.9 OS-15 Open Well/Tandwa 7.55 0.51 250 6.75 456 30.6 OS-20 Handpump/Asnatari 6.76 0.55 270 2.79 432	OS-1	Open Well/Raham	6.89	0.99	490	4.13	453	28.2
OS-6 Open Well/Kamta 6.92 0.9 450 4.09 473 28.2 OS-7 NTPC solar pump/Kamta 7.01 0.61 300 5.41 474 30.9 OS-8 Hand pump/Kamta 6.45 0.94 460 2.22 474 27.2 OS-9 Open Well/Garilaung 6.67 1.29 640 4.53 465 29.4 OS-10 Tube Well/Garilaung 6.11 0.52 250 4.75 465 31.7 OS-12 Garhi River/Tandwa 7.31 0.27 130 5.34 440 31.5 OS-14 Garhi River/Kasaha DPS 7.79 0.27 130 6.86 451 28.9 OS-15 Open Well/Tandwa 7.55 0.51 250 6.75 456 30.6 OS-16 Open Well/Tandwa 7.54 0.31 150 6.86 456 30.6 OS-20 Handpump/Asnatari 6.76 0.55 270 2.79 432	OS-2	Hand pump/Raham	6.53	1.42	710	2.79	453	27.8
OS-7 NTPC solar pump/Kamta 7.01 0.61 300 5.41 474 30.9 OS-8 Hand pump/Kamta 6.45 0.94 460 2.22 474 27.2 OS-9 Open Well/Garilaung 6.67 1.29 640 4.53 465 29.4 OS-10 Tube Well/Garilaung 6.11 0.52 250 4.75 465 31.7 OS-12 Garhi River/Tandwa 7.31 0.27 130 5.34 440 31.5 OS-14 Garhi River/Kasaha DPS 7.79 0.27 130 6.86 451 28.9 OS-15 Open Well/Tandwa 7.55 0.51 250 6.75 456 30.6 OS-16 Open Well/Tandwa 7.54 0.31 150 6.86 457 30.3 OS-17 Open Well/Tandwa 7.54 0.31 150 6.86 456 30.6 OS-20 Handpump/Asnatari 6.76 0.55 270 2.79 432	OS-3	Hot spring/Raham	6.27	0.72	350	1.7	440	44.2
OS-8 Hand pump/Kamta 6.45 0.94 460 2.22 474 27.2 OS-9 Open Well/Garilaung 6.67 1.29 640 4.53 465 29.4 OS-10 Tube Well/Garilaung 6.11 0.52 250 4.75 465 31.7 OS-12 Garhi River/Tandwa 7.31 0.27 130 5.34 440 31.5 OS-14 Garhi River/Kasaha DPS 7.79 0.27 130 6.86 451 28.9 OS-15 Open Well/Tandwa 7.55 0.51 250 6.75 456 30.6 OS-16 Open Well/Tandwa 7.54 0.31 150 6.86 456 30.6 OS-20 Handpump/Asnatari 6.76 0.55 270 2.79 432 27.3 OS-21 Handpump 6.27 0.84 420 3.07 453 28.1 OS-22 Handpump 6.44 0.74 370 1.97 449 28	OS-6	Open Well/Kamta	6.92	0.9	450	4.09	473	28.2
OS-9 Open Well/Garilaung 6.67 1.29 640 4.53 465 29.4 OS-10 Tube Well/Garilaung 6.11 0.52 250 4.75 465 31.7 OS-12 Garhi River/Tandwa 7.31 0.27 130 5.34 440 31.5 OS-14 Garhi River/Kasaha DPS 7.79 0.27 130 6.86 451 28.9 OS-15 Open Well/Tandwa 7.55 0.51 250 6.75 456 30.6 OS-16 Open Well/Tandwa 7.39 0.46 230 5.68 457 30.3 OS-17 Open Well/Tandwa 7.54 0.31 150 6.86 456 30.6 OS-20 Handpump/Asnatari 6.76 0.55 270 2.79 432 27.3 OS-21 Handpump 6.27 0.84 420 3.07 453 28.1 OS-22 Handpump 6.44 0.74 370 1.97 449 28 <td>OS-7</td> <td>NTPC solar pump/Kamta</td> <td>7.01</td> <td>0.61</td> <td>300</td> <td>5.41</td> <td>474</td> <td>30.9</td>	OS-7	NTPC solar pump/Kamta	7.01	0.61	300	5.41	474	30.9
OS-10 Tube Well/Garilaung 6.11 0.52 250 4.75 465 31.7 OS-12 Garhi River/Tandwa 7.31 0.27 130 5.34 440 31.5 OS-14 Garhi River/Kasaha DPS 7.79 0.27 130 6.86 451 28.9 OS-15 Open Well/Tandwa 7.55 0.51 250 6.75 456 30.6 OS-16 Open Well/Tandwa 7.39 0.46 230 5.68 457 30.3 OS-17 Open Well/Tandwa 7.54 0.31 150 6.86 456 30.6 OS-20 Handpump/Asnatari 6.76 0.55 270 2.79 432 27.3 OS-21 Handpump 6.27 0.84 420 3.07 453 28.1 OS-22 Handpump 6.44 0.74 370 1.97 449 28 OS-23 Garhi River 7.51 0.26 130 6.15 412 31.8 <	OS-8	Hand pump/Kamta	6.45	0.94	460	2.22	474	27.2
OS-12 Garhi River/Tandwa 7.31 0.27 130 5.34 440 31.5 OS-14 Garhi River/Kasaha DPS 7.79 0.27 130 6.86 451 28.9 OS-15 Open Well/Tandwa 7.55 0.51 250 6.75 456 30.6 OS-16 Open Well/Tandwa 7.39 0.46 230 5.68 457 30.3 OS-17 Open Well/Tandwa 7.54 0.31 150 6.86 456 30.6 OS-20 Handpump/Asnatari 6.76 0.55 270 2.79 432 27.3 OS-21 Handpump 6.27 0.84 420 3.07 453 28.1 OS-22 Handpump 6.44 0.74 370 1.97 449 28 OS-23 Garhi River 7.51 0.26 130 6.15 412 31.8 OS-24 Tubewell/ Inside township 7.96 0.52 260 4.26 454 32.8 OS-25 Tubewell/ Inside plant 6.92 0.69 340 4.	OS-9	Open Well/Garilaung	6.67	1.29	640	4.53	465	29.4
OS-14 Garhi River/Kasaha DPS 7.79 0.27 130 6.86 451 28.9 OS-15 Open Well/Tandwa 7.55 0.51 250 6.75 456 30.6 OS-16 Open Well/Tandwa 7.39 0.46 230 5.68 457 30.3 OS-17 Open Well/Tandwa 7.54 0.31 150 6.86 456 30.6 OS-20 Handpump/Asnatari 6.76 0.55 270 2.79 432 27.3 OS-21 Handpump 6.27 0.84 420 3.07 453 28.1 OS-22 Handpump 6.44 0.74 370 1.97 449 28 OS-23 Garhi River 7.51 0.26 130 6.15 412 31.8 OS-24 Tubewell/ Inside township 7.96 0.52 260 4.26 454 32.8 OS-25 Tubewell/ Inside plant 6.92 0.69 340 4.42 459 32.1<	OS-10	Tube Well/Garilaung	6.11	0.52	250	4.75	465	31.7
OS-15 Open Well/Tandwa 7.55 0.51 250 6.75 456 30.6 OS-16 Open Well/Tandwa 7.39 0.46 230 5.68 457 30.3 OS-17 Open Well/Tandwa 7.54 0.31 150 6.86 456 30.6 OS-20 Handpump/Asnatari 6.76 0.55 270 2.79 432 27.3 OS-21 Handpump 6.27 0.84 420 3.07 453 28.1 OS-22 Handpump 6.44 0.74 370 1.97 449 28 OS-23 Garhi River 7.51 0.26 130 6.15 412 31.8 OS-24 Tubewell/ Inside township 7.96 0.52 260 4.26 454 32.8 OS-25 Tubewell/ Inside plant 6.92 0.69 340 4.42 459 32.1 BIS AL 6.5- - 500 - - - -	OS-12	Garhi River/Tandwa	7.31	0.27	130	5.34	440	31.5
OS-16 Open Well/Tandwa 7.39 0.46 230 5.68 457 30.3 OS-17 Open Well/Tandwa 7.54 0.31 150 6.86 456 30.6 OS-20 Handpump/Asnatari 6.76 0.55 270 2.79 432 27.3 OS-21 Handpump 6.27 0.84 420 3.07 453 28.1 OS-22 Handpump 6.44 0.74 370 1.97 449 28 OS-23 Garhi River 7.51 0.26 130 6.15 412 31.8 OS-24 Tubewell/ Inside township 7.96 0.52 260 4.26 454 32.8 OS-25 Tubewell/ Inside plant 6.92 0.69 340 4.42 459 32.1 BIS AL 6.5- - 500 - - - - Limits 8.5	OS-14	Garhi River/Kasaha DPS	7.79	0.27	130	6.86	451	28.9
OS-17 Open Well/Tandwa 7.54 0.31 150 6.86 456 30.6 OS-20 Handpump/Asnatari 6.76 0.55 270 2.79 432 27.3 OS-21 Handpump 6.27 0.84 420 3.07 453 28.1 OS-22 Handpump 6.44 0.74 370 1.97 449 28 OS-23 Garhi River 7.51 0.26 130 6.15 412 31.8 OS-24 Tubewell/ Inside township 7.96 0.52 260 4.26 454 32.8 OS-25 Tubewell/ Inside plant 6.92 0.69 340 4.42 459 32.1 BIS AL 6.5- - 500 - - - - Limits 8.5	OS-15	Open Well/Tandwa	7.55	0.51	250	6.75	456	30.6
OS-20 Handpump/Asnatari 6.76 0.55 270 2.79 432 27.3 OS-21 Handpump 6.27 0.84 420 3.07 453 28.1 OS-22 Handpump 6.44 0.74 370 1.97 449 28 OS-23 Garhi River 7.51 0.26 130 6.15 412 31.8 OS-24 Tubewell/ Inside township 7.96 0.52 260 4.26 454 32.8 OS-25 Tubewell/ Inside plant 6.92 0.69 340 4.42 459 32.1 BIS AL 6.5- - 500 - - - - Limits 8.5	OS-16	Open Well/Tandwa	7.39	0.46	230	5.68	457	30.3
OS-21 Handpump 6.27 0.84 420 3.07 453 28.1 OS-22 Handpump 6.44 0.74 370 1.97 449 28 OS-23 Garhi River 7.51 0.26 130 6.15 412 31.8 OS-24 Tubewell/ Inside township 7.96 0.52 260 4.26 454 32.8 OS-25 Tubewell/ Inside plant 6.92 0.69 340 4.42 459 32.1 BIS AL 6.5- - 500 - - - Limits 8.5	OS-17	Open Well/Tandwa	7.54	0.31	150	6.86	456	30.6
OS-22 Handpump 6.44 0.74 370 1.97 449 28 OS-23 Garhi River 7.51 0.26 130 6.15 412 31.8 OS-24 Tubewell/ Inside township 7.96 0.52 260 4.26 454 32.8 OS-25 Tubewell/ Inside plant 6.92 0.69 340 4.42 459 32.1 BIS AL 6.5- - 500 - - - Limits 8.5	OS-20	Handpump/Asnatari	6.76	0.55	270	2.79	432	27.3
OS-23 Garhi River 7.51 0.26 130 6.15 412 31.8 OS- 24 Tubewell/ Inside township 7.96 0.52 260 4.26 454 32.8 OS-25 Tubewell/ Inside plant 6.92 0.69 340 4.42 459 32.1 BIS AL 6.5- - 500 - - - - Limits 8.5	OS-21	Handpump	6.27	0.84	420	3.07	453	28.1
OS- 24 Tubewell/ Inside township 7.96 0.52 260 4.26 454 32.8 OS-25 Tubewell/ Inside plant 6.92 0.69 340 4.42 459 32.1 BIS AL 6.5- - 500 - - - Limits 8.5	OS-22	Handpump	6.44	0.74	370	1.97	449	28
OS-25 Tubewell/ Inside plant 6.92 0.69 340 4.42 459 32.1 BIS AL 6.5- - 500 - - - - Limits 8.5	OS-23	Garhi River	7.51	0.26	130	6.15	412	31.8
BIS AL 6.5 500 Limits 8.5	OS- 24	Tubewell/ Inside township	7.96	0.52	260	4.26	454	32.8
Limits 8.5	OS-25	Tubewell/ Inside plant	6.92	0.69	340	4.42	459	32.1
	BIS	AL	6.5-	-	500	-	-	-
PL NR - 2000	Limits		8.5					
		PL	NR	-	2000	-	-	-

AL: acceptable limit; PL: permissible limit in the absence of alternate source; NR: no relaxation; E: Elevation in meters; T: Temperature in degree Celsius





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 56

Table 21. Mean concentration of elements obtained in the water samples during the post-monsoon period 2022 from ICP-MS analysis with BIS limits of IS 10500:2012

Downston	11						Site	Code						BIS Li	mits
Parameter	Unit	OS-2	OS-3	OS-7	OS-8	OS-10	OS-12	OS-14	OS-16	OS-20	OS-21	OS-22	OS-23	AL	PL
Lithium (Li)	ppm	0.006	0.129	0.064	0.008	0.026	0.013	0.008	0.007	0.015	0.026	0.010	0.002	NS	5
Boron (B)	ppm	0.027	0.052	0.038	0.022	0.037	0.042	0.018	0.053	0.029	0.072	0.039	0.027	0.5	1
Aluminium (Al)	ppm	0.080	0.197	0.189	0.192	0.237	0.737	0.713	0.316	0.321	0.429	0.357	0.892	0.03	0.2
Chromium (Cr)	ppm	0.005	0.014	0.021	0.013	0.030	0.023	0.025	0.023	0.022	0.027	0.030	0.023	0.05	NR
Manganese (Mn)	ppm	0.017	0.096	0.302	0.047	0.332	0.054	0.041	0.117	0.158	0.337	0.154	0.046	0.1	0.3
Iron (Fe)	ppm	0.054	0.288	0.205	0.345	0.192	0.557	0.562	0.143	0.283	0.500	1.201	0.623	0.3	NR
Cobalt (Co)	ppm	BDL	BDL	BDL	BDL	BDL	0.001	BDL	BDL	BDL	0.003	0.001	0.001	NS	5
Nickle (Ni)	ppm	0.003	0.005	0.006	0.008	0.010	0.011	0.008	0.008	0.009	0.016	0.012	0.008	0.02	NR
Coper (Cu)	ppm	0.009	0.010	0.006	0.009	0.013	0.011	0.009	0.009	0.031	0.020	0.019	0.011	0.05	1.5
Zinc (Zn)	ppm	0.113	0.184	0.150	0.498	0.171	0.162	0.146	0.136	0.393	0.822	0.245	0.108	5	15
Arsenic (As)	ppm	BDL	0.001	0.002	0.001	BDL	0.002	0.001	0.001	0.001	0.001	0.004	0.001	0.01	0.05
Strontium (Sr)	ppm	0.157	0.712	1.457	0.222	0.202	0.188	0.101	0.366	0.796	0.262	1.111	0.151	NS	5
Silver (Ag)	ppm	0.003	0.086	0.002	0.018	0.005	0.017	0.006	0.004	0.106	0.291	0.005	0.021	0.1	NR
Cadmium (Cd)	ppm	0.001	BDL	0.002	0.007	0.002	0.003	0.001	0.006	0.001	0.018	0.007	0.002	0.003	NR
Barium (Ba)	ppm	0.060	1.146	0.152	0.193	0.099	0.092	0.049	0.122	0.239	0.148	0.648	0.071	0.7	NR
Mercury (Hg)	ppm	BDL	BDL	BDL	BDL	BDL	0.001	0.001	0.001	BDL	BDL	0.001	BDL	0.001	NR
Lead (Pb)	ppm	0.009	0.005	0.002	0.002	0.018	0.004	0.003	0.017	0.001	BDL	0.058	0.001	0.01	NR
Rhodium (Rh)	ppm	0.121	0.014	0.064	0.087	1.112	1.212	0.023	0.045	1.041	0.325	0.562	1.002	NS	5





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 57

Table 22. Mean concentration of elements (Chloride, Nitrate, Sulphate, and Fluoride) obtained in the water samples during post-monsoon period 2022 from IC analysis compared with BIS limits of IS 10500:2012

Parameter	Unit		Site Code							BIS	Limits			
		OS-2	OS-3	OS-7	OS-8	OS-10	OS-14	OS-16	OS-20	OS-21	OS-22	OS-23	AL	PL
Sodium (Na)	ppm	74.37	46.78	33.00	53.45	23.38	18.45	49.24	22.69	67.75	31.00	18.65	NS	'
Magnesium (Mg)	ppm	39.62	26.95	25.31	36.62	14.39	12.20	27.37	16.17	20.51	38.41	12.06	30	100
Potassium (K)	ppm	55.45	34.98	33.73	6.79	5.65	2.14	2.96	3.80	26.65	6.36	2.99	NS	
Calcium (Ca)	ppm	40.23	83.65	73.57	112.59	59.32	33.67	58.78	91.21	100.63	97.46	34.88	75	200
Chloride (Cl)	ppm	29.53	21.35	15.56	30.57	16.36	3.84	16.37	12.84	30.59	20.64	10.86	250	1000
Nitrate (NO₃)	ppm	49.63	1.06	BDL	28.78	19.45	BDL	BDL	5.82	BDL	BDL	BDL	45	NR
Sulphate (SO ₄)	ppm	60.52	11.32	45.25	30.84	25.45	10.52	14.63	15.68	11.71	4.88	8.36	200	400
Fluoride (F)	ppm	BDL	0.89	0.61	BDL	BDL	0.19	0.45	BDL	0.52	0.96	0.26	1	1.5





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report

Issue date: January 27, 2023 Page: 58

6.6 Overall analysis of results of pre and post monsoon 2021 & 2022 water quality

The pH ranged from 6.40 to 7.57 in pre-monsoon, while in post-monsoon, it varied from 5.81 to 7.98 in the year 2021. However, in the year 2022, pH concentration ranged from 6.22 to 7.96 in pre-monsoon, while in the postmonsoon period ranged from 6.11 to 7.96. In the post-monsoon period of the year 2022, five samples, i.e., OS-10 (6.11), OS-3 (6.27), OS-8 (6.45), OS-21 (6.27), and OS-22 (6.44) shows a slightly acidic nature of water in comparison to BIS (2012) limits. The OS-10 sampling tube well showed a similar trend in 2021 and pre-monsoon 2022. Moreover, in the post-monsoon period of the year 2021, the pH concentration in sample OS-3 (6.32), OS-10 (5.99), and OS-21 (5.81) shows acidic nature of water similar to the post-monsoon period sampling of the Year of 2022. The TDS concentration in the pre-monsoon period ranged from 170 ppm to 623 ppm, whereas it varied from 170 ppm to 770 ppm in the post-monsoon period. Moreover, in the year 2022, the TDS concentration ranged from 60 ppm to 670 ppm in the pre-monsoon period, while in post-monsoon, it ranged from 130 ppm to 710 ppm. Thus, no significant variation in the TDS is seen between the pre- and post-monsoon seasons of years 2021 and 2022. Also, the samples were found well within the permissible limit of BIS (2012) with respect to TDS concentration.

The concentration of heavy metals in the pre- and post-monsoon periods in the years 2021 and 2022 were analysed. Aluminium (Al) and Iron (Fe) had slightly higher concentrations in both the years (2021 and 2022) when compared to BIS (2012) limits for drinking water. This is to be noted that this time the Fe level has reduced significantly as compared to the pre-monsoon period. This could be due to the dilution impact and aggressive purging of the groundwater undertaken during the post-monsoon season. Some of the trace metals show variations while comparing the yearly and seasonal data, such as arsenic (As) and Manganese (Mn).





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report

Issue date: January 27, 2023

Page: 59

In comparison to the BIS (2012) limit, some traces of Arsenic (As) were reported in the post-monsoon period of 2021; however, in the other periods (premonsoon 2021, pre- and post-monsoon 2022), Arsenic was not observed or found within the prescribed BIS (2012) limits for drinking water. Mn, Cd, and Pb concentrations reduced significantly in post-monsoon period sampling during both years, showing the dilution impact. Major cations and anions, on the other hand, were studied before and after the monsoon season, and it was noticed that the majority of the ions were within the BIS permissible limit (2012). Although sulfate, fluoride, and nitrate concentrations were marginally higher in a few samples of the pre-monsoon period of 2021, they appear to be diluted in the post-monsoon period of 2021. A similar pattern was also observed for the year 2022. Overall, the geological formations of the area and the presence of coal mines in the near vicinity of the study area could be the possible reason for the presence of some trace metals in water samples.

7 Specific remedial measures based upon the monitoring report of water samples for any deterioration observed during the sampling period

No significant change in the water quality parameters is observed in the study area during the pre- and post-monsoon seasons of the last two years (i.e. 2021 and 2022). The presence of trace metals like AI and Fe is found in some water samples. The Fe was found mainly in the old hand pumps, which seems to be due to rusting of the well cashing. The aggressive purging process reduced the Fe level in these sampling points. Aluminium seems to be high due to the geogenic formation of the area and shall be treated for potable water supply. No deterioration trend is observed from Pre-monsoon 2021 to pre-monsoon 2022 in the area.





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report

Issue date: January 27, 2023 Page: 60

8 Identification and delineation of Aquifer geometry, Geological Setup of the study area

Jharkhand is a blessed land with the natural gift of immense mineral potential and other natural resources. The state stretches over 79,714 square kilometres of geographical area with 29.61% forest area and owns about 40% of the total mineral resources of India (Figure 17). The State occupies 1st position in coal reserve, 2nd position in Iron ore reserve, 3rd position in Copper ore reserve, 7th position in Bauxite reserve and is the sole producer of prime coking coal. Limestone, Dolomite, Manganese, Mica, China Clay, Graphite, Soapstone, Fire Clay, Coal Bed Methane, Uranium, Phosphorite, Apatite, Quartz, Feldspar, Gold and Pyroxenite are other important minerals available in huge quantities in the state.

As per the EIA report prepared by Vogue Construction & Company Pvt. Ltd., New Delhi, the texture of the soil is generally clay, and sandy clay loam, sandy loam in the North Karanpura district. The clay contains in the soil of the study area varies from 7.2 to 51.2 per cent. The bulk density of soil in the region is found to be 1.24-1.40 g/cm³ and considered as moderately good. The porosity and water-holding capacity of soil is in the range of 18.80-48.80 % and 15.6-56.8 %, respectively. The pH of the soil is generally slightly acidic and neutral in a reaction as their pH is in the range of 6.3-7.8, and the electrical conductivity of the soil is found in the range of 0.42-2.83 dS/m. Calcium and magnesium concentrations are in the range of 7.03-19.17 meg/l and 2.89-15.13 meg/l, respectively, whereas sodium and potassium are in the range of 0.88-1.66 meg/l and 0.07-0.38 meg/l respectively. Amongst the exchangeable cations, Ca⁺² and Mg⁺² are found in the range of 3.40-21.46 cmol(p⁺) kg⁻¹ and 1.40-11.79 cmol(p⁺) kg⁻¹ of soil while Na⁺ and K⁺ are in the range of 0.20-1.26 cmol(p⁺) kg⁻¹ and 0.17-0.83 cmol(p⁺) kg⁻¹ of soil respectively. Exchangeable sodium percentage range from 0.91-6.12. Organic carbon, available nitrogen and available phosphorous are found to be in the range of 0.30-0.75 %, 205.72-331.16 and 13.68-22.62 kg/ha, respectively. Available potassium is found in the





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report

Issue date: January 27, 2023

Page: 61

range of 134.68-197.27 kg/ha. The total viable microbial population per gram of soil varied from 37 - 82 x 10^6 CFU. Different microflora observed per gram of soil was fungi (1 - 6 x 10^4 CFU), actinomycetes (1 - 4 x 10^4 CFU), rhizobium (2 – 17 x 10^4 CFU) and azotobacter (2 - 9 x 10^4 CFU). The geological map of the North Karanpura coalfield is shown in Figure 18.

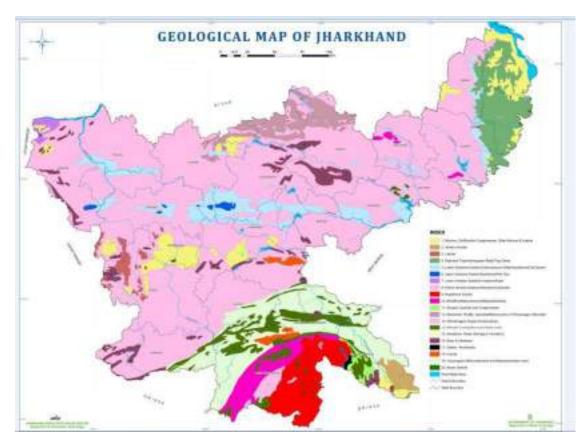


Figure 17. Geological map of Jharkhand (adopted from ismenvis.nic.in)



Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023
Page: 62

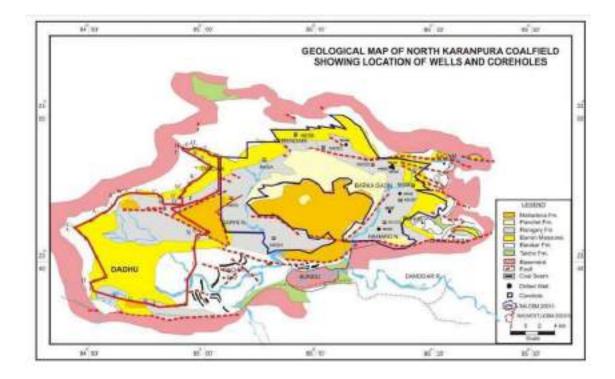


Figure 18. Geological map of North Karanpurs coalfield

8.1 Geophysical investigation of the study area

The interpretation of all VES's performed at different sites of NTPC Tandwa during the second field trip has been analyzed using a manual curve matching technique and Zond 1D software. The locations of all VES, along with the nomenclature used in this study area, are listed in Table 23 and shown on the map in Figure 19.

Table 23. VES locations, along with their respective coordinates

Nomenclature	Latitude	Longitude
VES SJ1	23°51' 52" N	84°59' 58" E
VES SJ2	23°50' 24" N	84°59' 45" E
VES SJ3	23°49' 36" N	85°8' E
VES SJ4	23°50' 46" N	85°2' 19" E



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 63

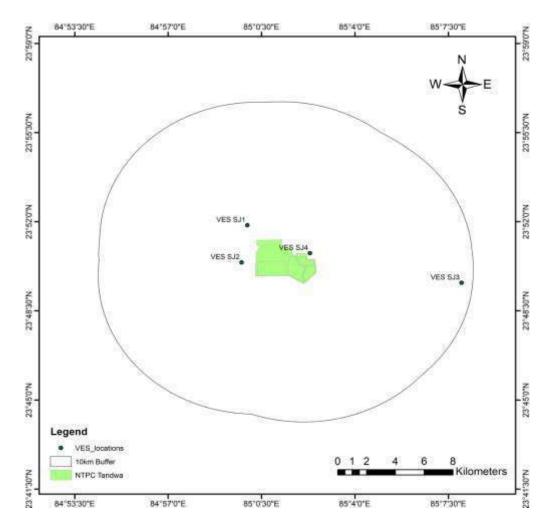


Figure 19. Point location of VES site around plant site

Apparent resistivity vs AB/2 plots are obtained from the field and are first plotted on the log paper and matched with a family of master curves and auxiliary curves to obtain the true layer thicknesses and resistivity values. The curves are plotted on a logarithmic scale (Figure 20) and are normalized by plotting the ratio of the apparent resistivity to the resistivity of the first layer ($\rho a / \rho 1$) versus the ratio of the electrode spacing to the thickness of the first layer (a / z). Each curve of the family represents a value of the parameter k, which is defined by: $k = (\rho 2 - \rho 1)/(\rho 2 + \rho 1)$ The apparent resistivity for the small spacing is between the electrodes approaches $\rho 1$ and for the large spacing's





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report

Issue date: January 27, 2023 Page: 64

approaches ρ 2; these curves start at ρ a / ρ 1 = 1 and asymptotically approach ρ a / ρ 1 = ρ 2 / ρ 1.

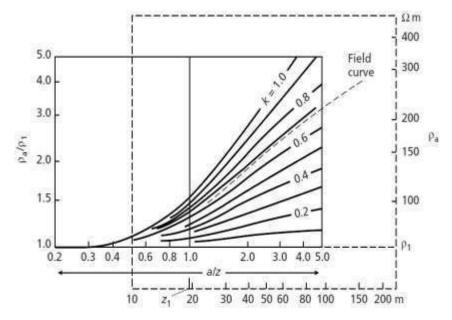


Figure 20.The resistivity of the first layer ($\rho a / \rho 1$) versus the ratio of the electrode spacing to the thickness of the first layer (a / z).

Probable layer resistivity and thickness derived both from manual interpretation in log sheets using master curves and from the software were correlated. In manual interpretation, the observed resistivity of a layer and its thickness are considered to be the actual values. The layer thicknesses and resistivity of the other layers are calculated as ρ_{2} =k1* ρ_{1r} , ρ_{3} = k2* ρ_{2r} , ρ_{4} = k3* ρ_{3} and so on. For True thickness: h2/h1r, h3/h2, depth ratios are matched with the depth factors for obtaining the true thickness. Results of all VES along with raw field data collected during field visit is shown below. The p-h-z in the interpreted tables refer to resistivity, layer thickness, and cumulative depth from ground level, respectively. The interpreted results in form of a p-h-z table, data curves (black), type curves(red), and simulated 1D models (red blocks) for each VES are mentioned under the concerned VES site heading. The possible average error in these interpretations is ±3.5% and the average error in measurement of coordinates is ±3m. The stratigraphic unit for each sounding data was developed in Rock ware 3d software.





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 65

VES SJ1

The VES was performed on 27/11/2021 near DPS School Sharadhu. The site is in the NW direction of the plant and observed data are listed in Table 24. During the field investigation, it is revealed that the groundwater table is at 40 ft but bores in the area are about 160-180 ft. The area contains primarily quaternary alluvium sandstones and granite gneiss. Potential water-bearing strata are indicated at a depth of 14.62 m. From both the manual and software-based analysis, the resistivities of the subsurface areas were observed to vary between 15-200 ohmmeters. A typical HA type curve (Figure 21 & Figure 22) is observed from the sounding data collected in the field. The last layer is considered to be of infinite thickness in the case of manual interpretation. The data obtained from both analyses correlate well and is within the comparable limit. A depth of about 150 m was analyzed from this sounding. From the resistivity values, the probable stratigraphic succession has been constructed as shown in Figure 23 and probable lithology based on resistivity and layer thickness at site SJ1 as listed in Table 25.

Table 24. Field survey data collection from location SJ1

Date	11/27/2021	Station No.	SJ1	Sounding No.	SJ1
Latitude	23°51' 52" N	Longitude	84°59' 58" E		
Locality	Near DPS S	chool (Shara	dhu)		
S. No.	AB/2	MN/2	Resistance (Ω)	Kq	App. Res. (Ωm)
1.	2	0.5	1.95	11.78	22.97
2.	3	0.5	0.69	27.49	18.83
3.	4	0.5	0.38	49.48	18.95
4.	5	0.5	0.25	77.75	19.28
5.	5	1	0.55	37.70	20.85
6.	6	1	0.35	54.98	19.13
7.	8	1	0.19	98.96	18.60
8.	10	1	0.12	155.51	18.66
9.	10	2	0.25	75.40	18.93
10.	12	2	0.18	109.90	19.30





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 66

11.	15	2	0.12	173.57	20.27
12.	20	2	0.07	311.02	22.61
13.	20	4	0.18	150.80	27.58
14.	25	4	0.13	239.15	31.97
15.	30	4	0.10	347.15	36.28
16.	40	4	0.07	622.04	46.34
17.	50	4	0.06	975.46	53.65
18.	50	10	0.12	376.99	45.35
19.	60	10	0.09	549.78	50.25
20.	80	10	0.05	989.60	53.64
21.	100	10	0.03	1555.09	53.81
22.	100	20	0.08	753.98	63.33
23.	120	20	0.06	1099.56	68.94
24.	160	20	0.04	1979.20	81.15
25.	200	20	0.02	3110.18	76.82
26.	200	40	0.05	1507.96	77.66
27.	250	40	0.03	2391.54	81.31
28.	300	40	0.02	3471.46	82.97
29.	350	40	0.02	4747.73	83.32
30.	400	40	0.01	6220.35	90.20

a) Manual Interpretation

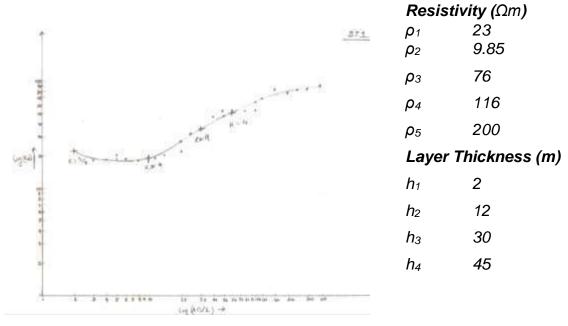


Figure 21. Log sheet plot of apparent resistivity versus current electrode spacing for site SJ1



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 67

b) Software Interpretation

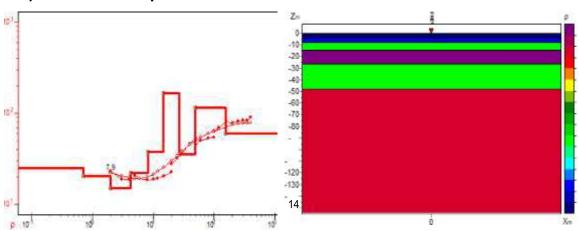


Figure 22. Model derived interpolated layer thickness and resistivity for site SJ1

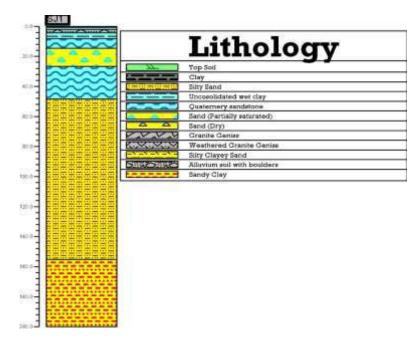


Figure 23. Stratigraphic representation of site SJ1





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023

Page: 68

Table 25. Probable lithology based on resistivity and layer thickness at site SJ1

р	h	Z	Probable Lithology
24.97	0.71	0/0	Top Soil, Clay with boulders
20.48	1.26	0.71	Unconsolidated wet clay
15.15	2.26	1.97	Alluvium soil with boulders
21.93	3.92	4.22	Unconsolidated wet clay
37.80	6.48	8.14	Quaternary and Miocene sandstone (potential water bearing strata)
167.0 1	12.02	14.62	Sand (Partially Saturated)
35.73	21.70	26.64	Quaternary and Miocene sandstone, silty sand
115.6 1	106.9 5	48.34	Silty Sand
60.30		155.2 9	Sandy Clay (Potential Aquifer)

VESJ2

The VES was performed on 27/11/2021 near Kamta Village. The site is on the Westside of the plant and observed data are listed in Table 26. Typical HA, KQ, and HA type curves (Figure 24 & Figure 25) are obtained from the sounding performed in this area. The presence of HA-type curves is common in water-bearing formations, while the KQ combination is representative of impermeable and compacted strata (granite gneiss). The observations have been represented in the form of stratigraphic succession in Figure 26. The probable water-bearing quaternary sandstone unit lies within 15-30 m depth. Probable lithology based on resistivity and layer thickness at site SJ2 is listed in Table 27.





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023

Table 26. Field survey data collection from location SJ2

Date	11/27/2021	Station No.	SJ2	Sounding No.	SJ2			
Latitude	23°50' 24" N	Longitude	84∘59' 45" E					
Locality	Kamta Village	Kamta Village						
S. No.	AB/2	MN/2	Resistance (Ω)	Kq	App. Res. (Ωm)			
1.	2	0.5	4.21	11.78	49.59			
2.	3	0.5	1.64	27.49	45.06			
3.	4	0.5	0.88	49.48	43.44			
4.	5	0.5	0.60	77.75	46.42			
5.	5	1	1.29	37.70	48.56			
6.	6	1	0.96	54.98	52.78			
7.	8	1	0.44	98.96	43.74			
8.	10	1	0.43	155.51	67.18			
9.	10	2	0.93	75.40	70.27			
10.	12	2	0.70	109.90	77.26			
11.	15	2	0.48	173.57	83.14			
12.	20	2	0.26	311.02	81.49			
13.	20	4	0.57	150.80	86.26			
14.	25	4	0.33	239.15	79.40			
15.	30	4	0.20	347.15	70.12			
16.	40	4	0.10	622.04	60.65			
17.	50	4	0.05	975.46	52.77			
18.	50	10	0.11	376.99	42.45			
19.	60	10	0.09	549.78	47.34			
20.	80	10	0.06	989.60	60.86			
21.	100	10	0.04	1555.09	62.98			
22.	100	20	0.91	753.98	688.38			
23.	120	20	0.07	1099.56	71.69			
24.	160	20	0.04	1979.20	77.58			
25.	200	20	0.03	3110.18	83.35			
26.	200	40	0.06	1507.96	93.80			
27.	250	40	0.04	2391.54	105.23			
28.	300	40	0.04	3471.46	122.54			
29.	350	40	0.03	4747.73	147.18			
30.	400	40	0.02	6220.35	120.67			





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023
Page: 70

a) Manual Interpretation

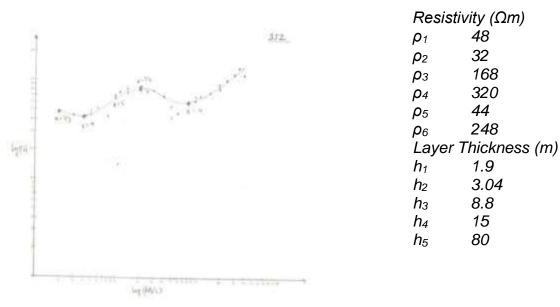


Figure 24. Log sheet plot of apparent resistivity versus current electrode spacing for site SJ2

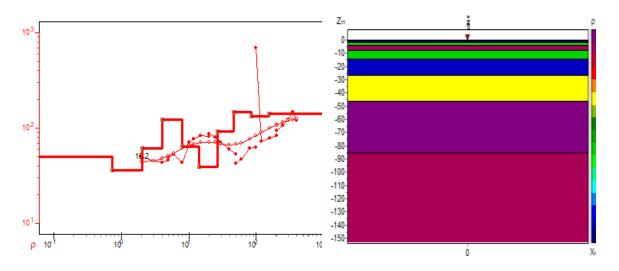


Figure 25. Model derived interpolated layer thickness and resistivity for site SJ2





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023 Page: 71

Table 27. Probable lithology based on resistivity and layer thickness at site SJ2

р	h	Z	Probable Lithology
50.03	0.73	0/0	Alluvial sand, any coal ore
36.21	1.33	0.73	Quaternary Sandstone
60.90	2	2.06	Silty Sand, coal presence
122.0 6	4.04	4.06	Sand (Dry)
64.28	6.26	8.10	Alluvial soil with
			boulders,
			coal ore presence
39.06	12.50	14.36	Quaternary Sandstone
91.73	19.67	26.86	Silty sand
146.6	38.65	46.53	Sand (Dry)
7			
132.2	68.71	85.18	Weathered granite gneiss
3			
141.43		153.89	Granite gneiss

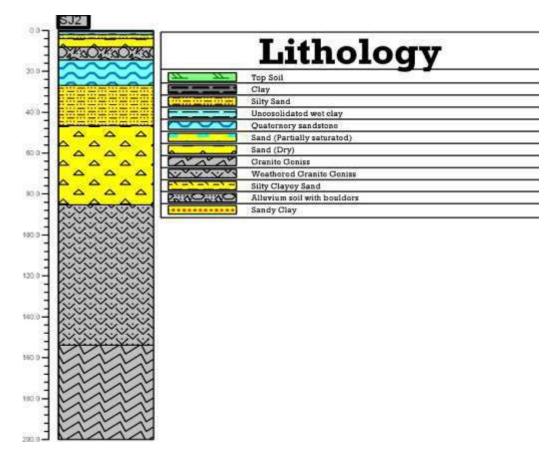


Figure 26. Stratigraphic representation of site SJ2





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023

Page: 72

VES SJ3:

The VES was performed on 27/11/2021 in Raham Tarwaria peper. The site is in the south of the plant location observed data are listed in Table 28. Typical QH, HA type curves (Figure 27 & Figure 28) were obtained from the sounding performed in this area. Probable litho units up to a depth of about 160 m were delineated based on the interpreted resistivity data. The presence of intercalated sand and clay units was observed based on the computation results. The water-bearing quaternary sandstone formation lies within a depth of about 4.12 m bgl (Figure 29). Probable lithology based on resistivity and layer thickness at site SJ3 listed in

Table 29.

Table 28. Field survey data collection from location SJ3

Date	11/27/2021	Station No.	SJ3	Sounding No.	SJ3
Latitude	23°49' 36" N	Longitude	85°8' E		
Locality					
S. No.	AB/2	MN/2	Resistance (Ω)	Kq	App. Res. (Ωm)
1.	2	0.5	6.57	11.78	77.39
2.	3	0.5	2.27	27.49	62.40
3.	4	0.5	1.07	49.48	53.14
4.	5	0.5	0.64	77.75	49.92
5.	5	1	1.03	37.70	38.85
6.	6	1	0.85	54.98	46.68
7.	8	1	0.48	98.96	47.40
8.	10	1	0.31	155.51	47.90
9.	10	2	0.61	75.40	45.99
10.	12	2	0.42	109.90	46.27
11.	15	2	0.26	173.57	45.48
12.	20	2	0.14	311.02	45.00
13.	20	4	0.30	150.80	44.49
14.	25	4	0.18	239.15	43.43
15.	30	4	0.12	347.15	41.76
16.	40	4	0.06	622.04	39.69
17.	50	4	0.04	975.46	36.48





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023
Page: 73

18.	50	10	0.10	376.99	38.00
19.	60	10	0.07	549.78	37.17
20.	80	10	0.03	989.60	34.24
21.	100	10	0.02	1555.09	30.12
22.	100	20	0.05	753.98	35.96
23.	120	20	0.03	1099.56	29.14
24.	160	20	0.01	1979.20	19.53
25.	200	20	0.00	3110.18	4.20
26.	200	40	0.03	1507.96	44.79
27.	250	40	0.02	2391.54	45.08
28.	300	40	0.01	3471.46	32.11
29.	350	40	0.01	4747.73	37.84

a) Manual Interpretation

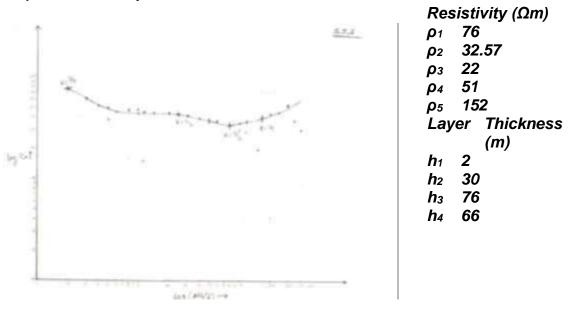


Figure 27. Log sheet plot of apparent resistivity versus current electrode spacing for site SJ3





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023
Page: 74

b) Software Interpretation

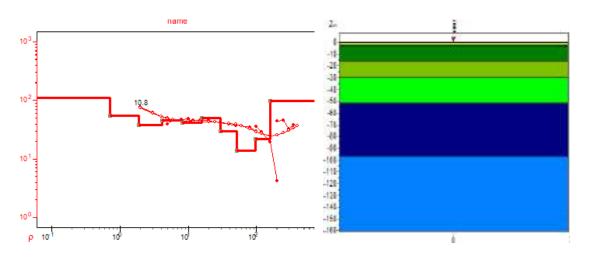


Figure 28. Model derived interpolated layer thickness and resistivity for site SJ3

Table 29. Probable lithology based on resistivity and layer thickness at site SJ3

р	h	Z	Probable Lithology
109.3 9	0.72	0/0	Sand (Dry)
55.64	1.15	0.72	Alluvium Sand with boulders
38.57	2.24	1.88	Quaternary Sandstone
45.51	4.08	4.12	Silty Sand
41.01	7.49	8.19	Silty Sand
49.52	14.07	15.68	Silty Clayey Sand
29.57	22.16	29.75	Clay
13.89	44.80	51.91	Unidentified (Clay mixed with some conductive ore)
21.85	64.33	96.71	Unconsolidated wet clay
97.90		161.0 4	Sandstone, Sand (Dry)



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 75

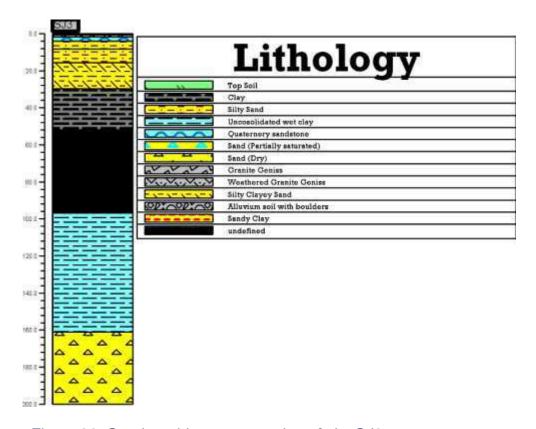


Figure 29. Stratigraphic representation of site SJ3

VES SJ4: The VES was performed near Nayi Param Village. The site is in the east direction of the plant near the reservoir and observed data are listed in Table 30. Sounding curves show the presence of two water-bearing zones (H-A-H Combination Figure 30 & Figure 31). On comparing the same with the surrounding lithology data, the probable litho units were correlated with the findings from this survey. There is the presence of silty sand and unconsolidated wet clay at depths of 5-20m and 50-80m respectively. But possible water-bearing horizon can be within the silty sand layers, because the clayey horizon is of very low permeability. Beyond current electrode spacing of 200m negative values were encountered which could be possibly due to the presence of underground metallic units, contact resistance offered by the electrodes or wet sand. Probable lithology based on resistivity and layer thickness at site SJ4 is listed in Table 31 and the Stratigraphic representation of site SJ4 is shown in Figure 32.





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023

Table 30. Field survey data collection from location SJ4

Date	11/27/2021	Station No.	SJ4	Sounding No.	SJ4
Latitude	23°50' 46" N	Longitude	85°2' 19" E		
Locality	Nayi Param (East of the pla	ant)		
S. No.	AB/2	MN/2	Resistance (Ω)	Kq	App. Res. (Ωm)
1.	2	0.5	3.06	11.78	36.05
2.	3	0.5	0.99	27.49	27.33
3.	4	0.5	0.46	49.48	22.51
4.	5	0.5	0.27	77.75	20.84
5.	5	1	0.58	37.70	21.90
6.	6	1	0.39	54.98	21.22
7.	8	1	0.22	98.96	21.38
8.	10	1	0.13	155.51	20.95
9.	10	2	0.27	75.40	20.51
10.	12	2	0.18	109.90	20.01
11.	15	2	0.11	173.57	19.53
12.	20	2	0.06	311.02	19.87
13.	20	4	0.15	150.80	23.18
14.	25	4	0.10	239.15	24.90
15.	30	4	0.08	347.15	27.08
16.	40	4	0.05	622.04	30.29
17.	50	4	0.03	975.46	32.97
18.	50	10	0.05	376.99	17.53
19.	60	10	0.03	549.78	19.08
20.	80	10	0.01	989.60	10.14
21.	100	10	0.01	1555.09	14.00
22.	100	20	0.04	753.98	28.43
23.	120	20	0.03	1099.56	29.69
24.	160	20	0.01	1979.20	28.94
25.	200	20	0.01	3110.18	24.10
26.	200	40	0.01	1507.96	15.89
27.	250	40	0.00825 (-ve)	2391.54	-
28.	300	40	0.012 (-ve)	3471.46	-



Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report

Issue date: January 27, 2023

Page: 77

a) Manual Interpretation

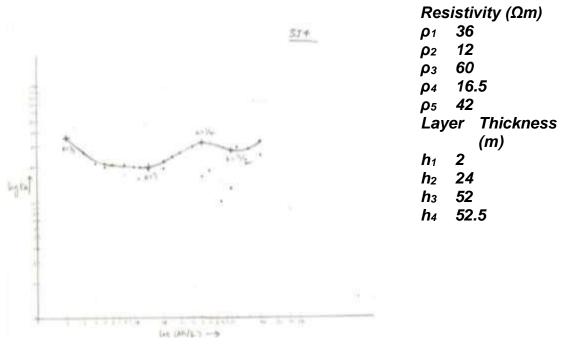


Figure 30. Log sheet plot of apparent resistivity versus current electrode spacing for site SJ4

b) Software Interpretation

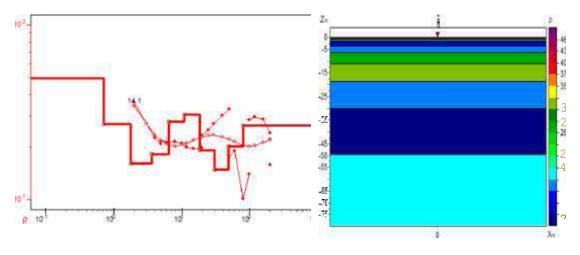


Figure 31. Model derived interpolated layer thickness and resistivity for site SJ4





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023
Page: 78

Table 31. Probable lithology based on resistivity and layer thickness at site SJ4

р	h	Z	Probable Lithology
49.28	0.72	0/0	Silty Clayey Sand
27.07	1.06	0.72	Unconsolidated wet clay
16.22	1.81	1.78	Clay
18.19	2.88	3.60	Clay
28	4.59	6.48	Silty sandy clay
30.78	7.48	11.07	Silty sand
19.10	11.63	18.55	Unconsolidated wet clay
14.81	19.33	30.18	Alluvium sand
20.11	30.45	49.50	Unconsolidated wet clay
26.71		79.95	Quaternary Sandstone

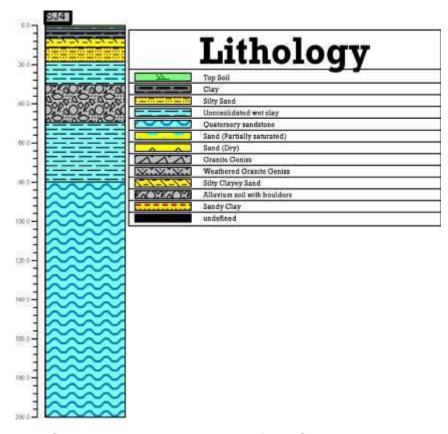


Figure 32. Stratigraphic representation of site SJ4





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report

Issue date: January 27, 2023

Page: 79

8.2 Pump and recovery test analysis

The pumping test is a method to determine the characteristic of the waterbearing formation. The commonly used pumping test is the constant-rate pumping in which the control well is pumped at a constant rate, and pumping water-level response (drawdown) is measured in one or more surrounding observation wells. The data obtained from the pumping test are used to estimate the hydraulic properties of the aquifer. The pumping test was conducted, followed by the recovery test in the study area. The recovery test is used as an independent check for transmissivity obtained during the pumping test, as shown in Figure 33 and Figure 34. The straight-line plot of drawdown (s) versus time (t) is plotted on the semi-logarithmic paper for the observed data, showing transmissivity (T) of the formation as 70.76 m²/day and storativity as 8.84 x 10⁻⁵. The recovery test of the data shows a comparable T value. It is to be noted that the hydrogeolocal parameters obtained in these tests are related to the aquifer media. The properties of the vadose zone and other confining layers of the subsurface control the movement of surface water to the underlying groundwater resources and its subsequent movement predominantly in the down gradient side. Additional infiltration tests are proposed here to investigate the properties of the unsaturated zone.





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023

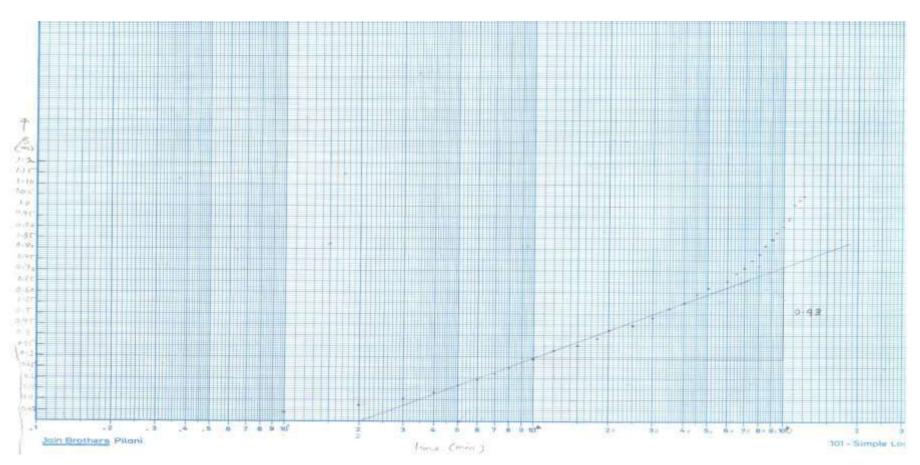


Figure 33. Pumping test data for determination of aquifer parameters





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023
Page: 81

Figure 34. Recovery test data plot.

Jain Brothera Pitani



101 - Simple Log , 4 Scale Log = mm



Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023







Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023
Page: 83

Appendix-A: Photographs of sampling sites around NTPC North Karanpura (Tandwa), along with geographic coordinates

Wate	Water Sampling Sites (Ground and Surface water)					
S.n	Site	Coor	dinates	Location Photograph	Remarks	
0	name	Latitude	Longitude			
1	OS-1	23°49'29.46"	85°0'31.86"		Open well Raham Village	
2	OS-2	23°49'28.68"	85°0'33.66"		Bittu Pandey Handpump (Indiamarka) Raham Village	
3	OS-3	23°49'16.14"	85°0'16.92"		Hot Water Spring, Raham Village	





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023
Page: 84

4	OS-4	23°49'30"	85°0'12.96"	Sammuddin Ansari well, Raham Village
5	OS-5	23°49'30.9"	85°0′14.52"	Server Ansari Well, Well Test done here, Raham Village
6	OS-6	23°51'2.22"	85°0′13.98"	Zahur Mia's Well (Kamta Village)





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

7	OS-7	23°51' 0.00"	85°0'12.48"	NTPC solar pump, Kamta Village
8	OS-8	23°50'46.86"	85°0'2.88"	Abdul Rehman Handpump (IM), Kamta village (West)
9	OS-9	23°51'29.7"	85°0'40.98"	Upender Yadav Well, Garhilong village





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

10	OS-10	23°51'29.7"	85°0'40.98"	Tubewell, Near to OS-9, Garhilong village, south-west to the NTPC plant
11	OS-11	23° 51' 18.34"	85° 2′ 6.13″	Barrage





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023 Page: 87

12	OS-12	23°51′24.28"	85° 2'0.10"	Near barrage, Tandwa market
13	OS-13	23°51'10.08"	85°1'56.52"	Binod Malakar well, Tandwa village, neem chowk
14	OS-14	23°51'53.64"	85°0′7.17"	Garhi river Upstream (near DPS School, Kasaha)
15	OS-15	23°50'49.92"	85°1'46.74"	Rajendra Rana Well, Tandwa





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

16	OS-16	23°50'51.54"	85°1'41.82"	Chamar Paswan well, Tandwa
17	OS-17	23°50'45.78"	85°1'46.86"	Near Joda Lake, Tandwa
18	OS-18	23°50'54.42"	85°1'33.3"	Well discarded, Parking area created (Near Falgu Quarter, inside township)





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

19	OS-19	23°50'54.42"	85°1'33.3"	Inside plant borewell Near OS- 18
20	OS-20	23°48'45.72"	85°1'33.528"	Indiamarka Handpump (Adjacent to the main road), Asnatari
21	OS-21	23°47'40.74"	85°1'15.744"	Indiamarka Handpump (Akash Surao), Samidhi village





Doc. No. HYD-6007/2020-21/FR
Doc. Type: Final Report
Issue date: January 27, 2023

00	00.00	l		1
22	OS-22	23°46'28.524"	85°1'28.272"	Rajkiya Madhya Vidyalaya, Mander (inside school)
23	OS-23	23°47'24.396"	85°2'35.59"	Garhi river downstream (Chora village)
24	OS-24	23°50'52.1"	85°01'31.4"	Near Annapurna mess, inside township
25	OS-25	23°50'50.2"	85°01'00.4"	Inside Plant Tubewell, Near Visvesvaraya bhawan (NTPC office)





Doc. No. HYD-6007/2020-21/FR Doc. Type: Final Report Issue date: January 27, 2023

Page: 91



DEPARTMENT OF HYDROLOGY

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE ROORKEE (UTTARAKHAND), INDIA Phone: +91 1332 285845

Email: manoj.jain@hy.iitr.ac.in







Social Impact Assessment Study NTPC North Karanpura

January 2022



Table of Contents

Table of Contents	2
List of Tables	4
List of Figures	4
List of Abbreviations	5
Executive Summary	7
Chapter 1: Introduction	14
1.1 About NTPC	14
1.2 About NTPC Karanpura	16
Chapter: 2: Socio economic Profile	18
Chapter 3: About the study	37
3.1 Objectives of the evaluation	37
3.2 Scope of the evaluation	37
3.3 Methodology used for the evaluation	38
3.4 OECD DAC Framework	39
3.5 Social Return on Investment	40
3.6 Overall sampling	42
3.6.1 Sampling strategy	42
3.6.2 Sample size	43
3.7 Stakeholder Map	43
3.8 Impact Map	45
Chapter 4: Community Development Work: Need, Status, and Activities	51
Chapter 5: Analysis and Findings	56
Chapter 6: Qualitative Observations	86
Chapter 7: Social Return on Investment	90
7.1 Setting the Scope	91
7.1.1 Establishing Scope	92
7.1.2 Identifying Stakeholders	92
7.2 Mapping outcomes	92
7.3 Evidencing outcomes	93
7.3.1 Evidence indicators and quantity of change	93
7.3.2 Duration of the change	95
7.3.3 Financial proxy (FP) and value of financial proxy	97

7.4 Establishing impact	98
7.4.1 Deadweight	98
7.4.2 Attribution	100
7.4.3 Drop-off	100
7.4.5 Displacement	101
7.5 Calculating impact	101
7.5.1 Calculating the SROI	107
7.5.2 Program input	108
7.5.3 Net present value (NPV)	108
Chapter 8: Need Assessment	110
8.1 Objectives of the Need Assessment Survey	111
8.2 Key Findings	112
8.2.1 Education	112
8.2.2 Health & Sanitation	113
8.2.3 Water	114
8.2.4 Skill Development	114
8.2.5 Community Infrastructure	115
8.2.6 Sports & Culture	115
8.2.7 Gender	115
8.3 Road Map: Suggestive Five-Year Plan	116
Chapter 9: Conclusion and Recommendation	119
Disclaimer and Notice to Reader	122

List of Tables

Table 1:Impact Created by R&R-CD projects of NTPC	8
Table 2: Needs of beneficiaries surveyed	10
Table 3 Village-wise Population of PAV villages	18
Table 4: Total population and sample size excluding skill development candidates (24)	
Table 5: Impact map for education-related projects	
Table 6: Impact map for health-related projects	
Table 7: NTPC's R&R-CD spent for last 4 years	
Table 8: Percentage of beneficiaries reporting improved access to clean water	
Table 9: Percentage beneficiaries reporting improved lighting in the villages post installati	
of streetlights by NTPC	
Table 10 Beneficiaries reporting impact due to construction of roads in the village	
Table 11 Beneficiaries reporting improved health and physical fitness	
Table 12 Beneficiaries reporting pre and post intervention average annual expenditure on	
events	
Table 13: Evidence indicators and quantity of change	93
Table 14: Duration of change for project outcomes	
Table 15: Financial proxies and values	
Table 16: Estimated deadweight percentage for the R&R-CD activities under each sector	
Table 17: Percentage attribution to NTPC by beneficiaries and stakeholders	100
Table 18: Drop off percentage for the R&R-CD activities in each of the sectors	
Table 19: Cumulative impact for the R&R-CD Initiatives under each sector	102
Table 20: Program inputs	
Table 21: Estimated SROI for the R&R-CD activities under each sector	109
Table 22: Key findings of the NAS	112
Table 23: Suggestive 5-year plan	116
List of Figures	
Figure 1 Focus areasFigure 2 Geographical reach of NTPC initiatives	
Figure 3 Dundua SDI profile	
Figure 4 Garilong SDI profile	
Figure 5 Kamta SDI profile	
Figure 6 Naiparam SDI profile	
Figure 7 Raham SDI profile	
Figure 8 Tandwa SDI profile	
Figure 9 Project SDI profile	
Figure 10 Geographical scope of evaluation	
Figure 11 OECD DAC framework	
Figure 12 About SROI	
Figure 13 SROI framework	
Figure 14 Key Stakeholders	
	4

Figure 15 SDI 1. Below Poverty Line	57
Figure 16 SDI 2 Per Capital Income (Annual)	58
Figure 17 Literacy Rate	59
Figure 18 Percentage of children attending school	59
Figure 19 Drop-out rate	60
Figure 20 SDI 6: Population with Higher Education	60
Figure 21 SDI 7: Infant mortality rate	61
Figure 22 SDI 8: Maternal mortality rate	62
Figure 23 SDI 9: Owning a house	62
Figure 24 Pucca house	63
Figure 25 Drinking water	64
Figure 26 SDI 12: Toilet facility	64
Figure 27 SDI 13: Electricity	65
Figure 28 Mobile Medical Unit	75
Figure 29 Treatment vs Control: Health Indicators	76
Figure 30 Treatment vs Control: Toilet Facility	77
Figure 31 Toilet Facility, Dundua	77
Figure 32 Water Tank in Dundua (left) and Raham	78
Figure 33 Treatment vs Control: Access to drinking water	79
Figure 34 Water Tap in household, Dundua	79
Figure 35 Skill development: Gender distribution	80
Figure 36 Streetlights in Dundua (first and second photograph from the left) and Tandwa	a 81
Figure 37 Streetlights, Tandwa	81
Figure 38 Road built Raham	83

List of Abbreviations

CSR	Corporate Social Responsibility
R&R	Resettlement and Rehabilitation
CD	Community Development
FGD	Focus Group Discussion
NAS	Need Assessment Survey
PHC	Primary Health Care
SIE	Socio-Impact Evaluation
IDI	In-Depth Interview
INR	Indian National Rupee
OECD DAC	Organization for Economic Co-operation and Development (OECD) Development Assistance Committee
SDGs	Sustainable Development Goals
SDI	Sustainable Development Indicator
WHO	World Health Organization
PAP	Project Affected Population



Executive Summary

Since the application of mandatory CSR provision in 2014, CSR spending by Corporate India has increased significantly. Along with increasing their CSR spending, the companies are also taking up innovative projects and demonstrating novel ways of addressing social issues. These projects are then replicated or scaled up through investment from the Government. NTPC, being a responsible corporate has taken this opportunity to integrate CSR into its strategy. CSR forms an integral part of NTPC's culture. Social welfare is largely directed towards the communities residing in the vicinity of its plants. NTPC adopted a holistic approach and focused on overall development of the community by looking at each of the major development sectors including education, health, water, skill development and overall community infrastructure. Along similar lines, NTPC Karanpura has been conducting R&R-CD activities for people residing near the power station. Major activities include provision of infrastructural support (construction of school buildings, classrooms, toilet blocks, boundary walls, etc.), provision of books and school bags to students, installation of RO water plants in villages for improved access to safe drinking water, organizing health camps, mobile health care units, support to PHCs to improve access to affordable health facilities, conducting trainings for the youth to improve their employability, among several others.

For the purpose of this study, KPMG adopted a 'mixed method' approach (qualitative and quantitative). Review of documents and data provided by the program team was undertaken to understand the objective and coverage of the program. Subsequently, field visits were carried out in the 6 project villages in Chatra district for data collection from the beneficiaries and other relevant stakeholders. A statistical approach was adopted to decide on the sample size. In total, 394 beneficiaries were surveyed as part of this project. This sample had a proportionate representation of beneficiaries from all age groups and across genders and caste (Scheduled caste, scheduled tribe, and other backward class). KPMG used the OECD DAC framework for developing the research tools (questionnaires for quantitative and qualitative surveys) and evaluating the impact created.

Key Impact

Based on analysis of primary data collected from beneficiaries and stakeholders, it was found that the R&R-CD activities carried out by NTPC have created positive impact on focus area. The R&R-CD interventions have created a positive impact on several indicators across sectors including attendance, regularity, and enrolment levels of the children, access to affordable health care services and reduced incidence of diseases, access to safe and reliable water, improved skills and confidence level through skill development trainings, improved connectivity to rural infrastructure, improved sense of safety after dark, etc. Around 32% beneficiaries surveyed shared that enrolment of girls have increased post the intervention. During stakeholder interactions, the attendance rate for children in treatment villages was reported to be approximately 78%, whereas attendance rate for control group stands at 75%. This impact has been created through provision of various amenities to students in school like desk and benches, books, school shoes and socks, to the children, sanitary napkins to school-going girls and other infrastructural support. Amongst the beneficiaries surveyed, 37% shared that there has been a reduction in overall dropout rate in schools as well as decrease in dropout rate of girls in particular.

Basis interactions with key stakeholder, it was noted that the dropout rate in treatment villages stands at 8% whereas control group villages had a dropout rate of 26%.

Around 97% of the beneficiaries shared that NTPC organizes free health camps for the community. Around 72% of the beneficiaries were satisfied with the service provided in the MMU. Furthermore, provision of free medical services has contributed to decrease in health expenditures with around 68% of the beneficiaries surveyed reporting reduction in medical expenditures. 75% beneficiaries reported that the overhead tank installed by NTPC is the primary source of drinking water for the community. Among the beneficiaries surveyed, 47% reported reduction in the onset of water borne diseases. According to 53% of the beneficiaries surveyed, installation of water supply related infrastructure such as water tankers and pipelines has helped them save time. Around 75% had reported lack of access to clean water for drinking and domestic purposes before intervention. Around 63% of the beneficiaries surveyed reported having access to safe drinking water due to NTPC's interventions which resolved their concerns around water to a large extent. Approximately 69% of the women beneficiaries surveyed reported improved water supply system in villages post intervention.

As part of R&R-CD activities, NTPC has installed streetlights, constructed internal roads, boundary walls in the villages. About 64% of the beneficiaries reported that they have experienced a sense of safety while commuting after these roads were constructed by NTPC. Around 86% of the beneficiaries surveyed reported that NTPC has developed the market area in Tandwa. NTPC's sports interventions had a significant impact on the health of the beneficiaries. About 51% of the surveyed beneficiaries mentioned that the sports initiatives by NTPC helped them in developing their sports habits and enhance their interest in them. 92% of the surveyed beneficiaries reported that they have experienced improved physical fitness after getting involved in sports activities and initiatives conducted by NTPC. Overall NTPC Karanpura has contributed towards community development through implementation of its R&R-CD initiatives in the targeted villages. Table 1¹ below mentions selected impact and the percentage of beneficiaries reporting the corresponding impact.

Table 1:Impact Created by R&R-CD projects of NTPC

Sector	Impact	Percentage of beneficiaries reporting the impact
Education	Improved regularity and attendance of children in school	32
	Increase in enrolment of children in school	30
	Improved learning outcome of children in school	37
	Reduction in education related expenditure	37
	Reduction in dropout rate of children	37

¹ Source: KPMG Primary Data Analysis

-

	Improved access to health infrastructure	41
Health	Reduction in incidence of disease	24
	Reduced expenditure on health	68
	Improved access to safe drinking water	63
	Decrease in water-borne diseases	47
Water	Reduced expenditure on water borne diseases	16
	Improved water supply system in village	64
	Reduced time spent for procuring water due to installation of water supply related infrastructure	53
Skill	Enhanced employability	37
Development	Improved confidence level	52
	Improved access to community infrastructure	38
	Reliable outdoor lighting	30
	Reduced incidence of crime	38
Community Infrastructure	Reduced accident rate	38
	Enhanced sense of security due to reduced chances of accident	64
	Increased social activity and interaction	36
Sports and Culture	Improved health due to physical activity	92
	Enhanced interest in sports	51
Culture	Reduced expenditure in organizing events	39

Areas of Improvement

In order to be able to demonstrate impact, different activities need to come together to create that impact. Holistic support needs to be provided to the beneficiaries including support in infrastructure, deployment of staffs with the ability to deliver quality services, maintenance of infrastructure provided as part of the different activities, designing of systems and processes in a way such that the beneficiaries are able to fully access the benefits and defining the exit strategy so that the beneficiaries continue to access the benefits even after NTPC exits. During the field visit, the beneficiaries surveyed shared that NTPC presently is covering certain aspects, which

could be further strengthened. Needs and expectations of the beneficiaries (as shared by the beneficiaries during the survey) surveyed is presented in the table below²:

Table 2: Needs of beneficiaries surveyed

Sector	Needs	Percentage of beneficiaries reporting challenges in the respective areas
	Support in infrastructure- Beneficiaries surveyed expressed the need for construction of more classrooms, library, and dining room along with the maintenance of the existing ones, new doors for classrooms, chairs, benches, and desks along with a teacher's table and computer systems for their computer and physics lab	67
Education	Quality of education- Beneficiaries surveyed shared the need for organizing teachers training at the local level to improve quality of education	71
	Ability to meet education related expenditure- Beneficiaries surveyed shared the need for provision of scholarship support to school-going children	93
	Support in infrastructure- Beneficiaries surveyed shared the need for ambulances and mobile health care units, facilities for undertaking X-ray and blood testing and regular supply of medicine	97
Health and Sanitation	Quality of service - Beneficiaries surveyed shared the need for deploying experienced staff for providing health care services and arranging for female doctors/ health workers with whom the women beneficiaries can have a one-one discussion on their health issues	96
Water	Community Water Pumps situated at far distances- Beneficiaries surveyed shared that there is a need to travel distances and stand in long ques to fetch water from the common source	47
	Maintenance of the water infrastructure- including leakages in water pipelines, RO, etc.	78

² Source: KPMG Primary Data Analysis

Skill Development	Support in employment- Beneficiaries surveyed shared that they need continued and holistic support including understanding the job requirements of beneficiaries in the communities, organizing relevant trainings around the same and providing support in job placements.	96
Community Infrastructure	Quantity of assets provided- Beneficiaries surveyed shared that more community halls, solar streetlights, etc. need to be constructed	80
mirastructure	Maintenance of the infrastructure – including repair of community toilets, solar streetlights, community halls, roads, and drains	78
Sports & Culture	Improving sports infrastructure through constructing playground in schools, sports field, provision of training kit and equipment.	85
	Increasing frequency of sports events to promote sports especially amongst school children.	95

Overall, based on the observations and interactions with the beneficiaries and stakeholders across villages, it was observed that NTPC Karanpura initiatives have been able to create positive impact through their R&R-CD interventions. However, these could be further strengthened through provision of continued and holistic support, which is crucial to create a sustainable impact on the beneficiaries.

Recommendations

Our recommendation primarily revolves around providing holistic and end to end support to the beneficiaries.

In the education space, support should be provided for capacity building of teachers, provision of basic supplies to children on a continuous basis, infrastructure construction, regular maintenance of the infrastructure provided, constructing playgrounds for the children, etc., all of which together will contribute towards building an enabling environment for the children in schools. This can be done through onboarding individuals from the development sphere along with collaborating with NGO partners who are specialized in the education sector and with their expertise can play crucial role in implementing NTPC's program in a holistic manner.

Similarly, in the health sector, support should comprise both preventive and curative health care. It should include activities - conducting diagnostics for detecting diseases, supply of medicines, continuous monitoring on whether the beneficiaries are receiving follow up treatment, training the village youths and pharmacies on conducting basic testing and common medicines. All these will lead to an improved sustainability quotient of their models. In water-related interventions, NTPC should enable end to end support, starting from installation of infrastructure to regular maintenance of the same with the required support from village heads and the agencies installing

these infrastructures. Village heads should ensure that everyone in the community is able to access community assets installed/ constructed by NTPC.

In the skill development sector, beneficiaries should be provided with a judicious mix of business/ entrepreneurship trainings, on-site technical assistance and counselling, provision of income generating assets for enterprise development, and linkage with government schemes. In activities pertaining to provision of community infrastructure, support should include the following- proper assessment of beneficiaries, provision of the assets in adequate numbers, and ensuring the quality of infrastructure (streetlights) / physical assets provided. Furthermore, the programs should ensure the presence of a proper beneficiary selection process, with specific criteria for selection of beneficiaries defined, such that chances of excluding any target beneficiary is reduced.



Chapter 1: Introduction

1.1 About NTPC

NTPC, India's largest energy conglomerate was established in 1975, not only to accelerate the power sector in the country, but also to contribute to the larger development of the nation through generation of electricity and allied activities. NTPC is positioned to enable India's drive toward ambitious national renewable energy targets and is leading the global energy transition as well. The company has large portfolio of energy sources for generating electricity starting from fossil fuels, hydro, nuclear and renewable energy. The company has also ventured into sectors of power trading, coal mining, rural electrification, ash utilisation and training power professionals to strengthen its core business of producing electricity. NTPC has been awarded the Maharatna Company title in May 2010, one of the only four companies to be awarded this status and is also ranked as No. 2 Independent Power Producer (IPP) by Platts Top 250 Global Energy Company rankings.³

NTPC is committed to inclusive growth and sustainable development with special focus on the community in neighbourhood areas of its operation. NTPC firmly believes that "communities located in the vicinity of our projects as well as those displaced by them are important partners/stakeholders in India's growth story. As good neighbours, we have built strong partnerships with them through a slew of well-conceived community development intervention programs". ⁴

Commitment for CSR and Sustainability⁵

"NTPC commits itself to contribute to the society, discharging its corporate social responsibilities through initiatives that have positive impact on society at large, especially the community in the neighborhood of its operation by improving the quality of life of the people, promoting inclusive growth and sustainability"



³ https://www.ntpc.co.in/en/about-us/ntpc-overview

⁴ Available from: https://www.ntpc.co.in/en/corporate-citizenship/corporate-social-responsibility

⁵ Available from: https://www.ntpc.co.in/download/ntpc-policy-csr-sustainability

NTPC works towards improving the quality of life in neighbourhood community through various R&R-CD initiatives under its Initial Community Development (ICD) policy, Rehabilitation & Resettlement (R&R) policy and Policy for Corporate Social Responsibility (CSR) & Sustainability. The R&R-CD initiatives of NTPC are focused on enhancing quality of life of the community in the vicinity of business locations by way of improving community healthcare and education and developing critical small civic infrastructures besides generating sustainable livelihood options, promoting sports, art, and culture. These projects have been designed based on local specific requirement, need assessment surveys (NAS) and consultation with various stakeholders.

The R&R-CD projects of NTPC cover a diverse range of issues including education, community health and sanitation, water, infrastructure development, gender empowerment and capacity building. These projects have been designed based on local specific requirement, need assessment surveys (NAS) and consultation with various stakeholders.

The R&R-CD initiatives of NTPC have been taken up on PAN India basis around NTPC operations primarily in 20 states mentioned below: Andhra Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand, West Bengal.

The scope of this study covers the R&R-CD programs at NTPC Limited, Karanpura.



Figure 2 Geographical reach of NTPC initiatives

1.2 About NTPC Karanpura

North Karanpura Super Thermal Power Plant is a coal-fired power plant located in the Chatra district of Jharkhand. The initiative was taken by NTPC as early as in 1989 for setting up 2000 MW Thermal Power Project and CEA accorded Techno Economic Clearance in May'1990 with a linked coal source from Magadh Coal Block of CCL. The R&R Plan for North Karanpura Super Thermal Power Project (3x660MW) was formulated in consultation with project affected families (PAFs) and VDAC (Village Development Advisory Committee) as per the R&R Policy of Government of Jharkhand & NTPC. R&R Plan was approved by Govt. of Jharkhand through District Administration & also by the NTPC Board of Directors but due to dispute with CCL project was put on hold till it received CCL clearance in 2013. The compensation for land and assets has been paid to the eligible persons by State Government.

Rehabilitation & Resettlement – Community Development (CD) activities has been conducted for improving the Quality of Life (QoL) of Project Affected families / Project Affected Villages (PAVs). The project authorities for community development activities allocate additional funds for the purpose of upliftment of QoL in the Project Affected Villages (PAVs) from where land has been acquired or PAFs are residing. In line with the traditions of the other NTPC plants, NTPC Karanpura has undertaken various R&R-CD activities in 6 villages surrounding its area of operation. Details of project activities conducted in PAVs is presented theme-wise under Chapter 4: Community Development Work: Need, Status, and Activities.



Chapter: 2: Socio economic Profile

This chapter provides a socio-economic understanding of the project-affected villages. The total population of the project affected village is 20929⁶ with a sex ratio of almost 1:1⁷.

Table 3 Village-wise Population of PAV villages

Village	Population	Female	Male
Dundua	747	373	374
Garilong	4323	2045	2278
Kamta	2455	1194	1261
Naiparam	1833	979	854
Raham	5046	2472	2574
Tandwa	6475	3037	3438
Total	20929	10100	10779
Percentage		48%	52%

The following section provides a village-wise understanding of the infrastructural facilities and social development indicators⁸. In order to effectively monitor the progress and impact of R&R-CD interventions. NTPC had selected the following thirteen key social development indicators (SDI) based on the sustainable development goals: (i) percentage of population below poverty line, (ii) per capita income, (iii) literacy rate, (iv) percentage of children (6-14) attending school,(v) percentage of children dropping out after grade 5, (vi) percentage of population having higher education (graduation, post-graduation, technical education),(vii) infant mortality rate per thousand, (viii) maternal mortality rate per lakh, (ix) proportion of population having house/ shelter, (x) proportion of household having pucca house, (xi) proportion of house having access to drinking water(within premises & near to premises), (xii) proportion of household having toilet facilities and (xiii) proportion of household having electricity. Data on the other key indicators have been collected and presented in Annexure 1,2,3 and 4. Village-wise key SDIs are presented below for the six PAVs along with national, state and district level data for a comparative view. The information on infrastructural profile for villages was provided by the key stakeholders that were covered in the study through in-depth interviews. The indicators capture an overview of availability and need of key facilities such as roads, community buildings, health and WASH facilities. It also provides information on the socio-cultural improvements such as increase in participation levels of children in sports and cultural activities along with an overall community awareness of key health and social issues.

⁶ Source: Data shared by NTPC Karanpura, Census 2011

⁷ Source: KPMG Primary Data analysis

⁸ Source: Census India, 2011; World Bank Group, May 2016. Jharkhand: Poverty, Growth & Inequality; Ministry of Human Resource Development, 2014. Statistics of School Education; Jharkhand Education Project Council, Educational Indicators; Ministry of Home Affairs, 2012-13, Annual Health Survey Fact Sheet; Statista Research Department, May 31, 2021. Per capita income in Jharkhand India FY 2012-2019; Ministry of Health and Family Welfare, 2021, Maternal Mortality Rate (MMR)

Village: Dundua

Dundua village has the lowest population amongst the project affected villages with 747 people. Around 100% of respondents noted that construction and maintenance of roads and community halls were needed in the village. Dundua performed better than the district level on percentage of population below poverty line, literacy rate, and access to amenities such as water, electricity and toilet facilities.

Infrastructural profile of Dundua:

Indicators		Dundua	
Availability & o	condition of:		
Infrastructure	Roads	23% beneficiaries surveyed reported improved access to basic rural infrastructure post development of roads. 100% of respondents noted that construction of new roads is needed.	
	Community Buildings	100% of respondents noted that construction of new community halls is needed. 100% of respondents noted that better maintenance of existing community halls is required.	
Health and Sanitation	Safe Drinking Water Facilities	75% of the beneficiaries surveyed reported improved access to clean water. 75% of the respondents shared that more numbers of tankers, pipelines and better maintenance of existing RO / solar plants /pipes is required.	
	Sanitation Facilities	Basis stakeholder interaction, it was noted that 20% of the people have toilet facility. Need to construct toilets at both household and community levels.	
	Health Facility	Number of beds per 1000 population is 0 (approximately). Average distance to nearest PHC/hospital- 3km. NTPC vans visit once every week. Health center is available which has been useful. 33% beneficiaries reported improved access to affordable health care.	
Socio- cultural	Level of participation of people including children		
Improvement	-in sports	92% of the beneficiaries reported experiencing improved physical fitness after getting involved in sports activities	
	-in cultural activities	Cultural activities related to local festivals and beliefs are conducted by the general public with support provided by NTPC.	
	The changes in socio- cultural pattern of communities taken place due to project interventions in different fields	Around 90% of the beneficiaries reported that there has been a decrease in the crime rate in the post-intervention period as compared to the pre-intervention period.	
Awareness	Level of Awareness generated towards		
	Hygiene & Sanitation	Beneficiaries highlighted the need to eradicate open defecation through conducting awareness campaigns amongst the community members	
	Social issues etc.	50% of the respondents shared that superstition is the most common social issue that they are faced with in their regular life.	

Veterinary	Health status	No Information provided
Facility		
Agricultural	Mention the changes (if any) in agricultural	Percentage of agricultural laborers is 3%
Pattern	pattern during the last three years.	

Social development indicator profile of Dundua:

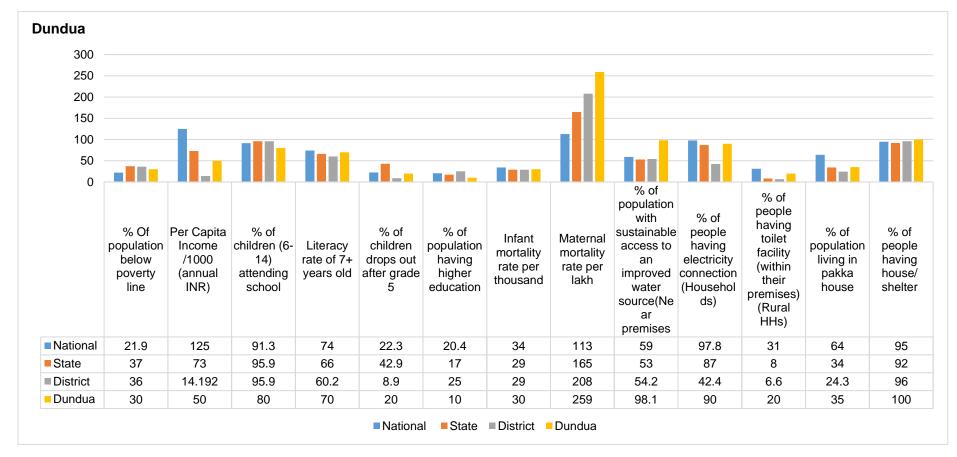


Figure 3 Dundua SDI profile

Vilage: Garilong

Garilong village has a population of 4323 with 2045 females. Around 71% of respondents noted that construction and maintenance of roads were needed in the village. About 100% of the respondents reported experiencing improved physical fitness after getting involved in sports activities. Garilong performed better than the district level on literacy rate, infant mortality rate and access to amenities such as electricity, toilet facilities and shelter.

Infrastructural profile of Garilong:

Indicators		Garilong
Availability & o	condition of:	
Infrastructure	Roads	71% beneficiaries surveyed reported improved access to basic rural infrastructure post development of roads. 71% of respondents noted that construction of new roads is needed.
	Community Buildings	50% of respondents noted that construction of new community halls is needed. 50% of respondents noted that better maintenance of existing community halls is required.
Health and Sanitation	Safe Drinking Water Facilities	93% of the beneficiaries surveyed reported improved access to clean water. 50% of the respondents shared that more numbers of tankers, pipelines and better maintenance of existing RO / solar plants /pipes is required.
	Sanitation Facilities	7% of the beneficiaries shared that NTPC constructed toilets in their house. Basis stakeholder interaction, it was noted that 55% of the people have toilet facility. Need to construct toilets at both household and community levels.
	Health Facility	Number of beds per 1000 population is 0 (approximately). Average distance to nearest PHC/hospital- 4km NTPC vans visit once every week. Health center is available and has been useful to the community. 36% beneficiaries reported improved access to affordable health care.
Socio- cultural Level of participation of people including children		
Improvement	-in sports	100% of the beneficiaries reported experiencing improved physical fitness after getting involved in sports activities
	-in cultural activities	Cultural activities related to local festivals and beliefs are conducted by the general public with support provided by NTPC.
	The changes in socio- cultural pattern of communities taken place due to project interventions in different fields	Around 90% of the beneficiaries reported that there has been a decrease in the crime rate in the post-intervention period as compared to the pre-intervention period.
Awareness	Level of Awareness generated towards	
	Hygiene & Sanitation	Beneficiaries highlighted the need to eradicate open defecation through conducting awareness campaigns amongst the community members

	Social issues etc.	50% of the respondents shared that superstition is the most common social issue that they are faced with in their regular life.
Veterinary Facility	Health status	No Information provided
Agricultural	Mention the changes (if any) in agricultural pattern	Percentage of agricultural laborers is 7%
Pattern	during the last three years.	

Social development indicator profile of Garilong:

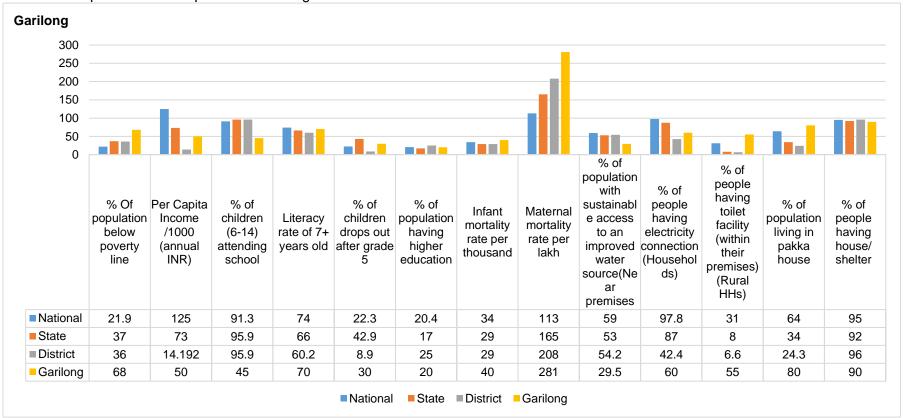


Figure 4 Garilong SDI profile

Vilage: Kamta

Kamta village has a population of 2455 with 48.6% female population. Around 83% of respondents noted that construction and maintenance of roads and community halls were needed in the village. About 92% of the beneficiaries surveyed reported improved access to clean water. Kamta performed better than the district level on per capita income, infant mortality rate and access to amenities such as water, electricity, toilet facilities and shelter.

Infrastructural profile of Kamta:

Indicators		Kamta	
Availability & o	condition of:		
Infrastructure	Roads	42% beneficiaries surveyed reported improved access to basic rural infrastructure post development of roads. 83% of respondents noted that Construction of new roads is needed.	
	Community Buildings	92% of respondents noted that construction of new community halls is needed. 83% of respondents noted that better maintenance of existing community halls is required.	
Health and Sanitation	Safe Drinking Water Facilities	92% of the beneficiaries surveyed reported improved access to clean water. 92% of the respondents shared that more numbers of tankers, pipelines and better maintenance of existing RO / solar plants /pipes is required.	
	Sanitation Facilities	8 % of the beneficiaries shared that NTPC constructed toilets in your house. Basis stakeholder interaction, it was noted that 80% of the people have toilet facility. Need to construct toilets at both household and community levels.	
	Health Facility	Number of beds per 1000 population is 0 (approx). Average distance to nearest PHC/hospital- 6km NTPC vans visit once every week. Health center available. This has been useful. 58% beneficiaries reported improved access to affordable health care.	
Socio- cultural	Iltural Level of participation of people including children		
Improvement	-in sports	83% of the beneficiaries reported experiencing improved physical fitness after getting involved in sports activities	
	-in cultural activities	Cultural activities related to local festivals and beliefs are conducted by the general public with support provided by NTPC.	
	The changes in socio- cultural pattern of	Around 90% of the beneficiaries reported that there has been a decrease in the	
	communities taken place due to project interventions in different fields	crime rate in the post-intervention period as compared to the pre-intervention period.	
Awareness	Level of Awareness generated towards		
	Hygiene & Sanitation	Beneficiaries highlighted the need to eradicate open defecation through conducting awareness campaigns amongst the community members	

	Social issues etc.	50% of the respondents shared that superstition is the most common social issue that they are faced with in their regular life.
Veterinary	Health status	No Information provided
Facility		
Agricultural	Mention the changes (if any) in agricultural pattern	Percentage of agricultural laborers is 13%
Pattern	during the last three years.	

Social development indicator profile of Kamta:

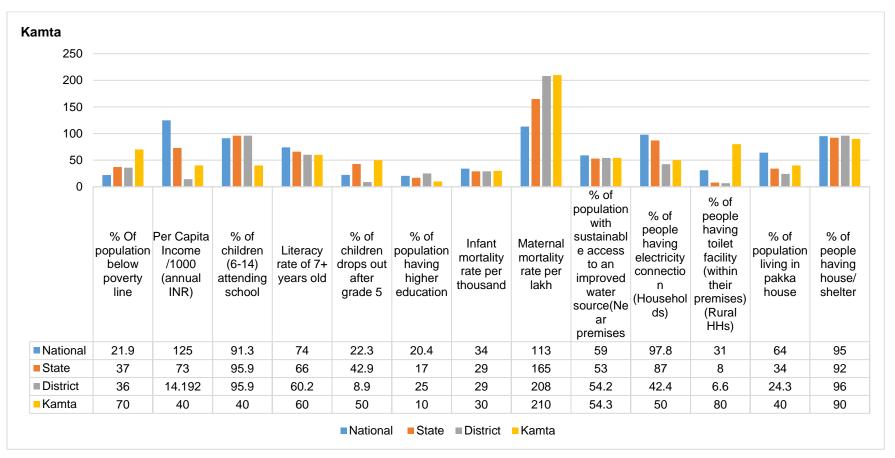


Figure 5 Kamta SDI profile

Vilage: Naiparam

Naiparam village has a population of 1833 with 53.4% female population. About 67% of the beneficiaries shared that NTPC constructed toilets in their house. Around 92% of respondents noted that construction and maintenance of roads and community halls were needed in the village. Naiparam performed better than the district level on per capita income, literacy rate, drop-out rate, infant mortality rate and access to amenities such as electricity, toilet facilities and shelter.

Infrastructural profile of Naiparam:

Indicators		Naiparam
Availability & o	condition of:	
Infrastructure	Roads	33% beneficiaries surveyed reported improved access to basic rural infrastructure post development of roads. 92% of respondents noted that Construction of new roads is needed.
	Community Buildings	92% of respondents noted that construction of new community halls is needed. 92% of respondents noted that better maintenance of existing community halls is required.
Health and Sanitation	Safe Drinking Water Facilities	92% of the beneficiaries surveyed reported improved access to clean water. 92% of the respondents shared that more numbers of tankers, pipelines and better maintenance of existing RO / solar plants /pipes is required.
	Sanitation Facilities	67% of the beneficiaries shared that NTPC constructed toilets in their house. Basis stakeholder interaction, it was noted that 95% of the people have toilet facility. Need to construct toilets at both household and community levels.
	Health Facility	Number of beds per 1000 population is 0 (approx.). Average distance to nearest PHC/hospital- 4km NTPC vans visit once every week. Health center available. This has been useful. 50% beneficiaries reported improved access to affordable health care.
Socio- cultural	ultural Level of participation of people including children	
Improvement	-in sports	100% of the beneficiaries reported experiencing improved physical fitness after getting involved in sports activities
	-in cultural activities	Cultural activities related to local festivals and beliefs are conducted by the general public with support provided by NTPC.
	The changes in socio- cultural pattern of	Around 90% of the beneficiaries reported that there has been a decrease in the
	communities taken place due to project interventions in different fields	crime rate in the post-intervention period as compared to the pre-intervention period.
Awareness	Level of Awareness generated towards	
	Hygiene & Sanitation	Beneficiaries highlighted the need to eradicate open defecation through conducting awareness campaigns amongst the community members

	Social issues etc.	50% of the respondents shared that superstition is the most common social issue that they are faced with in their regular life.
Veterinary Facility	Health status	No Information provided
Agricultural Pattern	Mention the changes (if any) in agricultural pattern during the last three years.	Percentage of agricultural laborers is 2%

Social development indicator profile of Naiparam:

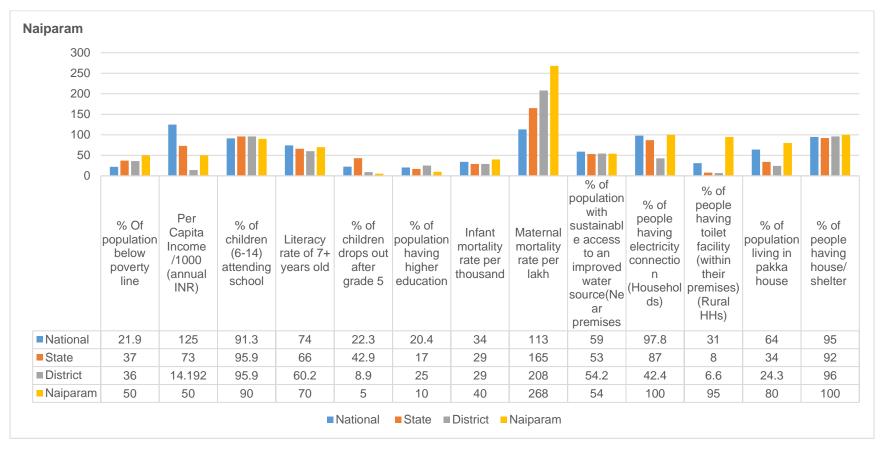


Figure 6 Naiparam SDI profile

Vilage: Raham

Raham village has a population of 5046 with 50% female population. About 75% of the beneficiaries surveyed reported improved access to clean water due to project interventions. Around 100% of respondents noted that construction and maintenance of roads and community halls were needed in the village. Raham performed better than the district level on per capita income, literacy rate, drop-out rate, infant mortality rate and access to amenities such as water, electricity, toilet facilities and shelter.

Infrastructural profile of Raham:

Indicators		Raham
Availability & o	condition of:	
Infrastructure	Roads	42% beneficiaries surveyed reported improved access to basic rural infrastructure post development of roads. 100% of respondents noted that Construction of new roads is needed.
	Community Buildings	100% of respondents noted that construction of new community halls is needed. 100% of respondents noted that better maintenance of existing community halls is required.
Health and Sanitation	Safe Drinking Water Facilities	75% of the beneficiaries surveyed reported improved access to clean water. 75% of the respondents shared that more numbers of tankers, pipelines and better maintenance of existing RO / solar plants /pipes is required.
	Sanitation Facilities	Basis stakeholder interaction, it was noted that 60% of the people have toilet facility. Need to construct toilets at both household and community levels.
	Health Facility	Number of beds per 1000 population is 0 (approx.). Average distance to nearest PHC/hospital- 6km NTPC vans visit once every week. Health center available. This has been useful. 50% beneficiaries reported improved access to affordable health care.
Socio- cultural Level of participation of people including children		
Improvement	-in sports	89% of the beneficiaries reported experiencing improved physical fitness after getting involved in sports activities
	-in cultural activities	Cultural activities related to local festivals and beliefs are conducted by the general public with support provided by NTPC.
	The changes in socio- cultural pattern of communities taken place due to project interventions in different fields	Around 90% of the beneficiaries reported that there has been a decrease in the crime rate in the post-intervention period as compared to the pre-intervention period.
Awareness	Level of Awareness generated towards	
	Hygiene & Sanitation	Beneficiaries highlighted the need to eradicate open defecation through conducting awareness campaigns amongst the community members

	Social issues etc.	50% of the respondents shared that superstition is the most common social issue that they are faced with in their regular life.
Veterinary Facility	Health status	No Information provided
Agricultural Pattern	Mention the changes (if any) in agricultural pattern during the last three years.	Percentage of agricultural laborers is 12%

Social development indicator profile of Raham:

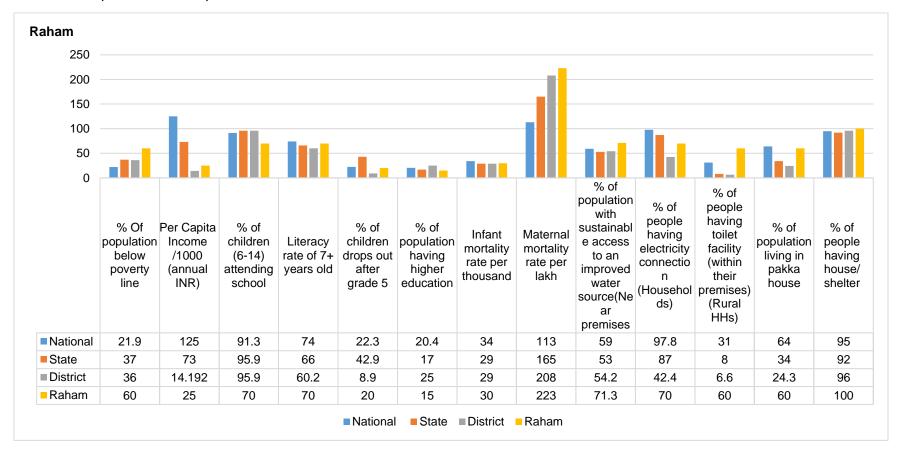


Figure 7 Raham SDI profile

Vilage: Tandwa

Tandwa village has a population of 3037 with 47% female population. Around 100% of respondents noted that construction and maintenance of roads and community halls were needed in the village. About 92% of the beneficiaries reported experiencing improved physical fitness after getting involved in sports activities. Tandwa performed better than the district level on per capita income, literacy rate, infant mortality rate, maternal mortality rate, and access to amenities such as water, electricity, toilet facilities and shelter.

Infrastructural profile of Tandwa:

Indicators		Tandwa			
Availability & o	condition of:				
Infrastructure	Roads	9% beneficiaries surveyed reported improved access to basic rural infrastructure post development of roads. 100% of respondents noted that Construction of new roads is needed.			
	Community Buildings	100% of respondents noted that construction of new community halls is needed. 100% of respondents noted that better maintenance of existing community halls is required.			
Health and Sanitation	Safe Drinking Water Facilities	9% of the beneficiaries surveyed reported improved access to clean water. 91% of the respondents shared that more numbers of tankers, pipelines and better maintenance of existing RO / solar plants /pipes is required.			
	Sanitation Facilities	Basis stakeholder interaction, it was noted that 70% of the people have toilet facility. Need to construct toilets at both household and community levels.			
	Health Facility	Number of beds per 1000 population is 1 (approx.). Tandwa has a primary health center. NTPC vans visit once every week. Health center available. This has been useful. 42% beneficiaries reported improved access to affordable health care.			
Socio- cultural	Level of participation of people including children				
Improvement	-in sports	92% of the beneficiaries reported experiencing improved physical fitness after getting involved in sports activities			
	-in cultural activities	Cultural activities related to local festivals and beliefs are conducted by the general public with support provided by NTPC.			
	The changes in socio- cultural pattern of communities taken place due to project interventions in different fields	Around 90% of the beneficiaries reported that there has been a decrease in the crime rate in the post-intervention period as compared to the pre-intervention period.			
Awareness	Level of Awareness generated towards				
	Hygiene & Sanitation	Beneficiaries highlighted the need to eradicate open defecation through conducting awareness campaigns amongst the community members			

	Social issues etc.	50% of the respondents shared that superstition is the most common social issue that they are faced with in their regular life.
Veterinary Facility	Health status	No Information provided
гасшіу		
Agricultural	Mention the changes (if any) in agricultural pattern	Percentage of agricultural laborers is 3%
Pattern	during the last three years.	

Social development indicator profile of Tandwa:

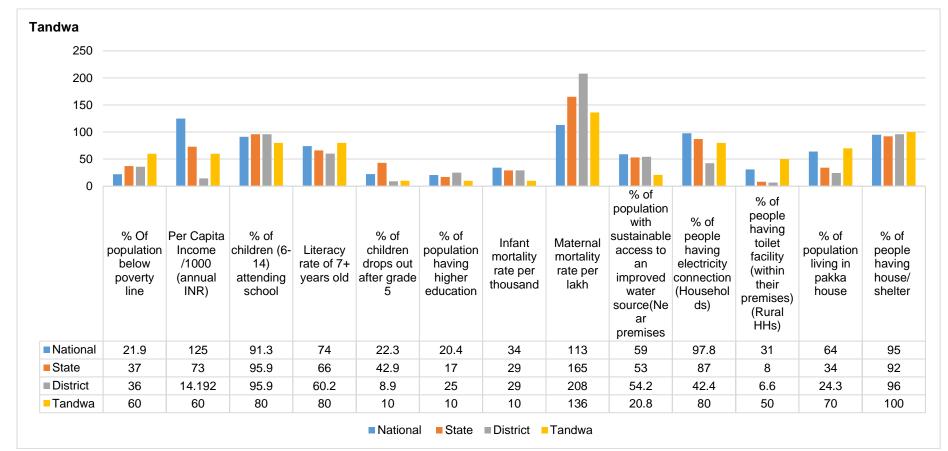


Figure 8 Tandwa SDI profile

Overall Project:

The overall performance of the treatment villages across the selected thirteen key social development indicators vis-à-vis the national, state, district, as well as the control group is presented in the chart below. Treatment villages performed better than the control villages on children attending school, population having higher education, infant mortality rate, maternal mortality rate, and access to amenities such as electricity and shelter.

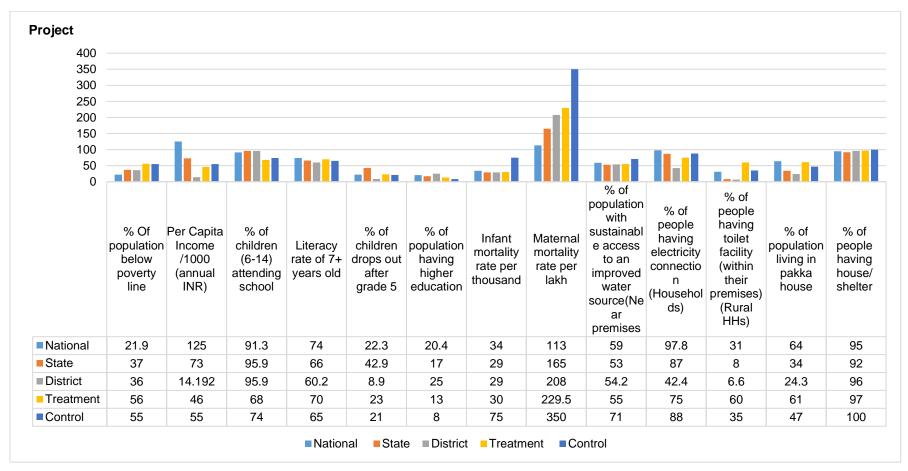
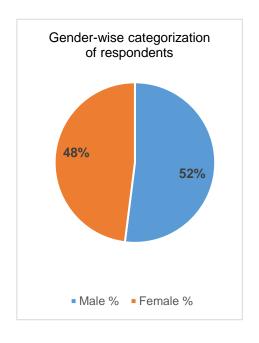
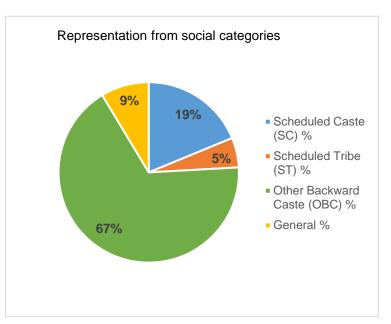


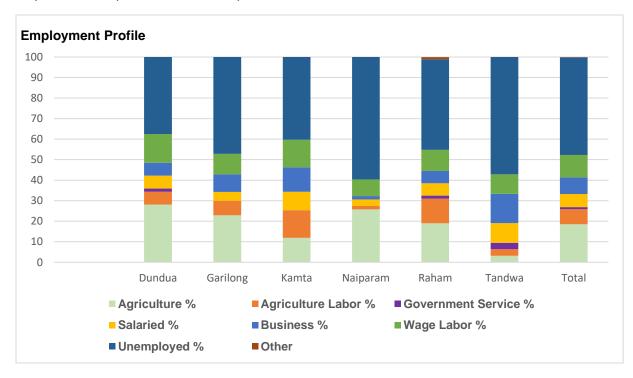
Figure 9 Project SDI profile

The study covered approximately 2% (394 beneficiaries) of the total population of the project affected villages (20929). The following graphs provide a gender-wise break up as well as distribution of respondents across various social categories:





The findings of our study indicate that agriculture is the primary occupation in almost all the villages, followed by wage labor. On an average, the percentages of beneficiaries reporting their respective occupation, have been presented in the table below.



Employment sector	Dundua	Garilong	Kamta	Naiparam	Raham	Tandwa	Total
Agriculture %	28	23	12	26	19	3	19
Agriculture Labor %	6	7	13	2	12	3	7
Government Service %	2	0	0	0	1	3	1
Salaried %	6	4	9	3	6	10	6
Business %	6	9	12	2	6	14	8
Wage Labor %	14	10	13	8	10	10	11
Unemployed %	38	47	40	60	44	57	47
Other %	0	0	0	0	1	0	0

The survey noted that around 68% of the beneficiaries had access to formal education with over 40% of the respondents having completed their education till class10th. Village wise education levels of the beneficiaries is given in the table below:

Name of Village	No School %	Up to 5th grade %	6th - 10th grade %	10th - 12th grade %	Graduate %	Post- graduate %
Dundua	25	5	17	34	17	2
Garilong	40	3	27	19	9	3
Kamta	39	9	21	21	9	1
Naiparam	34	6	11	42	3	3
Raham	25	9	28	28	4	6
Tandwa	30	8	14	19	17	11
Total	32	7	20	27	10	4

According to this survey, the average monthly income and expenditure of beneficiaries across villages are INR 14,737 and 12,576 respectively. On an average, the monthly expenditure is INR 2,161 less than the monthly income. Village wise average income and expenditure is given in the table below:

Name of Village	Average monthly income of household	Average monthly expenditure of household
Dundua	14406	12609
Garilong	13079	9857
Kamta	17627	13224
Naiparam	13282	15097
Raham	13853	11779
Tandwa	16175	12889
Total	14737	12576

Interactions with the beneficiaries suggested that Hindi and khortha the most commonly spoken language in the villages. Some of the beneficiaries surveyed also indicated that they can speak oraon, Urdu, nagpuri, Bhojpuri as well. Furthermore, amongst the beneficiaries surveyed, 56% shared that they were part of either a social, religious, or political organization, which contributes to their sense of empowerment. 96% of the beneficiaries liked spending time with friends and family and around 30% of the respondents noted that they enjoy art and music in their free time.

Based on this survey results, superstition has emerged as one of the predominant social problems faced by the beneficiaries surveyed, followed closely by alcoholism. 50% of the respondents shared that superstition is the most common social issue that they are faced with in their regular life, followed by alcoholism (44%), crime (22%) and gender-based discrimination (9%). Around 90% of the beneficiaries reported that there has been a decrease in the crime rate in the post-intervention period as compared to the pre-intervention period.

Around 86% of the respondents were land oustees, with Tandwa and Naiparam having about 95% of land oustee respondents. On an average, 78% respondents across villages reported having received land grant of INR 15 lacs per acre, with around 90% of Tandwa beneficiaries reporting they have received the land grant, Village-wise percentage coverage of respondents who were land oustees and %age respondents who had received land grant is shown in the table below:

Name of Village	%age of respondents who were land oustees	% age of respondents reported receiving land grant received (INR 15 Lacs per acre)
Dundua	83	77
Garilong	83	71
Kamta	87	72
Naiparam	95	89
Raham	76	72
Tandwa	95	90
Total	86	78



Chapter 3: About the study

In 2020, NTPC has empaneled KPMG to conduct need assessment survey and socio-impact evaluation in connection with their R&R-CD projects.

3.1 Objectives of the evaluation

In order to strategize and plan its R&R-CD activities, NTPC Karanpura has planned to carry out an impact assessment of the projects. The objective of the study was to assess the impact created on the stakeholders covered under the program.

The expected benefits from the study are as follows:

- Captures the perceptions of benefits of beneficiaries, stakeholders, and their behavioral change
- Suggests improvements in management and monitoring systems
- Applicable across diverse interventions and recognizes the diverse range of development and humanitarian activities
- Guides more effective investment
- Recommends improvements in program delivery
- Enhances understanding of the status of upkeep of the assets created out of the R&R-CD activities

3.2 Scope of the evaluation

The scope of the evaluation covers six project affected villages- *Tandwa, Garilong, Kamta, Raham, Naiparam, and Dundua*- in Chatra district in Jharkhand. The project interventions cover six thematic areas- education, health & sanitation, water, skill development, community infrastructure, and sports & culture.

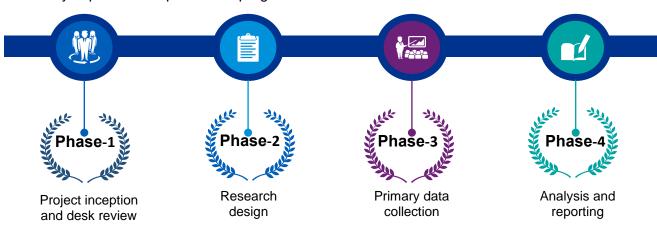
The evaluation also includes a control group study in two villages near the treatment area- Badagaon and Mandar. The findings will be used as a road map for existing and planning new interventions.



Figure 10 Geographical scope of evaluation

3.3 Methodology used for the evaluation

This study adopted a four-phase structured methodology for evaluation as illustrated below. The adopted methodology ensured that OECD DAC evaluation criteria were followed throughout to effectively capture the impact of the program.



1. Project inception and desk review

During the inception phase, team conducted desk review of documents and reports related to the program. Evaluation team also held discussions with NTPC Karanpura in order to understand the project timelines and beneficiaries.

3. Primary data collection

Primary data collection was done through both face-to-face interviews and focus group discussions to cover wider diversity of respondents. The team conducted surveys with beneficiaries and interactions with relevant stakeholders including control group. The evaluation team were on the field from 13 July 2021 till 28 July 2021.

2. Research design

During this phase evaluation team developed an impact map for each project. Primary data collection tools were also developed and finalized in consultation with NTPC Karanpura.

4. Analysis and reporting

Data captured during the primary data collection phase has been analyzed for report writing. Qualitative responses to the questionnaires, conducted with beneficiaries and stakeholders in the respective areas, have also been analyzed.

3.4 OECD DAC Framework9

The Organization for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) first laid out the evaluation criteria (relevance, effectiveness, efficiency, impact, and sustainability) in the 1991. These five criteria serve as the core reference for evaluating international development and humanitarian projects, programs, and policies. These evaluation criteria have been defined below:

- Relevance: The extent to which the intervention objectives and design respond to beneficiaries' needs, policies, and priorities, and continue to do so if circumstances change.
- **Effectiveness:** The extent to which the intervention achieved, or is expected to achieve, its objectives, and its results, including any differential results across groups.
- **Efficiency:** The extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way.
- **Impact:** The extent to which the intervention has generated or is expected to generate significant positive or negative, intended, or unintended, higher-level effects.
- **Sustainability:** The extent to which the net benefits of the intervention continue or are likely to continue.

OECD DAC Framework

What is it?

Framework for evaluating performance of social development programs on relevance, effectiveness, convergence, and sustainability aspects

How it helps?

Helps in gaining qualitative understanding of the impact created, stakeholder perception, extent of collaboration with other actors and sustenance of the change

Figure 11 OECD DAC framework

⁹ http://www.oecd.org/dac/evaluation/revised-evaluation-criteria-dec-2019.pdf

Evaluation Criteria	Indicative questions	Key Performance Indicator	
Relevance	To what extent does the program have the capacity to meet the needs and expectations of society? To what extent does the program have the potential to facilitate participation from the community?	Program aligned to the needs and expectations of society and involved engagement / participation from the community, linkage with SDGs, etc	
Effectiveness	To what extent did the program activity attain its objectives? What were the major factors influencing the achievement or non-achievement of the objectives?	Program achieved cross-cutting objectives during project implementation	
Efficiency	To what extent has the program been able to use the least costly resources possible to achieve the results?	Resources are provided and efficiently used for participation of all stakeholders	
Impact	To what extent has the program been able to create an impact on HDI profile of beneficiaries?	Achieved real and long- lasting positive changes in the lives of intended beneficiaries	
Sustainability	To what extent does the program have the potential to create a sustainable impact post withdrawal of NTPC's support?	Enhancement of local community/ institution skills to govern and manage programs, linkages with government/ other funding, etc.	

3.5 Social Return on Investment

Social Return on Investment (SROI) is a systematic method that endeavors to measure and incorporate value created because of investment – namely social, environmental, and economic value which is not fully reflected in conventional cost-benefit analyses. This method is used to monetize the social and environmental impact of the program and measure how much value has been created for each rupee invested/ spent on the program. The evaluative aspect of an SROI quantifies the value of the social impact of programs, and policies, and measures change in ways that are relevant to the people or organizations that experience or contribute to it. Through an SROI, organizations can evidence the social value their programs are achieving, gain deeper insight into what impact they are having for their stakeholders and can thus use this as an input for their company strategy. SROI is about value, rather than money. It can encompass the social value generated by an entire organization or focus on just one specific aspect of the organization's work.

SROI - Social Return on Investment

What is it?

SROI is a tool for measuring the total value generated for every rupee invested in development sector interventions

How it helps?

Helps in quantifying the social, environment and financial outcomes and impact in financial term

Figure 12 About SROI

SROI utilizes the concept of "theory of change/ impact map" to describe the change creation by measuring social, environmental, and economic outcomes. It uses monetary values to represent the outcomes thus enabling calculation of ratio of benefits to costs to be calculated. SROI analysis includes case studies and qualitative, quantitative, and financial information thus helping organizations/ people to base their future decisions. The striking advantage of SROI study is that other impact assessment methodologies stop at identifying outcomes while SROI methodology goes beyond to value them and calculate the social value of impact. Steps of a SROI study are listed below –

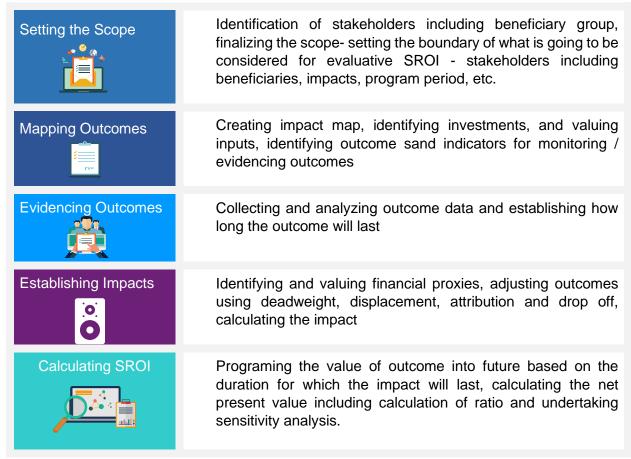


Figure 13 SROI framework

3.6 Overall sampling

Based on the review of the documents and the available information on beneficiaries and stakeholders obtained from NTPC, a combination of simple random sampling (SRS) and purposive sampling method has been selected. The SRS sampling method is a type of probability sampling method under which each unit of the population has an equal probability of being selected as a sample. In other words, a simple random sample of size 'n' consists of 'n' individuals from the population such that every unit of 'n' has an equal chance to be the sample selected. This method is used to avoid bias in sample selection. (Source: Moore, David S., George P. McCabe, and Bruce A. Craig. *Introduction to the Practice of Statistics*. New York: WH Freeman, 2009) It is suitable in the current context as the available information about the beneficiaries is limited.

3.6.1 Sampling strategy

The sample size for this study has been calculated using Cochran's sample size formula. This formula allows one to calculate the sample size with desired level of:

- Precision
- Confidence level
- Estimated proportion of attribute present in the population

Cochran's formula is particularly appropriate in situations with large population. Cochran's Sample Size formula is given by:

Equation 1: Cochran Sampling Formula

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where,

- Z² Z value corresponding to confidence level i.e., obtained from Z table (statistical table),
- p proportion of population which has the attribute in question,
- q -1-p (estimation of variance)
- e margin of error, which indicates by how many percentages the result will differ from the real population value

For the purpose of this study,

- Total population: 21000¹⁰
- Z: 1.96 (z value for 95% Confidence level)
- p: 0.5 (assumption is that 50% of the population says yes and 50% of the population says no the question)
- q: 0.5 (1-p) estimate of variance
- e: 5% (standard assumption)

_

¹⁰ Source: Data provided by NTPC Karanpura

Putting all the values in the Cochran's formula, we get: ((1.96)2(0.5)(0.5))/(0.05)2 = 384.16 i.e., equivalent to 384

This indicates that a random <u>sample of 384 households will give us the confidence level that</u> we need.¹¹

3.6.2 Sample size

For the purpose of this study, we have surveyed 394 beneficiaries, conducted 6 FGDs and interacted with 24 stakeholders. A sample of 360 beneficiaries was drawn for 6 villages ensuring equal coverage of five thematic areas- Education, Health & Sanitation, Water, Community Infrastructure and Sports & Culture. A sample of 24 trainees was taken for targeting Skill Development across all villages and the study covered 24 candidates. FGDs were conducted in the following villages: *Tandwa, Garilong, Kamta, Raham, Naiparam, and Dundua*. In addition, surveys were conducted with non-beneficiaries (control group) including local government officials to bring about a holistic understanding of the project and its current outreach. Data for control group was collected through 6 stakeholder interactions conducted with key community members across the two control group villages- Badagaon and Mander. One stakeholder each for education, health and gram pradhan were covered for both the control group villages.

Table 4: Total population and sample size excluding skill development candidates (24)

S. No.	Village	Population	Sample	Achieved
1	Dundua	747	60	65
2	Garilong	4323	60	60
3	Kamta	2455	60	60
4	Naiparam	1833	60	60
5	Raham	5046	60	66
6	Tandwa	6475	60	59
	Total	20929	360	370

3.7 Stakeholder Map

Stakeholder mapping refers to the technique used for identifying and engaging with the stakeholders. The major stakeholders, with whom we had interacted during the study is presented in the figure below. The methods used for engaging with the stakeholders were survey interviews, in-depth interview and FGDs.

Survey Interview

Survey is a list of questions aimed at extracting specific data from a particular group of people. It is often used to assess thoughts, opinions, and feelings. In survey interviews, questionnaires are completed by the interviewer based on answers of respondents. In the study, the survey interview

¹¹ Available from: https://www.statisticshowto.datasciencecentral.com/probability-and-statistics/find-sample-size/

was conducted to gather primary data from sampled beneficiaries on the impact of the program on their lives using a structured questionnaire.

Key Informant Interview

Key informant interviews are qualitative in-depth interviews with people who have firsthand knowledge about the program interventions and the activities undertaken for them. In such an interview, respondent perspective on a program, idea, or subject are explored. They were conducted for various stakeholders such as – Gram Pradhans, School principals and teachers, ASHA workers and Anganwadi workers with broad open-ended questions to understand the project interventions. The study included interactions with Gram Pradhans and other panchayat members as they represent the entire village, and are involved in the village activities, hence their opinions are deemed significant for the evaluation.

Focused Group Discussion

Focus group discussions (FGD) involve gathering people from similar backgrounds or experiences together to discuss a specific topic of interest. It is a form of qualitative research where questions are asked about their perception, attitudes, beliefs, opinion, or ideas. In focus group discussion participants are free to talk with other group members; unlike other research methods it encourages discussions with other participants. It generally involves group interviewing in a small group of usually 8 to 12 people¹².



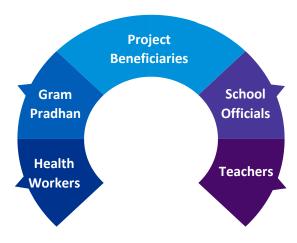


Figure 14 Key Stakeholders

¹²https://www.herd.org.np/uploads/frontend/Publications/PublicationsAttachments1/1485497050-Focus%20Group%20Discussion 0.pdf

3.8 Impact Map

To achieve the desired long-term changes, one needs to establish clear linkages between the project's activities and the desired impact. An Impact map is a representation of the workflow of the project and identifies the various aspects of project implementation, as mentioned below¹³.

- 1. **Inputs**: The financial, human, and material resources used for the development intervention by the implementing agency and other stakeholders.
- Activities: The actual work on ground, actions taken, or work performed through which
 inputs, such as funds, technical assistance and other types of resources are mobilized to
 produce specific outputs
- 3. **Outputs**: The products, capital goods and services which result from a development intervention and may also include changes resulting from the intervention which are relevant to the achievement of outcomes.
- 4. **Outcomes**: Outcomes are the (long term) changes created for the stakeholders related to the activities in the scope/The likely or achieved short-term and medium-term effects of an intervention's outputs.
- Impact: It is measured in terms of a significant change in the lives of the project beneficiaries due to the initiation of the project. Positive and negative, primary, and secondary long-term effects produced by a development intervention, directly or indirectly, intended, or unintended.

It is a tool for describing or illustrating how and why a desired change is expected to happen, that is, connecting the activities of the program with the outcomes, impacts and their contribution to achievement of the final goal.

Education

The following impact map was developed for education-related projects as part of the study.

Table 5: Impact map for education-related projects

Input	Activities	Output	Outcome	Impact
Fund allocated by NTPC Karanpura Time invested by NTPC	Providing dual desk benches, furniture items, revolving chairs, etc.	Number of Desks and benches provided, No. of chairs provided.	 Percentage increase in attendance of students Percentage students reporting 	 Percentage increase in enrollment of school children Percentage decrease in drop out of children
Karanpura staff	Distribution of books, school shoes, school socks, etc.	Number of books, school shoes, school socks distributed.	reduction in education expenditure	 Percentage beneficiaries reporting increase in the overall learning level of the children

 $^{^{\}rm 13}$ https://www.intrac.org/wpcms/wp-content/uploads/2016/06/Monitoring-and-Evaluation-Series-Outcomes-Outputs-and-Impact-7.pdf

45

Time Distribution of scholarships and awards to students.	Number of students provided with scholarships; No. of schools covered;	•	Percentage beneficiaries reporting holistic development of children
---	--	---	---

Health & Sanitation

The following impact map was developed for health-related projects as part of the study.

Table 6: Impact map for health-related projects

Input	Activities	Output	Outcome	Impact
Fund allocated by NTPC Karanpura Time invested by NTPC	Organizing health camps in the villages	No. of camps organized. No. of villages covered	beneficiaries experiencing timely availability of	 Percentage beneficiaries reporting improved health Percentage beneficiaries reporting increase
Karanpura staff Time invested by community	MMU	Number of patients, No of villages covered, No of people provided with medicines		in income due to improved health
	Construction of toilets Awareness camps	Number of villages covered, No of HH provided with toilets, No of community members involved in awareness programs	hygiene in villages (due to construction of community toilets, SWM, etc.)	

Water

The following impact map was developed for water-related projects as part of the study.

Input	Activities	Output	Outcome	Impact
Fund allocated by NTPC Karanpura Time invested by NTPC	Provision of water tankers; extension of water pipelines; renovations of dams	No. of water tankers, No. of villages covered	 Percentage beneficiaries reporting improved access to clean drinking water Percentage beneficiaries 	 Improved access to safe water Reduced expenditure on health Increase in income due to
Karanpura staff Time invested by community	Installation of hand pumps and solar based pump systems	No. of hand pumps installed, No. of villages covered	reporting reduction in water borne diseases • Percentage beneficiaries reporting change in	more productive/ working hours
	Solar pump systems were installed	No. of pumps installed, Capacity of the pump	 cost of availing water Percentage beneficiaries reporting more hours of economic 	
	Improvement of water ponds	No. of villages covered No of beneficiaries covered	activity	

Skill Development

The following impact map was developed for skill development projects as part of the study.

Input	Activities	Output	Outcome	Impact	
Fund allocated by NTPC Karanpura Time invested by NTPC	Establishing training centers for tailoring	No. of youth trained. No. of women trained	 Percentage youth / women reporting enhanced skills Percentage youth / women receiving employment Percentage 	women reporting beneficiarie reporting in income women receiving employment beneficiarie reporting in income in income confidence	beneficiaries reporting increase in income
Karanpura staff Time	Enrollment and course fee payment for students at	No. of students enrolled; No. of students who completed the	beneficiaries pursuing higher education	economic status	
invested by community	various Industrial Training	course; number of students who			

Institutes,	were placed
distribution of	after course
tailoring training	completion
kits	

Community Infrastructure

The following impact map was developed for community infrastructure-related projects as part of the study.

Input	Activities	Output	Outcome	Impact
Fund allocated by NTPC Karanpura Time invested by NTPC	Installation of solar streetlights	No. of solar streetlights installed; No. of village covered	 Percentage beneficiaries reporting improved access to community infrastructure Percentage 	 Percentage beneficiaries reporting increase in income due to improved connectivity with market
Karanpura staff Time invested by community	Construction or renovation of community halls	No. of community halls constructed or renovated	beneficiaries reporting improved connectivity with the market due to roads constructed • Percentage	 Percentage beneficiaries reporting an enhanced sense of security due to installation of solar
Johnnanny	Construction of Roads and drains	No. of roads and drains constructed; No. of villages covered; Distance covered by roads and drains (in km)	beneficiaries reporting reduction in the accident rate post development of roads	lights

Sports & Culture

The following impact map was developed for sports and culture-related projects as part of the study.

Input	Activities	Output	Outcome	Impact
Fund allocated by NTPC Karanpura Time invested by	Organizing sporting events and promoting various sports in the village	No. of sporting events organized, No. of training kits and equipment provided	 Percentage beneficiaries developing their sports habit and interest. Percentage beneficiaries 	 Percentage beneficiaries reporting improved health and physical fitness after getting

NTPC Karanpura staff

Time invested by community

Organizing marriages, cultural events, festivals. No. of cultural events organized; no. of festivals celebrated.

- reporting increased participation in regular sports and sports related competitions in villages
- Percentage beneficiaries reporting reduction in the expenditure on cultural events
- involved in sports
 activities
 Percentage
 beneficiaries
 reporting
 increased
 participation in
 community events
 and festivals



Chapter 4: Community Development Work: Need, Status, and Activities

A socio-economic impact assessment study for NTPC Karanpura was conducted in 2005 by the Indian Institute of Social Welfare and Business Management, Kolkata. The 2005 impact assessment report¹⁴ provided the following recommendations:

The report suggested NTPC to make efforts to minimize involuntary resettlement of communities and in case resettlement is absolutely necessary, mechanisms need to be put in place to ensure that the project affected communities are able to sustain themselves at the new locations. The study noted that it was essential for the project authorities to ensure that the affected communities are provided adequate compensations, both monetary and non-monetary and benefit from the project. Support should also be provided to them in moving, re-settling and improving their standard of living. It was recommended that the displaced community must be involved in the planning and implementation of the community development program. Further, the report highlighted that NTPC should provide support to physically challenged persons to become economically self-reliant through the provision of economic assistance/seed capital for selfemployment schemes, medical equipment and aids, educational aids for them and their family members on priority basis. A provision of alternate sources of income or families that were dependent on the acquired land for their livelihood is essential in order to sustain them. Conducting trainings on skill development on priority basis for people from vulnerable groups is essential to assist them in taking up profitable self-employment initiatives. These trainings should be provided for self-employment initiatives that are relevant to their socio-economic condition and bear local employment potential. The Project Affected Population (PAP) should be provided with financial aid for these initiatives. The study recommended that the women of the community should be motivated and trained to take up home based occupation like poultry, piggery, planting and nurturing of fruit trees and cottage industries like mat and basket weaving, tailoring, knitting etc. NTPC should also conduct literacy and orientation programs for both male and female PAPs along with skill-development programs to improve the general level of literacy and awareness of the PAPs. The report recommended that the maximum benefit of the rehabilitation and resettlement packages should be provided to the Naiparam and Tandwa villages since these villages would be most affected by the project as they would lose around 49 and 52 residential and commercial structures along with agricultural land. To create a larger impact, the study shared that NTPC might engage NGOs to assist in the implementation of Rehabilitation Action Plans (RAPs) and it's monitoring and evaluation. They could be engaged to do the following:

- Develop rapport between PAPs and project authorities.
- · Communicate plans and programs of RAPs.
- Conduct workshops/seminars on different income generating programs.
- Plant trees in the project area.
- Assist vulnerable groups specially women, aged, children and destitute.

For the mental health of the beneficiaries, the report suggested conducting counseling programs with the help of NGOs to help the PAPs adjust themselves psychologically to the new environment. It was also recommended that NTPC should work towards establishing confidence and faith among PAPs by ensuring transparency in the working of the project by making people

51

¹⁴ Socio-Economic Impact Assessment Study for North Karanpura Super Thermal Power Project: Executive Summary NTPC Limited (November 2005)

aware of its pros and cons. The rehabilitation and resettlement plan should give special emphasis to community development plans in order to strengthen education, health care and awareness, communication facilities, rainwater harvesting besides the skill development program for the local people.

Overall, the report highlighted that NTPC needed to ensure that the PAPs are at the center of all efforts and the interventions were aimed at two objectives. First, to ensure definite means to counter impoverishment risks before the commencement of the project and secondly, to initiate a process towards empowering the PAPs through formation of peoples' institution in the villages and equipping them with information knowledge and required skills to make them capable of safeguarding their interests themselves. The recommendations and needs of the community identified during the 2005 assessment were then incorporated into the programmatic activities by NTPC Karanpura over the years. In 2020, NTPC Karanpura empaneled KPMG for conducting the need assessment survey for understanding the future needs and expectations of the community. The current needs and aspirations of the project affected villages have been captured in detail in Chapter 8: Need Assessment of this report.

Project Activities

Based on the needs and aspirations identified in the 2005 report, the following activities were implemented by NTPC in the projected affected villages across various thematic areas from 2016 to 2020¹⁵.

Education

	Education
Academic and cocurricular	Support for Coaching Classes for Class IX & X students (Session 2017-2018
Academic and cocurricular	Support to DAV to organize quiz competition
Scholarship and awards	Meritorious award for 43 students at PAV's. (2016, 2017,2018)
Scholarship and awards	Tuition Fee reimbursement to Ms. Sujata Kumari for B.Ed. course.
Scholarship and awards	NKSTPP Balika Medha Award, 2018 to 40 Girls students
Scholarship and awards	NKSTPP Meritorious Award, 2019
Scholarship and awards	NTPC Utkarsh – Merit Scholarship to Vivek Kumar Nayak (1st yr. & 2nd yr.)
School Infrastructure and other support	Distribution of Books for 75 ITI Students for 2016-18.

_

¹⁵ Source: Data shared by NTPC Karanpura

School Infrastructure and other support	Distribution of school shoes and socks for students studying in class I - V of 32 Govt. schools.
School Infrastructure and other support	 Distribution of Desk-Benches and other furniture items: SS +2 High School, Tandwa & Simaria Degree Mahavidyalaya, Simaria. Vananchal college Tandwa. 32 govt schools at PAV Swami Vivekanand Jagriti Sansthan, Tandwa Gram Vikas Sewa Sansthan library, Tandwa

Health & Sanitation

Health & Sanitation		
Health camps and medical facilities	Organize Mega Medical Health Camps at PAV's.	
Health camps and medical facilities	MMU	
Health camps and medical facilities	Pathological lab assistant for govt hospital Tandwa (2016 and 2017)	
Health camps and medical facilities	Distribution of pathological materials for govt hospital Tandwa.	
Health camps and medical facilities	Hiring of 02 Doctors for PAVs (2017)	
Health camps and medical facilities	Provided assistance to Vijay Paswan for medical treatment	
Sanitation	Repair work of existing drain from Jhanda chowk to shiv mandir at Garilong	
Sanitation	Construction of toilet with water facility at Tandwa market.	
Sanitation	Supply & Installation of 02 nos Prefabricated Toilet at Vananchal college Tandwa.	
Sanitation	Swachh Vasundhar (Cleanliness Drive) program at Dundua	
Sanitation	Construction of toilet at various locations in Chatra district.	
Sanitation	Construction of 04 no. toilet block at bottom and top of mountain of Maa Koleshwari Mandir, Hunterganj	
Sanitation	Construction of 150 nos. toilets in individual households to make PAV Naiparam open defection free	

Water

Water	
Extension of Water pipeline at Tandwa	
Construction of Tiling work & drinking water	
Installation of Diesel Generator set 125 KVA at Tandwa PAV for water supply.	
Additional PVC casing & bore at Ambedkar Bhawan, Tandwa	
Provision of Water tanker for PAVs	

Various arrangement (operator, fuel) to provide water (2018) by PHED overhead tank
Installation of 7 Solar based pump systems (including boring)

35 nos. of deep boring for 4KL & 10 KL
Installation and Repair of Handpumps at Project Affected Villages
Renovation of Hiru Dam at Chatra.

Skill Development

	Skill Development
Sponsorship	2nd Yr. Course fee of 73 students (15-17) at different Govt ITI's.
Sponsorship	Enrolment of 75 students (56 students admitted) at different Govt ITI's for 2016-18 (2 yrs. course fee).
Sponsorship	2nd Yr. Course fee of 34 students (16-18) at different Govt ITI's.
Sponsorship	2nd Yr. Course fee of 21 students (16-18) at ITI (Gen) & ITI at Ranchi
Sponsorship	2nd Yr. Course fee of 01 students (16-18) at W.I.T.I, Hazaribagh
Training & support	Support for 07 Tailoring training center (3rd batch)
Training & support	Provided training kit for 175 trainees for tailoring training (3rd batch)

Community Infrastructure

Community	y Infrastructure
Community	y ii iii asti astai s

Construction of PCC roads, Paver Block, Drains in all the villages and nearby vicinity. Upgrading of existing village roads.

Electrification of 32 Govt Schools at PAV

Beautification of Ponds: Bargaon Chath Talab , Jhanjharia Talab, Kairvagarha talab at Raham village, Joda Talab, Tandwa etc.

Construction/renovation of Multipurpose Community halls in PAVs and vicinity.

Deep boring & drinking water arrangement at DC office Chatra

Renovation & Beautification and Electrification of Town Hall and Panchayat Bhawan

Construction of boundary walls, additional classrooms in schools, etc. Construction of rooms in K M Smarak Inter College.

Construction of guard wall at mandir road at Raham, platform/stage at Surya Mandir Tandwa, platform for Ambedkar statue at Ambedkar Chowk, Garilong, Cremation Ground & Platform at Riverbank of Tandwa.

Construction of Pipe culvert bridge near Chundru Dham on Gerua river. Construction of shed, steel railing around temple, edge of river, shed on stage & toilets at Chundru Dham Tandwa Installation of solar streetlight, solar lights, solar high mast lights at PAV's.

Electrification of 50 houses at Naiparam & 60 houses at Chatti Garilong through Roof top solar plant. & Support provided for Training Centre at Chatra.

Renovation of DLAO Chatra residence cum Office

Civil & Electrical works for const. of Multipurpose hall at Simaria Inter College

Support for PA system for Vikas Bhawan

Distribution of 10 nos. of 3-seater chairs for Bhadrakali temple, Itkhori. 30 KVA Diesel Generatorr Set to Maa Bhadrakali Mandir Prabandhan Samiti, Itkhori, Chatra

Sports & Culture

Sports & Culture

Distributed more than 8000 blankets among marginalized population.

Financial assistance for various social & cultural events such as Ganesh puja, Chhat puja, Ravi das Jayanti, Durga puja, Ramanavami, Sarhul puja, Rah puja, Kali puja, Baba Bhim Rao Ambedkar jayanti, Manda puja, Sarhul Festival, Rastriya Yuwa Mahotsav, Itkhori Mahotsav, Rastriya Shakti Samellan. Bonfire arrangements, etc.

Providing financial assistance for daughters' marriage in PAV's

Procurement of 500 nos pen & notebook for Vivekanand Jayanti. (2017)

Distribution of wheelchair for Smt. Balmadina Ecka

Distribution of 200 nos. of Umbrella among PAPs on 16.08.2019

Provide financial assistance to Prakhand Sarna samiti Tandwa, Faizan-e-Islam Anjuman committee

Distribution of 12 sets Musical Instruments to PAVs

Cash Reward tribal girl's youth for cultural performance

Support for tentage & sound arrangement for World Tribal Day, 2019

Furniture items to New Jyoti Club Tandwa

Distribution of sports items for tribal sports (include additional 02 teams)

Support for sports events: Cricket and Football Tournament, 2018 at Atal Ground, Tandwa, NKSTPP Cricket Tournaments, Cricket tournament 2019, 2nd NKSTPP Tribal Tournament 2019, OORJA – for youth under-19 football hunt tournament.

Distribution of footballs to 04 panchayats

Excavation for drinking water for cattle, Increasing depth of Talab at Kamta to provide drinking water for cattle at Tandwa.

Distribution of 200 sewing machines for Tailoring training of PAP's.

Various kinds of support to Birhor Tribe (only umbrella & sports item)

Distribution of 2400 smokeless Chulhas for Kandinagar, Chatra & PAV's.

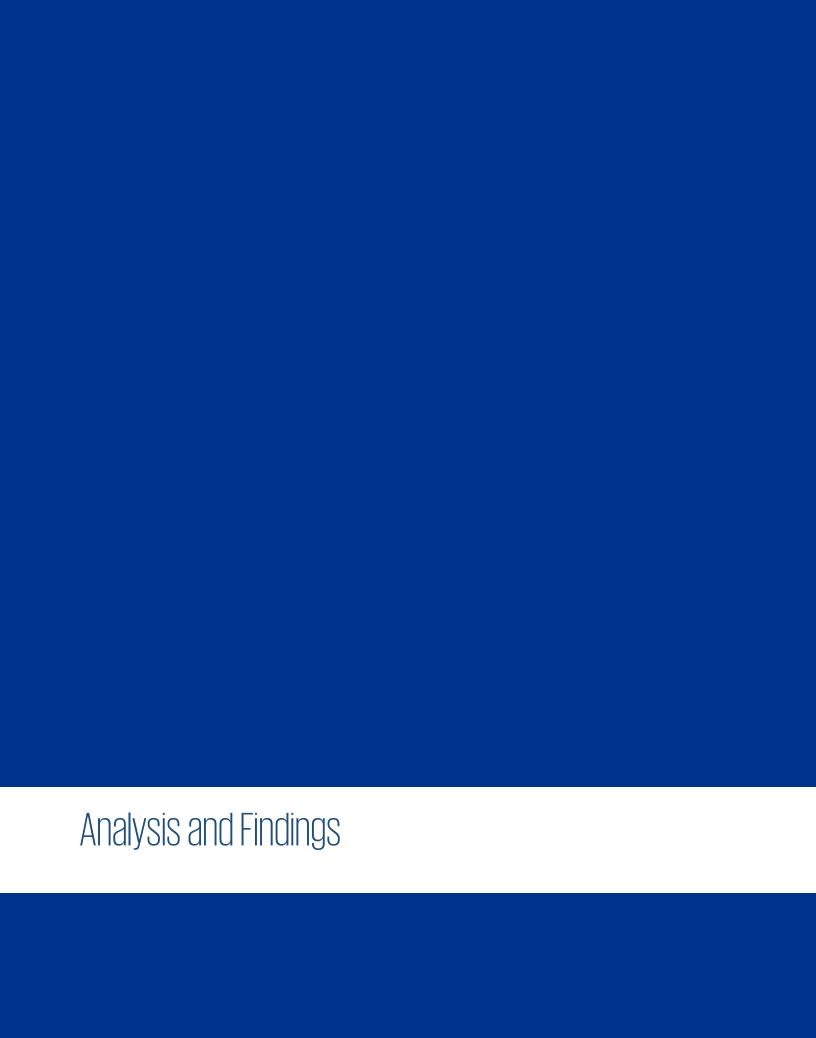
Assistance for organizing Football Tournament at Simaria

Financial Assistance for Voter Awareness Campaign (Jharkhand Constituency election, 2019) and Lok Sabha Election at Chatra

Supported Vanwasi Kalyan Kendra, Ranchi

Financial assistance for sponsoring trophies mementoes & certificates to DAV school Hazaribagh (2017)

Construction of one toilet and bathroom with solar water pump at house of Smt. Balmadina Ecka



Chapter 5: Analysis and Findings

The section below showcases the findings and observations ascertained based interviews conducted with beneficiaries of different R&R-CD projects implemented by NTPC Karanpura across 6 villages in Chatra district, Jharkhand.

5.1 Analysis of key social development indicators

In order to effectively monitor the progress and impact of R&R-CD interventions, NTPC has selected the following thirteen key social development indicators (SDI) based on the sustainable development goals: (i) percentage of population below poverty line, (ii) per capita income, (iii) literacy rate, (iv) percentage of children (6-14) attending school,(v) percentage of children dropping out after grade 5, (vi) percentage of population having higher education (graduation, post-graduation, technical education),(vii) infant mortality rate per thousand, (viii) maternal mortality rate per lakh, (ix) proportion of population having house/ shelter, (x) proportion of household having pucca house, (xi) proportion of house having access to drinking water(within premises & near to premises), (xii) proportion of household having toilet facilities and (xiii) proportion of household having electricity. The performance of the treatment villages across the selected thirteen key social development indicators vis-à-vis the national, state, district, block level, as well as the selected control group villages (Badagaon and Mander) have been presented in the charts below. Data on the other key indicators mentioned in ToR have been collected and presented in Annexure 1,2,3 and 4.

i. **Percentage of population below poverty line**¹⁶: The average percentage of population below the poverty line for both the treatment and control groups were at a similar level. For the treatment districts, 56% of the population was below the poverty line whereas for the control group, this percentage was 55%. Kamta had the highest percentage of population below poverty line among the treatment villages, whereas Mander, a control group village had 80% population below poverty line. With an average of 36% of population below poverty line for Chatra district, both treatment and control villages demonstrate need for poverty alleviation programs.

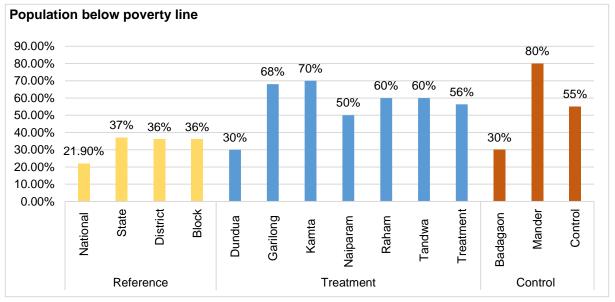


Figure 15 SDI 1. Below Poverty Line

 $^{^{}m 16}$ World Bank Group, May 2016. Jharkhand: Poverty, Growth & Inequality

ii. **Per capita income**¹⁷: The average annual per capita income for the treatment villages was INR 45833.33 whereas the amount for the control group was INR 55000. This difference can be attributed to the low annual per capita income of the Raham village (INR 25000) in the treatment villages. Treatment villages tend to perform better than the district level per capita income.

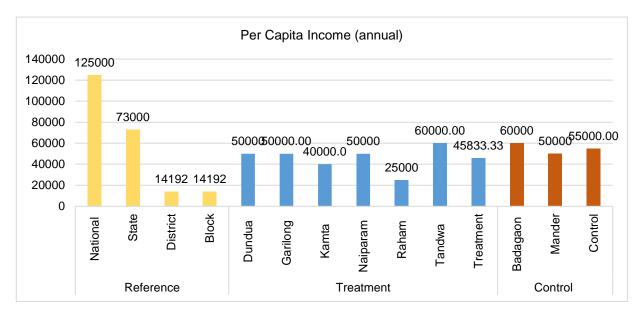


Figure 16 SDI 2 Per Capital Income (Annual)

iii. **Literacy rate**¹⁸: The literacy rate was 70% for the treatment villages and 65% for the control villages. All treatment villages except Kamta had a higher literacy rate than the District and Block levels. Also, survey with beneficiaries reported that on an average 70% of the family members were literate and could read and write in at least one language.

¹⁷ Statista Research Department, May 31, 2021. Per capita income in Jharkhand India FY 2012-2019,

¹⁸ Census 2011

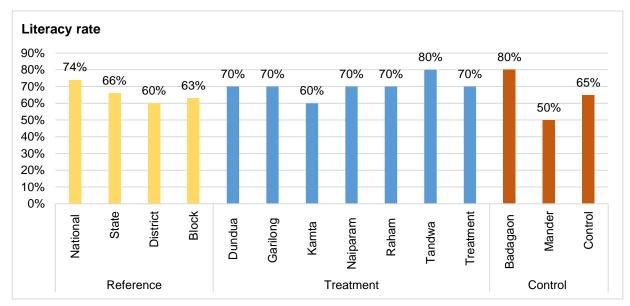


Figure 17 Literacy Rate

iv. **Percentage of children (6-14) attending school**¹⁹: In the treatment districts, 70% of the children between the age of 6-14 years were attending school whereas in the control group 74% of the children attended school. In the area of education, NTPC has undertaken various initiatives in the treatment districts through distribution of benches to schools, resource materials and scholarships for the students.

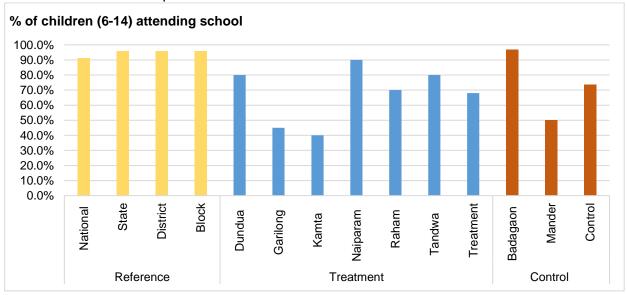


Figure 18 Percentage of children attending school

v. **Percentage of children dropping out after grade 5²⁰:** The dropout rate of children after the completion of grade 5 was 23% for treatment villages and 21% for control villages. Kamta with

¹⁹ Jharkhand Education Project Council, Educational Indicators

²⁰ Ministry of Human Resource Development, 2014. Statistics of School Education

the highest dropout rate with about 50% of children dropping out of school after grade 5, would benefit from focused interventions to promote attendance and ensure retention of school going children. Naiparam, one of the treatment villages performed better than the District level with only 5% of children dropping out.

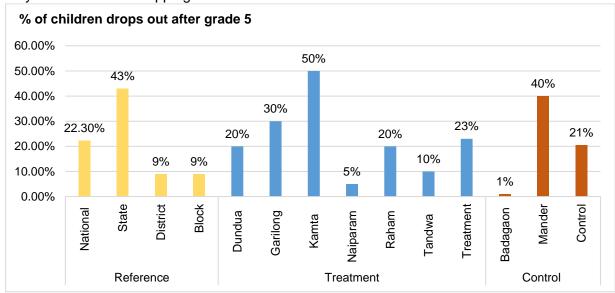


Figure 19 Drop-out rate

vi. **Percentage of population having higher education (graduation, post-graduation, technical education)**²¹: 13% of the population had pursued higher education (graduation, post-graduation, technical education) in the treatment villages which was 5% higher than the control villages where this statistic was 8%. This difference can be attributed to NTPC's support to educational initiatives (e.g., funding of vocational trainings for the beneficiaries).

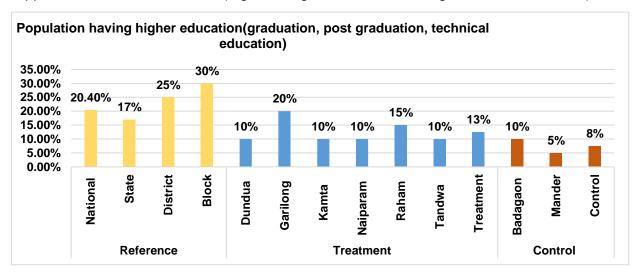


Figure 20 SDI 6: Population with Higher Education

²¹ Jharkhand Education Project Council, Educational Indicators

vii. **Infant mortality rate per thousand**²²: In the treatment villages, the infant mortality rate was found to be 30 while in the control villages, it was 75. Garilong and Naiparam had higher infant mortality rate than other treatment villages. Tandwa, one of the treatment villages performed better than the district level with infant mortality rate at 10. Control villages on the other hand had a significantly higher infant mortality rate with an average of 75, almost 60% increase as compared to the treatment villages.

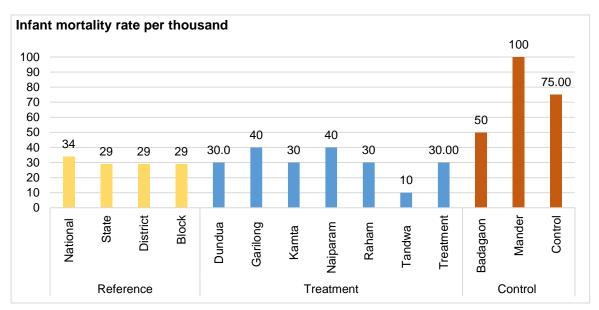


Figure 21 SDI 7: Infant mortality rate

²² Ministry of Home Affairs, 2012-13, Annual Health Survey Fact Sheet

viii. **Maternal mortality rate per lakh**²³: The maternal mortality rate was 230 for the treatment villages which was lower than the rate of the control districts (350) by about 34%. This difference can be linked to the health camps and MMUs organized by NTPC since maternal health is one of their focus areas. Tandwa, one of the treatment villages with maternal mortality rate at 136, performed better having 35% lower MMR than the district level.

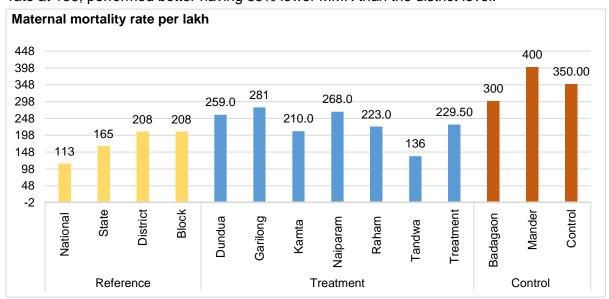


Figure 22 SDI 8: Maternal mortality rate

ix. **Percentage of people having house/ shelter (owning a house)**²⁴: A slight difference was observed in the percentage of people having a house or a shelter between the treatment and control villages. While in the treatment villages 97% of the population had a house or a shelter, this number rose to 100% in the control villages. Overall, treatment villages performed better than the national, state and block levels.

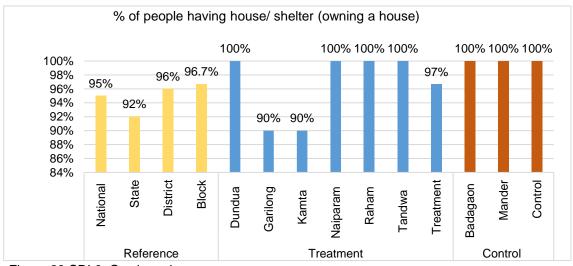


Figure 23 SDI 9: Owning a house

²³ Ministry of Health and Family Welfare, 2021, Maternal Mortality Rate (MMR)

²⁴ Source: Census 2011

x. **Percentage of population living in pucca house**²⁵: In the treatment villages, 61% of the population was living in a pucca house while in the control villages, this percentage was reduced to 47%. Overall, treatment villages performed better than the district level with 60% increase.

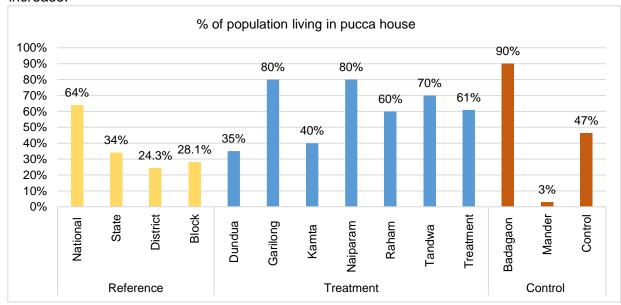


Figure 24 Pucca house

xi. Percentage of HHs with access to drinking water (near premises)²⁶: 55% of the households in the treatment villages had access to drinking water near their place of residence. In control villages, around 71% of the households had access to drinking water in these villages. NTPC has supported initiatives in the treatment villages to increase access to clean drinking water in the treatment villages through the means of water tankers and pipelines. Dundua and Raham have high percentage of households with access to drinking water.

²⁵ Source: Census 2011

²⁶ Source: Census 2011

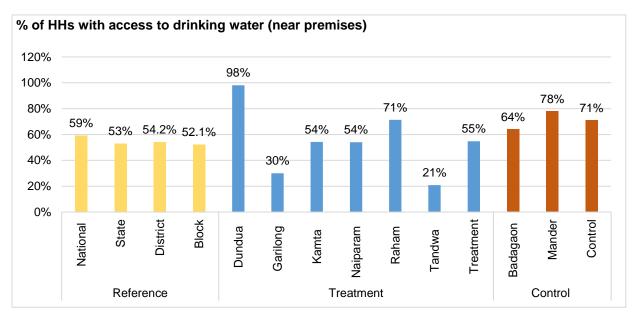


Figure 25 Drinking water

xii. **Percentage of people having toilet facility**²⁷: With respect to the larger domain of health and sanitation, 63% of the population had access to toilet facilities in their treatment villages while this number was reduced to 35% in the control villages. This difference can be attributed to the fact that NTPC has done significant work pertaining to the construction of toilets in the treatment communities to help the residents achieve a better standard of health and sanitation.

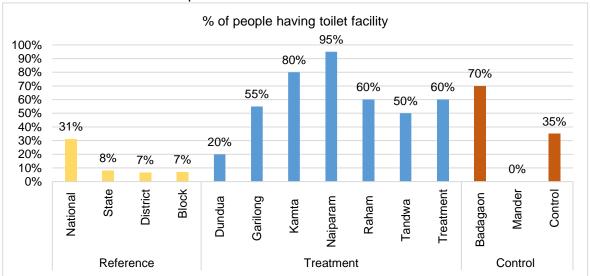


Figure 26 SDI 12: Toilet facility

²⁷ Source: Census 2011

xiii. **Percentage of people having electricity connection**²⁸: 75% of the population in the treatment villages have had access to electricity connections while in the control villages, 88% of the population had access to electricity.

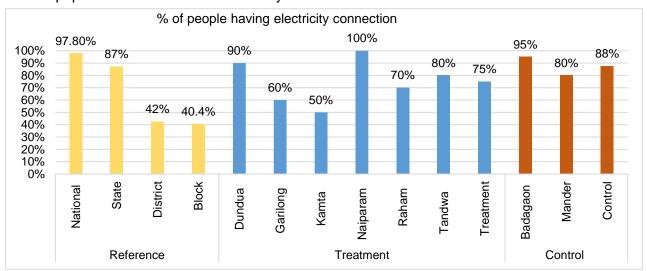


Figure 27 SDI 13: Electricity

²⁸ Source: Census 2011

5.2.1 Evaluation criterion 1: Relevance

'Relevance' is a measure of the extent to which the program has been able to support the suited needs and priorities of the stakeholders".

Relevance measures the extent to which the program was aligned with priorities and policies of the respective government where it is being implemented. It also aims to measure if the program is relevant to the needs of the beneficiaries.

Linkage of the program with Government priorities

NTPC's R&R community development programs have been implemented in the targeted villages in different thematic areas which comprise of education, health, water, livelihood, and community infrastructure.

Various programs executed by NTPC in these sectors correspond to the national priorities of the government, it can be said that the programs have linkages to the following Government programs-

Swachh Bharat Abhiyan

This program has linkages with the Swachh Bharat Abhiyan launched on 2nd October 2014 to accelerate the efforts to achieve universal sanitation coverage. This mission promotes access to sanitation along with ensuring proper solid and liquid waste management. NTPC has been supporting and providing support under the program for constructing community toilets in the villages along with prefabricated toilets in school for students. The construction of these toilets not only promotes the habit of using toilets and avoid open defecation but, at the same time promotes sanitation and hygiene in the entire village that would in turn help in the reduction of diseases and illness amongst the people in the village.

Pradhan Mantri Kaushal Vikas Yojana

Pradhan Mantri Kaushal Vikas Yojana (PMKVY) is the flagship scheme of the Ministry of Skill Development & Entrepreneurship (MSDE) for skilling the youths in India that would not only upgrade their existing skills but, also help them develop new skills which would make them marked ready and employable. NTPC has been investing its resources in providing vocational training to the youths, especially women in targeted villages under its R&R community development program. The youths and women in the village can get enrolled for the vocational trainings as per their preferences amongst different trades like sewing, tailoring, beautician, and computers. These trainings not only help the youth to find gainful employment but also helps them generate additional income due to their skill upgradation.

National Rural Drinking Water Program

The National Rural Drinking Water Program aims to provide rural communities with adequate safe water for drinking, cooking, and other domestic basic needs. Under the National Rural Drinking Water Program, the Government has initiated a project in the name of "Swajal" in February 2018 that is designed as a demand driven and community centered program to provide sustainable access to drinking water to people in rural areas. Through NTPC's R&R community development program water infrastructure has been

made available in the villages through installation of RO water system, handpumps and submersible water pumps. The water initiative through NTPC is not only helping the beneficiaries have access to clean water but, also contributing in the reduction of various water borne diseases which in turn is allowing them to save money which was otherwise spent on healthcare related expenditure.

Pradhan Mantri Jan Arogya Yojana

Ayushman Bharat also known as Pradhan Mantri Jan Arogya Yojana (PM-JAY), launched on September 23, 2018 is one of the most important government schemes enabling India to achieve its affirmed goal of Universal Health Coverage (UHC) by 2030. NTPC's health initiatives align with this program since it has been organizing free health camps in the villages and schools that allows the community to get free health screening. The program not only helps in early detection and diagnosis of diseases but, it also saves time and cost.

Sarva Shiksha Abhiyan

Sarva Shiksha Abhiyan is one of government's flagship program for promoting universal access to elementary education, bridging of gender and social category gaps in education and enhancement of learning levels of children. It is a comprehensive scheme for universalizing elementary education that promotes community ownership of the school system through a decentralized planning and implementation strategy. NTPC has been contributing towards quality education through providing scholarships, improving school infrastructure, distributing books, school shoes & socks, etc.

Linkage of the program to SDGs and its alignment

The R&R-CD projects of NTPC are in alignment with the Sustainable Development Goals (SDGs). SDGs, also known as the global goals, were adopted in 2015 by all member states of the United Nations to work towards ending poverty, protecting the planet, and ensuring that all people enjoy peace and prosperity by 2030. India had played a crucial role in shaping the SDG goals and is committed to achieving the same by 2030.

SDG	SDG Targets	How is it aligned?
SDG 3: Good Health and Well-Being	 Target 3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births. Target 3.2 End preventable deaths of new-borns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births. Target 3.4 Reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being. 	The project interventions aimed at promoting access to healthcare and reducing diseases. — Health and Sanitation

Target 3.8

 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality, and affordable essential medicines and vaccines for all.

Target 4.1

 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes The education related activities are aimed at promoting access to quality school education.

- Education
- Community Infrastructure

SDG 4: Quality education



Target 4.5

 Eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous people, and children in vulnerable situations

SDG 5: Gender



Equality

Target 5.1

 End all forms of discrimination against all women and girls everywhere Through various activities such as provision of vocational training for women, construction of toilets, and distributing sanitary napkins, project works towards promoting equal access to education, and decent work for girls and women.

- Education
- Skill Development
- Community
 Infrastructure

SDG 6: Clean Water and Sanitation



Target 6.1

 By 2030, achieve universal and equitable access to safe and affordable drinking water for all

Target 6.2

— By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

Target 6.4

 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and The project activities included installing RO water plants and pipelines in the project villages to ensure that the community members have access to safe drinking water.

— Water

substantially	reduce	the	number	of	people
suffering from	า water s	carci	ty.		

SDG 7: Affordable and Clean Energy



Target 7.1

 By 2030, ensure universal access to affordable, reliable, and modern energy services

Target 7.2

 By 2030, increase substantially the share of renewable energy in the global energy mix The project activities have improved access to clean lighting sources for project affected villages through installing solar streetlights.

 Community Infrastructure

SDG 8: Decent work and economic growth



Target 8.5

 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

Target 8.6

 By 2020, substantially reduce the proportion of youth not in employment, education, or training The project activities promote access to skill development courses for marginalized youth to make them employable and help them contribute to the workforce and economy.

Skill Development

SDG 11: Sustainable cities and communities



Target 11.2

— By 2030, provide access to safe, affordable, accessible, and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons

Target 11.7

 By 2030, provide universal access to safe, inclusive, and accessible, green, and public spaces, in particular for women and children, older persons and persons with disabilities The project activities work towards improving community infrastructure through constructing roads, drains, community buildings, boundary walls, toilets, etc.

Community
 Infrastructure

Among the beneficiaries surveyed, 22% of the beneficiaries stated that the education projects executed by NTPC in their respective villages were relevant to their needs. About 34% of the respondents stated that the health and sanitation related interventions were relevant and had been able to address villages' requirement. Around 44% of the beneficiaries surveyed shared that the water related interventions to promote access to safe drinking water were relevant and aligned with the needs of the target community. Among the respondents, 78% of them indicated that the skill development trainings were relevant to the needs of the community. About 34% of the

beneficiaries surveyed noted that the community infrastructure activities were relevant and aligned to their needs. Overall, on an average 44% of beneficiaries reported that NTPC's interventions were relevant across various thematic areas.

Other government schemes and programs:

- Jharkhand State Post Matric Scholarship²⁹: Students who have passed class 10th and are pursuing their studies from class 11th to postgraduation level can apply for this scholarship if the annual income of the family is less than INR 2.5 Lakh (for SC/ST category) and INR 1.50 Lakh (for BC category).
- Morang Gomke Jaipal Singh Munda Foreign Scholarship³⁰: In order to promote access to foreign education, the Jharkhand government has launched the Morang Gomke Jaipal Singh Munda Foreign Scholarship scheme to send six Adivasi youth to foreign universities for higher studies. This scheme is an annual scholarship program with tribal students provided opportunities every year to study overseas. The entire cost of their studies is to be borne by the state government under the state government's flagship program named after Jaipal Singh.
- Phoolo Jhano Ashirwad Abhiyan³¹: The Phoolo Jhano Ashirwad scheme aims at identifying women involved in the manufacture and sale of Hadiya-Daru (brewed rice beer and liquor) and connecting them with the means of respectable livelihood. Jharkhand government has identified 15,456 liquor selling women till date and around 13,356 women have benefited from the scheme and were provided a loan of INR 10,000 which has helped them find alternate source of livelihood.
- Bishisht Janjati Khadyanna Yojana or Dakia Yojana³²: The Dakia Yojana provides particularly vulnerable tribal groups (PVTGs) with assured delivery of 35kg rice free of cost every month. This scheme provides 35kg of rice every month to around 73,000 families belonging to the following 8 tribes identified as PVTGs in Jharkhand- Asur, Birhor, Birjia, Korwa, Parahiya (Baiga), Sabar, Mal Paharia and Souriya Paharia.
- Sona Sobran Dhoti Saree Scheme³³: Through this scheme, the government provides one saree and one lungi or dhoti to 57.10 lakh families that fall below the poverty line twice a year at a subsidized price of Rs. 10 per piece.
- Jharkhand Sahai Scheme³⁴: The Sahai Yojana aims to create goodwill between the people and the police force through sports while identifying and grooming budding sportspersons from the area. The government organizes various sports tournaments in collaboration with national and state-level sports federations under this scheme.
- Poto Ho Khel Vikas Yojana³⁵: The government provides support to build a sports ground in every panchayat and provide players with a scholarship of INR 3000 to INR 6000 every month.
- Jharkhand Samekit Birsa Gram Vikas Yojana (Krishak Pathshala)³⁶: This scheme aims to promote the welfare of the state's farmer through improving access to the following: state-of-the-art technologies, tools of modern-day farming for horticulture, livestock rearing and pisciculture, new irrigation techniques, and training.

²⁹ https://www.scholarshipsinindia.com/scholarships-in-iharkhand.html

³⁰ https://scholarshiparena.in/marang-gomke-jaipal-singh-munda-transnational-scholarship/

³¹ https://avenuemail.in/phoolo-jhano-ashirwad-abhiyan-a-game-changer-for-rural-womens-livelihood/

³² https://www.telegraphindia.com/jharkhand/jharkhand-govt-to-conduct-social-audit-into-free-foodgrain-scheme-for-primitive-tribes/cid/1833381

³³ https://sarkariyojana.com/sona-sobran-dhoti-saree-scheme

³⁴ https://www.newindianexpress.com/nation/2021/sep/01/jharkhand-plans-sahai-to-promote-sports-in-naxal-hit-areas-2352933.html

³⁵ https://www.sarkariyojnaye.com/jharkhand-poto-ho-khel-vikas-yojana/

³⁶ https://sarkariyojana.com/samekit-birsa-gram-vikas-yojana/

■ Jharkhand Mukhyamantri Kanyadan Yojna³⁷: The state government provides support towards daughter's marriage for poor people who cannot afford the cost of marriage. Jharkhand government aims to provide INR 30,000 to each beneficiary so that the condition of women in the state gets improved.

5.2.3 Evaluation criterion 2: Effectiveness

'Effectiveness' is an assessment of the factors affecting the progress towards outcomes for every stakeholder and validation of robustness of systems and processes. It helps in ensuring that the implementation and monitoring systems are robust to achieve optimum social impact."

Effectiveness of the program is measured by evaluating how effectively the programs activities were implemented and the effectiveness of systems and processes deployed for the program. NTPC has executed the R&R community development projects with different thematic areas on the field with the support of village heads/ Gram Pradhan's in the respective villages. Timelines and milestones for the project are decided in consultation with village heads and accordingly the program gets executed on time in these villages.

NTPC has executed the educated related activities on the field with the support of village heads/ Gram Pradhan's in the respective villages. Timelines and milestones for the project are decided in consultation with village heads and accordingly the program gets executed on time in these villages.

Since these programs were aligned to the needs of the beneficiaries, and were accomplished within the agreed timeline, it can be said to be effective in nature. However, based on the feedback received from the beneficiaries, it is recommended to have a robust monitoring mechanism in place to ensure better implementation of activities for more substantial and sustainable impact.

5.2.4 Evaluation criterion 3: Efficiency

'Efficiency' criterion aims to measure if the project was implemented in a cost-effective and timely manner.

The purpose is to understand if the inputs (funds, expertise, time, etc.) were utilized efficiently to achieve the intervention outcomes. Factors such as budget utilization and timelines have been reviewed.

This evaluation criteria aims to measure if the program was executed in a cost-effective and timely manner. NTPC's R&R community development program has been able to cater to the needs of the beneficiaries in an efficient manner in the respective villages of intervention. The program has been efficiently implemented in the villages with the support of Gram Panchayats (GP) and beneficiaries themselves.

I. Timeliness of delivery or implementation of project interventions

On yearly basis NTPC plans on R&R community development activities at the villages in the vicinity of their operational area. Timelines are set up in consultation with the Panchayat for the completion of different activities under thematic areas of the project in a phased manner which includes planning phase, implementation phase and evaluation phase. Projects were

_

³⁷ https://www.rojgardunia.com/jharkhand-mukhyamantri-kanyadan-yojana/

implemented by NTPC in the villages as per the recommendations made by the village head, local leaders, community representative.

II. Cost efficiency of project activities

NTPC allocates budget for each thematic area under its R&R community development program. The budget is allocated for 6 villages in Chatra district of Jharkhand for NTPC Karanpura's education related activities. NTPC makes sure that the budget is well distributed amongst all the activities across all the thematic areas that are education, health, water, community infrastructure, skill development, and sports and culture. It was also found out through interaction with the NTPC team members that there was no overshooting of the budget and all the activities were executed well within the allocated budget. Payment milestones were clearly defined as such, projects activities are implemented in the villages by NTPC as per the suggestions given by the village heads.

Table 7: NTPC's R&R-CD spent for last 4 years 38

Year	Education	Health	Water	Community Infrastructure	Skill Developme nt	Sports & Culture
2016-17	7938726	8883338	14875963	43319240.15	4197599	11066925.2
2017-18	1231709	5810544	16070232	35256651.13	277200	1847697
2018-19	313966	5662707	14416500	24375543.7	482130	3051566
2019-20	2521509	6281241	26301848	21322309	72599	3426901
Total (INR)	12005910	26637830	71664543	124273744	5029528	19393089.2

III. Human resource plotting

NTPC has appointed one dedicated CSR staff member at the Karanpura plant location who is responsible for overseeing the R&R community development programs being implemented in each of the villages in its operational area. Apart from this NTPC's CSR division is layered on a three-tiered structure which is corporate level, regional level and station level having separate board level committee guiding corporate social responsibility, and also responsible for approving and reviewing CSR activities from time to time.

IV. Duplication/ overlap of project activities

Duplication of effort arises when more than one project or intervention is needlessly implementing similar activities within the same area or location arising often due to poor knowledge management and inadequate coordination of projects, thereby resulting in fund and resource inefficiency. No such duplication of project activities was found during the evaluation phase. Only

_

³⁸ Source: Data Provided by NTPC Karanpura

one village (Dundua) out of the six project affected villages reported a similar intervention which covered less than 20% of their needs.

5.2.5 Evaluation criterion 4: Impact

'Impact' has been measured in terms of the proportion of respondents who reported having a significant change in their lives due to the initiation of the project.

The purpose of measuring the impact is to ascertain the primary or secondary long-term effects produced by the project. This could be directly or indirect and intended or unintended. Unintended effects are effects that were not planned as a result of the intervention and can be positive or negative.

Education

NTPC has conducted various project activities to promote access to quality education for children residing in the project affected villages. According to the survey data, there has been an increase in the school attendance of the children and children have become regular in attending school. Overall, 32% of the respondents stated that the attendance and regularity of their children have gone up after NTPC's intervention in the schools under their community development projects. Furthermore, 33% beneficiaries surveyed shared that there has been an increase in attendance and regularity of girls. Around 32% beneficiaries surveyed shared that enrolment of girls have increased post the intervention. During stakeholder interactions, the attendance rate for children in treatment villages was reported to be approximately 78%, whereas attendance rate for control group stands at 75%. This impact has been created through provision of various amenities to students in school like desk and benches, books, school shoes and socks, to the children, sanitary napkins to school-going girls and other infrastructural support including construction of classrooms and separate toilet blocks for girls in schools. Supply of these basic amenities to the children in schools have also reduced the dropout rate. Amongst the beneficiaries surveyed, 37% shared that there has been a reduction in overall dropout rate in schools as well as decrease in dropout rate of girls in particular. Basis interactions with key stakeholder, it was noted that the dropout rate in treatment villages stands at 8% whereas control group villages had a dropout rate of 26%. This significant difference in dropout rate between treatment and control villages highlight the impact of NTPC interventions at promoting retention of children in school. Similarly, there has been a decrease in dropout rate of girls from 8.3% before intervention to 6% currently. Dropout rate for girls in control group stands at 16% as compared to 6% in treatment villages.

40% of the parents of the children who were surveyed reported an overall increase in the learning level of their children as their regularity to school has improved due to NTPC's intervention with the provision of various facilities for students. Also, during the stakeholder interactions, it was noted that there has also been an improvement in the passing percentage of students. Supply of basic amenities like books, desk-cum benches, school shoes and socks, etc., enhanced their interest levels and motivated them to attend schools and improve their learning levels. 37% of the beneficiaries surveyed also stated an average annual reduction in education related expenditure contributing to average saving of approximately INR 1041. During the focused group discussions, it was shared that the beneficiaries found the distribution of desk and benches to be helpful. However, they had concerns around the education interventions, which according to them were not able to substantially improve access to quality education for all.

Village wise levels of beneficiaries reporting increase in regularity and attendance and decrease in drop-out rate is presented in the table below.

Villages	Beneficiarie s reporting increase in attendance and regularity of their children	Beneficiarie s reporting increase in attendance and regularity of their children (girls)	Beneficiarie s reporting increase in enrolment	Beneficiarie s reporting increase in enrolment (girls)	Beneficiarie s reporting reduction in the drop- out rate	Beneficiarie s reporting reduction in the drop- out rate (girls)
Dundua	9	27	27	18	27	18
Garilong	54	23	15	15	31	23
Kamta	67	33	42	50	42	58
Naiparam	25	33	33	33	58	58
Raham	17	33	33	33	25	25
Tandwa	15	46	31	38	38	38
Total	32	33	30	32	37	37

Health & Sanitation

To cater to the healthcare needs of the community, NTPC has been organizing free health camps in the villages periodically, for the community to avail free health care services. NTPC Mobile Medical-care Unit (MMU) visits the project villages on a weekly basis to conduct regular health check-ups including blood pressure, sugar, and other diagnostic checks and provide medicines free of cost to the beneficiaries. During the focused group discussion, it was indicated that these mobile health care units have helped the beneficiaries in accessing basic healthcare service. According to the field survey, 45% of the beneficiaries surveyed shared that access to health services has improved after NTPC's intervention. With an improved access to infrastructure, 24% beneficiaries reported reduction in incidence of diseases.

Around 97% of the beneficiaries shared that NTPC organizes free health camps for the community. These health camps are organized once a week by NTPC as reported by 77% of the beneficiaries. Amongst the beneficiaries surveyed, 76% of respondents noted that MMU service is available for their community. Mobile healthcare unit conducts free health check-ups once a week and provides medicines, as reported by the beneficiaries. Around 72% of the beneficiaries were satisfied with the service provided in the MMU. However, the beneficiaries noted that provision of medicines needs improvement and pathological tests can be added for better healthcare service.

Furthermore, provision of free medical services has contributed to decrease in health expenditures. Overall, 68% of the beneficiaries surveyed reported reduction in such expenditures and the average annual expenditure on health expenses INR 3247. Access to improved health







Figure 28 Mobile Medical Unit

care services have helped people in having more productive hours of work which has eventually helped them in increasing their income over a period. 4% of the total respondents reported an average increase in their income by INR 149.

Villages	Beneficiaries reporting improvement of health infrastructure in the village	Beneficiaries reporting improved access to affordable health care	Beneficiaries reporting timely availability of treatment	Beneficiaries reporting reduction in health expenditure
Dundua	25	33	33	50
Garilong	50	36	57	64
Kamta	67	58	25	25
Naiparam	50	50	42	58
Raham	33	50	58	50
Tandwa	17	42	42	50
Total	41	45	43	50

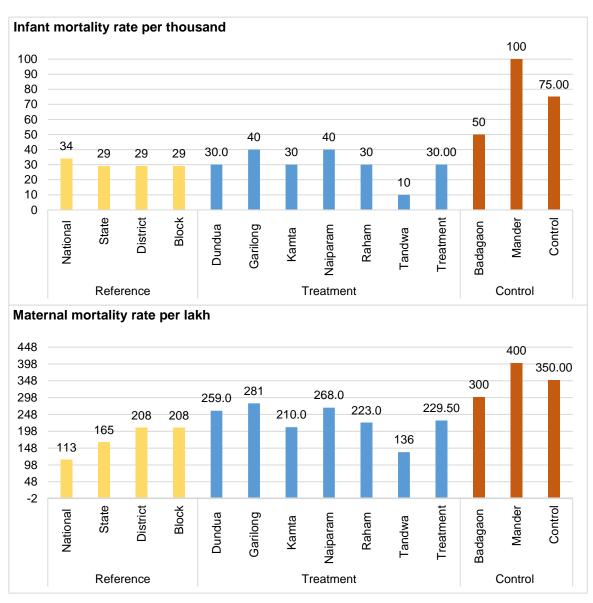


Figure 29 Treatment vs Control: Health Indicators

A comparative view of treatment and control group data shows impact of NTPC's project interventions and highlights scope of improvement as well. As per the graph above³⁹, the data collected on key social development indicators for health shows that the treatment villages performed better on maternal mortality rate and infant mortality rate as compared to the control group. In case of control villages, 100% of stakeholders noted challenges around poor quality of health services and inadequate health staff. Around 67% of stakeholders from treatment villages remarked that they face similar challenges, which shows that NTPC's health interventions are addressing the needs of the community and improving access to healthcare.

³⁹ Source: KPMG Primary Data Analysis

Around 24% of the beneficiaries surveyed reported that construction of toilets has reduced open defecation and improved sanitation. Overall, 24% of the beneficiaries across the treatment villages noted that NTPC had constructed toilets in their house. Around 67% of the beneficiaries from Naiparam reported the same as NTPC focused its effort to make Naiparam open defection free through construction of toilets in individual households. As per the data collected on development indicator, it was noted that 60% of the population in treatment villages had toilet facility as compared to 35% of population in control group. Also, 95% of the population in Naiparam were reported as having toilet facility, as shown in the graph above. 5 out of the six treatment villages had over 50% of the population having access to toilet facility. One of the control group villages-Mander, noted severe lack of sanitation facilities. Treatment villages performed better with an additional 25% of population having access to toilet Figure 31 Toilet Facility, Dundua facilities, as compared to control group. This highlights the



significant impact generated by NTPC's sanitation interventions in improving access to toilet facilities for the beneficiaries.

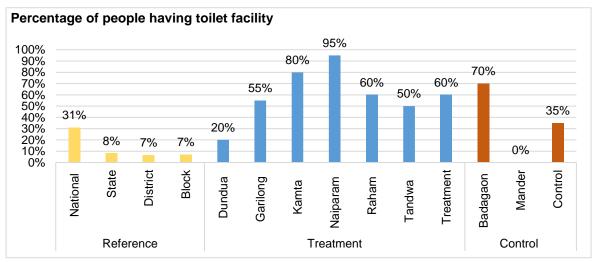


Figure 30 Treatment vs Control: Toilet Facility

Water

To address the water needs of the community, NTPC has supported in the provisioning of water tankers, installation of hand pumps and solar pump systems, construction of borewells and extension of pipelines in the villages to facilitate people with clean and safe drinking water. 75% beneficiaries reported that the overhead tank installed by NTPC is primary source of drinking water for the community. Village wise levels of beneficiaries reporting improved access to safe and reliable water, and reduction in water borne diseases are presented in the table below.

Table 8: Percentage of beneficiaries reporting improved access to clean water⁴⁰

Villages	Beneficiaries reporting access to clean water	Beneficiaries reporting decrease in water borne diseases
Dundua	58	58
Garilong	71	64
Kamta	83	50
Naiparam	67	33
Raham	75	50
Tandwa	18	18
Total	63	47





Figure 32 Water Tank in Dundua (left) and Raham.

Access to regular supply of good quality water is important for health and economic well-being of people. Beneficiaries reported that typhoid, dysentery, and giardia were the most common water-borne diseases in the area. Among the beneficiaries surveyed, 47% reported reduction in the onset of water borne diseases. Around 16% of the beneficiaries surveyed noted a reduction in health expenditure due to water borne diseases. The average reduction of medical expenditure was INR 209 annually. Furthermore, 15% of the respondents stated that there has been an increase in income due to engagement in economic activities in the time saved due to reduced illness. Around 29% of the beneficiaries experienced an overall improvement in health due to installation of water infrastructure. Before the intervention, the beneficiaries faced major challenges in accessing water, specifically pertaining to travelling long distances to fetch water.

⁴⁰ Source: KPMG Primary Data Analysis

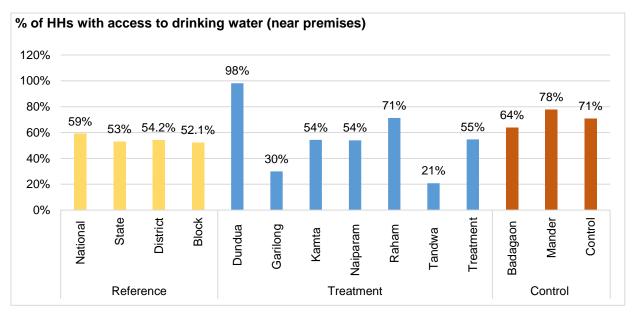


Figure 33 Treatment vs Control: Access to drinking water

According to 53% of the beneficiaries surveyed, installation of water supply related infrastructure such as water tankers and pipelines has helped them save time. Around 75% had reported lack of access to clean water for drinking and domestic purposes before intervention. Around 63% of the beneficiaries surveyed reported having access to safe drinking water due to NTPC's interventions which resolved their concerns around water to a large extent. Approximately 69% of the women beneficiaries surveyed reported improved water supply system in villages post intervention. During stakeholder interactions, 67% noted that NTPC has helped improve the water

supply system in the village with 50% of them reporting reduction in onset of water-borne diseases and health-related expenses for the villagers. Overall, around 83% of the key stakeholders from the treatment villages noted improvement in access to safe drinking water in their village. Among the two control group villages surveyed, the village Mandir did not have access clean water for the villagers. During stakeholders with the control group, it was noted that there was a lack of regular supply of safe water and maintenance of water pipelines and tankers. As the graph below shows, percentage of households with access to drinking water within premises and/or near to their premises is lower for treatment (55%) than control (71%) villages. With 55% of the households in treatment villages having access to drinking water, there is a scope of improvement and scaling up of water-related interventions by NTPC.



Figure 34 Water Tap in household, Dundua

Skill Development

NTPC's interventions in skill development included provision of sponsorship for programs in various government ITIs, provision of training in skills such as tailoring, mushroom cultivation, etc. Around 63% of the beneficiaries reported that the training was accessible for those who needed it. The training program had a positive impact on both the theoretical and practical learning of the beneficiaries. About 67% of the surveyed beneficiaries found the training to be effective and noted that they were able to understand and apply the concepts that were covered during the course. Around 33% of the beneficiaries suggested that the intervention could be improved through focusing on quality of training and course content, as well as building capacity of the trainers. Among the beneficiaries surveyed, about 52% remarked that their skills had been improved after attending NTPC's skill development activities.

Villages	Beneficiaries who found the training to be accessible for those who needed it	Beneficiaries who found the training useful for understanding and applying the subject
Dundua	100	100
Garilong	40	50
Kamta	71	57
Naiparam	50	50
Raham	100	100
Tandwa	75	100
Total	63	67

About 37% of the beneficiaries expressed that the program had played a role in enhancing their employability. Around 52% of the beneficiaries felt that there was an increase in their confidence levels after the completion of the training. With reference to social aspects, 56% of the beneficiaries reported that their role in making family decisions has increased post completion of the training. Social praise was another aspect which was increased in value for them, with 44% stating that they received praise from the other residents of the village. Around 19% of the beneficiaries also noted that they had also increased their participation in decision-making at the village or community level. Moreover, around 22% of beneficiaries noted improvement in other aspects of their social and personal lives. Around 11% of the beneficiaries also reported that the

program increased their access to government schemes. Overall, 63% of the surveyed beneficiaries were satisfied with the skill development program.

One of the main concerns were around employment opportunities for the beneficiaries. Although the skill development interventions by NTPC have helped in improving access to skill trainings and enhancing their skillsets, there has not been significant positive impact on their livelihood. Only 4% of the beneficiaries reported that they were able to secure an employment post completion of training, whereas 30% of the beneficiaries engaged in some form of entrepreneurial activity. Around 7% of the beneficiaries reported an increase in income. A comparative view of treatment and control group data shows impact of NTPC's project interventions in improving access to skill development training in the treatment villages as the none of

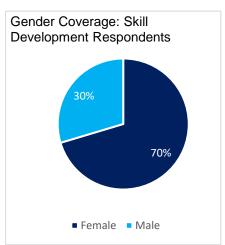


Figure 35 Skill development: Gender distribution

the control group villages had access to any skill development program. The impact of skill development interventions by NTPC could be strengthened through focusing on employment opportunities and providing the beneficiaries with a sustainable source of livelihood.

Community Infrastructure

As part of R&R-CD activities, NTPC has installed streetlights, constructed internal roads, boundary walls in the villages. Overall, 34% of the beneficiaries surveyed shared that the community infrastructure and welfare related intervention of NTPC Karanpura were aligned to the community needs. NTPC's community infrastructure interventions included installation of solar streetlights in the project affected villages. 30% beneficiaries surveyed shared that the installation of solar streetlights has improved reliable outdoor lighting in the villages.







Figure 36 Streetlights in Dundua (first and second photograph from the left) and Tandwa

On the security front, 38% of the beneficiaries reported that there has been a reduction in incidences of crime in the villages. Moreover, around 39% respondents shared that they experience an enhance sense of safety for women and children post installation of streetlights in

the villages. About 38% of the beneficiaries surveyed shared that there has been a reduction in accident rates as well as an increase in social activity after dark in the villages due to improved safety. Also, 19% of the respondents shared that this intervention has helped them engage in commercial activity after dark as they can continue with their work due to the installation of streetlights. Village wise percentages of beneficiaries Figure 37 Streetlights, Tandwa reporting impact of improved lighting





in the villages post installation of streetlights by NTPC is presented in the table below:

Table 9: Percentage beneficiaries reporting improved lighting in the villages post installation of streetlights by NTPC

Villages	Reliable outdoor lighting %	Reduced incidence of crime %	Less accident rate %	Enhanced sense of safety for women and children %	Increased social activity and interactions, particularly after sunset %
Dundua	8	15	23	23	23
Garilong	57	71	71	64	50
Kamta	75	83	83	83	83
Naiparam	8	0	0	8	8
Raham	8	17	8	17	17
Tandwa	18	36	36	36	36
Total	30	38	38	39	36

During the focused group discussion with the beneficiaries, the beneficiaries expressed satisfaction with NTPC 's support in construction of roads. They shared that NTPC carried out repair work for existing roads and also constructed various roads within the villages. They noted that before construction of these roads, they faced difficulties in commuting from one place to the other, especially during monsoons due to extensive water logging. With the construction of these roads, connectivity has improved to a significant extent. Furthermore, 38% of the beneficiaries surveyed reported enhanced connectivity to rural infrastructure such as schools, hospitals, etc., due to construction of the roads.

The construction of new roads has also led to reduced accident rates in the villages. Around 62% of the beneficiaries surveyed noted that there has been a reduction in accident rate. Further, about 64% of the beneficiaries reported that they have experienced a sense of safety while commuting after these roads were constructed by NTPC. 31% of the respondents reported that road construction has reduced their travel time and helped them earn an average additional income of INR 4467 annually. Village wise percentage of beneficiaries reporting impact on enhanced connectivity, safety, and reduction in travel time due to construction of roads is presented in the table below

Table 10 Beneficiaries reporting impact due to construction of roads in the village

	Beneficiaries	Beneficiaries	Beneficiaries	Beneficiaries	Beneficiaries
	reporting that	reporting	reporting	reporting	reporting that
	NTPC has	improved access	reduction in	enhanced sense	reduction in
Villages	developed the	to basic rural	the accident	of security after	travel time and
	market area in	infrastructure	rate post	construction of	increase in
	Tandwa	post	development	road	number of hours
		development of	of roads		of economic
		roads			activities

Dundua	85	23	54	62	8
Garilong	93	71	86	93	71
Kamta	100	42	67	75	50
Naiparam	83	33	67	58	8
Raham	83	42	50	50	25
Tandwa	73	9	45	36	18
Total	86	38	62	64	31

According to 38% beneficiaries surveyed, NTPC had constructed drains in their villages to prevent water logging, mosquito breeding and spread of diseases. 19% of the respondents noted that there has been a decrease in the incidence of water-borne diseases in the family after implementation of the project/ constructions of drains in the village. The beneficiaries shared that since the drainage systems were either recently constructed or still under construction, there has not been a significant impact on the prevalence of water-borne diseases due to the intervention.

Sports & Culture

Around 40% of the surveyed beneficiaries reported that the activities that were arranged by NTPC led to an improvement in their participation in regular sports and sports related competitions. About 51% of the surveyed beneficiaries mentioned that the sports initiatives by NTPC helped them in developing their sports habits and enhance their interest in them. NTPC's sports interventions had a significant impact on the health of the beneficiaries. 92% of the surveyed beneficiaries reported that they have experienced improved physical fitness after getting involved in sports activities and initiatives conducted by NTPC. Village wise percentage of beneficiaries reporting improved health and physical fitness due to NTPC interventions is presented in the table below:

Table 11 Beneficiaries reporting improved health and physical fitness

Figure 38 Road built, Raham

met memme

Villages	Beneficiaries reporting improved health and physical fitness
Dundua	93
Garilong	100
Kamta	83
Naiparam	100
Raham	89
Tandwa	92
Total	92

Around 89% of the beneficiaries surveyed noted that sports events were organized in their village by various stakeholders such as NTPC, government, schools, community, or other organizations. During stakeholder interaction with control group villages, it was noted that there was no provision of organizing sport events except few events at the school level. There was no effort from the government, panchayat, or any other stakeholder to promote sports, and interested players had to support themselves to pursue sports.

NTPC has also provided various financial resources for the organization of cultural events and festivals across the intervention villages. This has led to a reduction in the expenditure on cultural events of the surveyed beneficiaries after NTPC's intervention. The average annual expenditure across villages was INR 2,977 which has now been reduced to INR 1,847. Thus, on an average there has been a reduction of INR 1130 in the annual expenditure on cultural events organized in the treatment villages. Village wise percentage of beneficiaries reporting pre and post intervention average annual expenditure on cultural events is presented in the table below:

Table 10 Danafisiasias s			annual expenditure on events
Table 17 Beneficiaries i	TANONTINA NIA ANA	nost intervention average	annual expenditure on events
Table 12 Delicitoraries i	oporting pro and	post intervention average	armaar expenditure on events

Villages	Average annual expenditure on cultural events (pre-intervention)	Average annual expenditure on cultural events (post-intervention)	Delta change in average annual expenditure on cultural events
Dundua	1,400	1,031	369
Garilong	2,921	1,957	964
Kamta	3,283	1,575	1,708
Naiparam	2,642	2,033	609
Raham	3,250	1,900	1,350
Tandwa	4,368	2,586	1,782
Total	2,977	1,847	1,130

5.2.6 Evaluation criterion 5: Sustainability

This criterion assesses the likelihood that project achievements will continue after the project. This includes an examination of the capacities of the systems needed to sustain benefits over time. The criterion analyses the resilience, risks, and potential trade-offs.

Sustainability means continuation of benefits from an intervention after development assistance has been completed. The probability of continued long-term benefits and resilience to risk are important components of this evaluation criterion. Ensuring sustainability requires putting in place governance structure, finance model and operating system.

NTPC has implemented the projects in the villages as per the recommendations made by the community. However, during the interactions with the community stakeholders such as village head, local leaders, community representative, etc., it was indicated that their involvement in all the phases of project implementation (designing, selection of beneficiaries, monitoring and feedback) was relatively low. NTPC team will need to focus more at developing the capacity of different stakeholders, especially gram Pradhans, ASHA workers, school officials, etc., so that they get involved in planning and implementing the activities and designing a robust monitoring mechanism to enforce accountability and take corrective actions. Also, NTPC can form and strengthen a local management committee through capacity building exercises and empower them to play a key role in project implementation and monitoring, which would also help sustaining the project impact over longer period. Maintenance and repair of the infrastructure and assets

created through project interventions is one of the key concerns shared by the stakeholders and beneficiaries. Thus, in order to ensure and enhance sustainability of the impact created mechanisms around management and monitoring at the community level need to be formulated and bolstered.



Chapter 6: Qualitative Observations

The section below showcases the testimonies and field level observations based on data collected across 6 villages in Chatra district, Jharkhand for various R&R-CD project activities implemented by NTPC Karanpura.

Education

As per the survey data, an increase has been observed in the school attendance of the children and regularity of female students. Supply of amenities such as desk and benches, books, school shoes and socks, to the children, sanitary napkins to school-going girls have also reduced the dropout rate and enhanced the interest levels as well as the motivation of the students. Stakeholder interactions also revealed that there has been an improvement in the passing percentage of students. Field level observations also indicated that scholarships are provided to 3 students in a year. According to Shankar Prasad Chaurasiya, the Pradhan of Garilong, "There has been no shortage in the cost of education", indicating that he is satisfied with the initiative. Some of the surveyed beneficiaries also stated an average annual reduction in education related expenditure, leading to an average saving of approximately INR 1041. However, some beneficiaries had concerns around the education interventions, which according to them were not able to substantially improve access to quality education for all. Although DAV school(s) are present, an area of challenge for most beneficiaries is the high fee of the school. The toilet facilities are not adequate and require maintenance. Other costs that further increase the cost of studying at a DAV school include purchasing books. At the same time, Madrasas are present and the cost of studying at a Madrasa is not as high as a DAV school, making it the first preference for many.) During his interview, Jamindra, the Pradhan of Naiparam shared, "The school/s have a poor infrastructure and do not have Teachers of good quality". Some benefeciaries and stakeholders also recommended that there should be improvement in the infrastructure of the schools such as maintenance of the boundary walls and toilets. Akshaybat Pandey, the Pradhan of Raham indicated, "There is a shortage of school staff and lack of infrastructure".

Health and Sanitation

NTPC has been organizing free health camps and has setup a Mobile Medical-care Unit (MMU) that visits the project villages on a weekly basis to conduct regular health check-ups for the beneficiaries. This includes checkups for blood pressure, sugar, and other diagnostic checks and the provision of free medicines. Beneficiaries indicated that these mobile health care units have helped them in accessing basic healthcare services and has improved which has also led to a reported reduction in incidence of diseases. However, the beneficiaries noted that for better healthcare services, there needs to be an improvement in the provision of medicines, an addition of pathological and an increase in the frequency of the MMU. Field observations indicated that currently similar medicines are provided for multiple illnesses, reducing the effectiveness of the program. The Pradhan of Naiparam, Jamindra has recommended that in order to strengthen the initiative, the distance from the hospital needs to be reduced and the number of quality doctors should be increased. NTPC's intervention has created a positive impact in the lives of the beneficiaries as it has reduced open defecation and improved sanitation to a certain extent. NTPC had constructed toilets in the houses of the beneficiaries. The Pradhan of Garilong, Shankar Prasad Chaurasiya, has a positive view of the initiative. According to him, "NTPC has built good hospitals and there is an availability of good doctors. For sanitation, initiatives such as reinstatement of the garbage collector and construction of toilets has been undertaken for the benefit of the community".

Water

NTPC has extended support to the villages through the provision of water tankers, installation of hand pumps and solar pump systems, construction of borewells and extension of pipelines to facilitate people with clean and safe drinking water. It was observed that the overhead tanks installed by NTPC were the primary source of drinking water for majority of the beneficiaries surveyed. Reduction in the onset of water borne diseases after NTPC's intervention leading to a reduction in health expenditure and an increase in income due to engagement in economic activities in the time saved was also reported. The beneficiaries reported an overall improvement in health due to installation of water infrastructure with over 50% of the surveyed beneficiaries noting that the installation of water supply related infrastructure such as water tankers and pipelines has helped them save time. Also, it was observed that the intervention has been beneficial for women beneficiaries with around 69% of them reporting improved water supply system in the villages post NTPC's intervention. However, maintenance of the water supply infrastructure has been noted as an area of concern for the beneficiaries, and stakeholders have recommended that the water tanks should be cleaned regularly, especially in Naiparam. Further, it was highlighted that the pipelines from the overhead tank should be broader in size to facilitate greater water pressure flow and should be provided for every household.

Skill Development

To support skill development, NTPC provided sponsorship programs in various government ITIs, skill training for beneficiaries in tailoring, mushroom cultivation, etc. The study noted that the beneficiaries found the training to be accessible and reported that it created a positive impact on both the theoretical and practical learning of the beneficiaries. However, it was observed that employment was one of the main concerns for the skill development trainees. Despite receiving training from ITIs and other skill development training, beneficiaries expressed concern over the lack of employment opportunities. The skill development interventions by NTPC could be strengthened through focusing on employment opportunities and providing the beneficiaries with a sustainable source of livelihood. Beneficiaries have recommended a proper utilization of the skill development center to make it accessible for the larger community as well. It was suggested that the intervention could also be improved through focusing on quality of training and course content, as well as building capacity of the trainers. Punam Devi the Pradhan of Dundua recommended an increase the number of trainings. In her opinion, "Work has been partially done and only a one-time training was conducted in skill development". Shankar Prasad Chaurasiya (Pradhan- Garilong) and Jamindra, the Pradhan of Naiparam have also recommended increasing the number of trainings and creating employment opportunities. According to Akshaybat Pandey, the Pradhan of Raham, "NTPC should accelerate the work that is being done and efforts should be made to train people and provide employment at the village level."

Community Infrastructure

As part of R&R-CD activities, NTPC has installed streetlights, constructed internal roads, boundary walls in the villages. The surveyed beneficiaries surveyed shared that the community infrastructure and welfare intervention was aligned to the community needs which included installation of solar streetlights in the project affected villages. The installation of solar streetlights has improved reliable outdoor lighting in the villages and a reduction in incidences of crime in the

villages has been noted. Women and children safety has also improved post this intervention along with a reduction in accident rates and an increase in social activity after dark in the villages. The stakeholders have expressed a sense of satisfaction with NTPC's support in construction of new roads as well as the maintenance of existing ones. It was noted that the intervention has led to a decline in accident rates and increased the sense of safety for the beneficiaries. This has also led to enhanced connectivity to rural infrastructures such as schools, hospitals, etc. However, it was also observed that maintenance of the roads and other assets installed was needed on a regular basis. NTPC had also constructed drains in the villages to prevent water logging, mosquito breeding and spread of diseases. Some of the surveyed respondents noted that there has been a decrease in the incidence of water-borne diseases in the family after the construction of the drains. It was observed that the drainage systems were either recently constructed or still under construction. Jamindra, the Pradhan of Naiparam, applauded the initiative and has recommended NTPC to construct more drains for the greater development of the community. Construction of ponds, cemented pavements and community halls have been beneficial for the community. Community stakeholders have also expressed a positive response towards these initiatives. In some locations, an absence of these initiatives has also been expressed as the Pradhan of Kamta, Amant Hussain noted that "no community center has been made here".

Sports and Culture

Some of the surveyed beneficiaries were of the view that the sports activities arranged by NTPC resulted in an increase in their participation in regular sports, sports related competitions and helped in developing their sports habits. According to Shankar Prasad Chaurasiya, the Pradhan of Garilong, "There is an availability of a sports teacher and good playground". The project interventions have also led to a significant impact on the health of the beneficiaries, as reported by the beneficiaries and the stakeholders.

Jamindra, the Gram Pradhan of Naiparam, holds a similar view and shares that, "there is a sporting event every year and the beneficiaries now have access to sports field, training facilities, and equipment/kits." Some of the beneficiaries also recommended an increase in the frequency of sporting events. Cricket and football tournaments had been initiated by NTPC Karanpura to promote sports in the villages. However, it was noted that there is a need to increase the frequency of these events and to make them accessible and inclusive for all. NTPC has also provided various financial resources for the organization of cultural events and festivals across the intervention villages, which has led to a reduction in the expenditure on cultural events.



Chapter 7: Social Return on Investment

As elaborated in chapter 1, this report has used two evaluation frameworks which are OECD-DAC and SROI. Generally, OECD DAC helps in gaining qualitative understanding of the impact. On the other hand, SROI helps organizations in evaluating changes which are being created by measuring social, environment and economic outcomes and providing monetary values to represent them. SROI also helps in understanding the total value generated for every rupee invested for interventions.

There are two types of SROI:

- **Evaluative**, which is conducted retrospectively and based on actual outcomes that have already taken place
- Forecast, which predicts how much social value will be created if the activities meet their intended outcome⁴¹

For the purpose of this study only evaluative SROI has been conducted. SROI primarily involves six stages which are as follows:



The stages have been elaborated in the section below:

7.1 Setting the Scope

Before starting an SROI analysis, it is important to gain clarity on what will be measured, how it will be measured, and the reasoning behind undertaking the measurement process. There are three steps in this stage:

- 3.1.1 Establishing scope
- 3.1.2 Identifying stakeholders
- 3.1.3 Describing the best method of involving stakeholders

⁴¹ A guide to Social Return on Investment | The SROI Network Accounting for Value | January 2012

7.1.1 Establishing Scope

The scope of an SROI analysis defines the boundaries of what is being considered. NTPC Karanpura has considered the R&R-CD projects conducted in 2016-17, 2017-18, 2018-19 and 2019-2020 for the SROI analysis. As part of this study, 6 project affected villages were covered in Karanpura.

The SROI analysis aims at assessing the following impacts made on the primary beneficiaries of the project

- The Social impact
- The Economic impact
- The Behavioral Changes brought about in the beneficiaries after the R&R-CD projects were implemented

Thus, this SROI includes:

- The beneficiaries of the projects, who are basically the residents of the community, where the R&R-CD activities of NTPC were conducted in the 2016-17, 2017-18, 2018-19, 2019-20
- Investments incurred by NTPC in 2016-17, 2017-18, 2018-19, 2019-20 on these projects.

Thus, this SROI excludes:

- Financial assessment of the program
- Other activities conducted separately by NTPC Karanpura
- Resources provided by other donors (if any)

7.1.2 Identifying Stakeholders

Stakeholders are those individuals, groups, organizations, or entities that experience change, whether positive or negative as a result of the activity that is being analyzed. The first step is to identify all of the stakeholder groups that are material or pertinent to the scope of the analysis and then to decide whether they are relevant in being considered within the analysis.

As a part of the SROI analysis for this project, following stakeholders were included / consulted-

- Residents of the villages (primary beneficiaries of R&R-CD projects in Karanpura)
- School principals/ teachers
- Health workers
- Gram Pradhan

This SROI analysis explores the changes and outcomes experienced by only the primary beneficiaries of this project.

Method for engaging stakeholders: We used questionnaires to interview / interact with the beneficiaries and stakeholders for collecting data related to impact that the projects would have generated. Detailed methodology has been explained in chapter 1 of the report.

7.2 Mapping outcomes

Stakeholder engagement feeds into the construction of an Impact Map. The Impact Map, which documents the links between resources contributed to the project (inputs), the results of the

activity (outputs) and the outcomes of the project are a pivotal part of an SROI analysis. The Impact Map, also known as a 'logic model' or 'theory of change', is a snapshot of how the intervention affects the beneficiaries. Impact map for all the projects have been discussed in chapter 1.

7.3 Evidencing outcomes

After formulating the impact map, indicators to measure the outcomes were developed based on the evaluation team's interaction with beneficiaries, and other relevant stakeholders. The evidences of outcomes were collected using primary and secondary data.

7.3.1 Evidence indicators and quantity of change

Depending on the responses received during the data collection stage of the 394 beneficiaries interviewed and the changes observed / shared by them, proportionate percentage of the total impacted beneficiaries are assumed to have experienced similar change. The table below provides details about the evidence indicators against each outcome and the quantity of change, which are observed against each indicator

Table 13: Evidence indicators and quantity of change

Themes	Outcome	Indicator (s)	Quantity of change (%)
Education	Increase in enrollment, attendance, and academic performance of children	Percentage of beneficiaries reporting the change	34
	Reduced expenditure on education	Percentage of beneficiaries reporting the change	37
	Improved access to health care facilities	Percentage of beneficiaries reporting the change	41
	Improved levels of hygiene and sanitation (due to drains, solid waste management sheds, toilets)	Percentage of beneficiaries reporting the change	5
Health	Reduced expenditure on health	Percentage of beneficiaries reporting the change	68
	Increased income due to engagement in economic activities during the time saved (because of reduced illness)	Percentage of beneficiaries reporting the change	4
Water	Improved access to safe water	Percentage of beneficiary reporting the change	63
Water	Change in cost of availing water	Percentage of beneficiaries reporting the change	16

	Reduced expenditure on health due to lesser incidence of water borne diseases	Percentage of beneficiaries reporting the change	16
	Increased income due to engagement in economic activities in the time saved due to reduced illness	Percentage of beneficiaries reporting the change	15
	Additional income from time saved in fetching water	Percentage of beneficiaries reporting the change	4
	Improved self-confidence of beneficiaries trained	Percentage of beneficiaries reporting the change	52
Skill Development	Increased income due to skills acquired	Percentage of beneficiaries reporting the change	7
	Improved Social Standing	Percentage of beneficiaries reporting the change	56
	Improved access to infrastructure	Percentage of beneficiaries reporting the change	38
	Improved connectivity due to construction of roads	Percentage of beneficiaries reporting the change	26
	Enhanced sense of security due to reduced chances of accident,	Percentage of beneficiaries reporting the change	64
Community Infrastructure	Increase in income (due to improved commercial activity) due to installation of solar streetlights	Percentage of beneficiaries reporting the change	31
	Amount saved as social events could now be organized in community halls instead of private halls	Percentage of beneficiaries reporting the change	8
	Improved sanitation due to construction of drains	Percentage of beneficiaries reporting the change	19
Sports and Culture	Improved health due to physical activity	Percentage of beneficiaries reporting the change	92

Improved access to cultural events	Percentage of beneficiaries reporting the change	23
Reduced expenditure in organizing events	Percentage of beneficiaries reporting the change	39

7.3.2 Duration of the change

While some outcomes may last a person's life, others may be short-lived i.e., the outcome lasts till the activity lasts. For the SROI analysis the duration of the outcomes has been estimated. The table below shows the duration of change for outcomes across sectors.

Table 14: Duration of change for project outcomes

Sectors	Outcomes	Duration of Change
Education	Increase in regularity, attendance, and improved academic performance of children in school	Service provided include infrastructural support to schools and supply of stationary items to children. A duration of change (i.e., the length of time following
	Reduced expenditure on education	school completion, when children passing out of class X, will have greater opportunities to find employment and earn a higher average monthly salary) of <i>five years</i> has been estimated.
Health	Improved access to health care facilities	Service provided include organising health camps, MMUs and Mega medical
	Improved levels of hygiene and sanitation (due to awareness programs)	camps in the community, organising health and sanitation awareness programs in schools providing
	Reduced expenditure on health	infrastructural support to Govt. hospital (Tandwa). A benefit period (i.e., the
	Increased income due to engagement in economic activities during the time saved (because of reduced illness)	length of time following access to the health services, when the beneficiaries would experience lesser incidence of diseases and reduced chances of
		advanced diseases due to timely detection) of <i>five years</i> has been estimated.
		Regular tests and follow up activities will need to be conducted to ensure a sustained positive impact on health.
Water	Improved access to safe water	Service provided included installation of water tankers, water pipelines, tube
	Change in cost of availing water	wells, handpumps, etc. in the

	Reduced expenditure on health due to lesser incidence of water borne diseases Increased income due to engagement in economic activities in the time saved	community. The duration of change (i.e., the time when the beneficiaries continue to access clean water) of <i>five years</i> has been estimated. Subsequently, the existing infrastructure will need to be repaired or new pumps will need to be installed in the community
	Additional income from time saved in fetching water	
Skill Development	Improved self-confidence of beneficiaries trained	Service included provision of skill development trainings to the youth. It has been estimated that the benefit of
	Increased income due to skills acquired	this activity will last for a maximum period of five <i>years</i> . Based on their job profile and requirements, the candidates will need to build new skill sets over a period
	Improved Social Standing	of five <i>years</i> .
Community Infrastructure	Improved connectivity and enhanced sense of security due to reduced chances of accident, due to construction of roads	Service included provision of solar streetlights, construction of roads, community halls, etc. It has been estimated that the benefits of these activities will last for maximum <i>five</i>
	Increase in income (due to improved commercial activity) due to installation of solar streetlights	years. Subsequently, the infrastructure provided will need to be renovated,
	Amount saved as social events could now be organized in community halls instead of private halls	repaired, or replaced.
Sports and Culture	Improved health due to physical activity	Service provided include organization of sport events and financial assistance to organise cultural events in the villages. It
	Improved access to cultural events	has been estimated that the benefit of this activity will last for a period of one year . Subsequently, new sports event
	Reduced expenditure in organizing events	will need to be organized to motivate the beneficiaries to stay fit and financial assistance need to be provided to improve the beneficiaries access to cultural events

The R&R-CD interventions of NTPC Karanpura is and will continue to remain significant for community development. This evaluative study estimates that the strategies, methods and means for designing, implementing, monitoring, and reviewing will continue creating value for years as mentioned in the table above. Beyond these years, it is expected that a new intervention will be required to meet the needs and expectations of the community

7.3.3 Financial proxy (FP) and value of financial proxy

An SROI analysis uses financial proxies to establish a value of identified outcomes. As a standard practice, prices are used as a proxy for value of services. In certain scenario, the outcomes reported by stakeholders are intangible and cannot be traded in a market. In such cases, the closest, comparable value is identified for that outcome. The table below presents the details of financial proxies and its value assumed against each outcome:

Table 15: Financial proxies and values

Sectors	Outcome	Financial Proxies	Values (INR/ annually)
Education	Increase in regularity, attendance and improved academic performance of children in school	Willingness to pay for schooling and education	28356
	Reduced expenditure on education	Average cost saving of the beneficiaries on education related expenditures	1041
	Improved access to health infrastructure	Willingness to pay	255
	Reduced incidence of diseases due to improved sanitation and disinfection	Improved savings	1800
Health and Sanitation	Reduced expenditure on health	Average cost saving of the beneficiaries on medical expenditures	3247
	Increased income due to engagement in economic activities during the time saved (because of reduced illness)	Average increase in income	149
	Improved access to safe water	Willingness to pay	750
	Change (decrease) in cost of availing water	Amounts change in cost of availing water	3100
Water	Reduced expenditure on health due to lesser incidence of water borne diseases	Average cost saving on medical expenditure	209
	Increased income due to engagement in economic activities in the time saved	Average increase in income	1169
	Additional income from time saved in fetching water	Average increase in income	751

Skill	Improved self-confidence of youth trained	Cost of training on personality development and soft skill	3793
Development	Increased income level of trained beneficiaries due to skills acquired	Average increase in remuneration earned per candidate post completion of training	9000
	Improved access to community infrastructure	Willingness to pay	450
	Improved connectivity due to construction of roads	Additional income	591
Community Infrastructure	Enhanced sense of security due to reduced chances of accident, (due to construction of roads)	Willingness to pay	442
	Increase in income (due to improved commercial activity) due to installation of solar streetlights	Amount of revenue generated due to increased commercial activity after the dark	60000
	Amount saved as social events could now be organized in community halls instead of private halls	Amount saved	5867
	Improved health due to physical activity	Average Gym Fee	6600
Sports and culture	Improved access to cultural events	Willingness to pay	732
	Reduced expenditure in organizing events	Amount reduction	13281

7.4 Establishing impact

Establishing impact provides a way of estimating how much of the outcome would have happened anyway and what proportion of the outcome can be attributed to the activities that occur during the program or program. Establishing impact is crucial, as it reduces the risk of over counting and makes the assessment more credible. Therefore, in order to provide credibility to the analysis and prevent over-claiming, the four adjustments that are calculated during this stage are deadweight, displacement, attribution, and drop-off, on the basis of which the impact is measured.

7.4.1 Deadweight

Deadweight is an estimation of the social and financial benefits that would have been created without the intervention. The table below presents the estimated deadweight percentage for the projects under various sector and the rationale underlying the same.

Table 16: Estimated deadweight percentage for the R&R-CD activities under each sector

Sectors	Dead weight (%)	Rationale
Education	65	According to the ASER 2018 report, the attendance based on visit on random day for the age group of 6-14 years has been about 65% in Jharkhand. Therefore, the percentage of children that would have attended the schools even in the absence of R&R-CD projects of NTPC, a deadweight of 65% has been estimated.
Health	76	During our interaction with the health-related stakeholders, it was indicated that on an average 76% of the beneficiaries surveyed availed medical facilities from government or private hospitals in the absence of NTPC R&R-CD intervention. Therefore, a deadweight of 76% has been estimated.
Water	10	The findings from the data analysis suggest that about 10% of the beneficiaries used government supply for their source of water before the implementation of the R&R-CD projects. Considering that these sources are relatively safe, it is estimated that these 10% beneficiaries would continue to have access to safe water in the absence of the R&R-CD activities of NTPC.
Skill Development	53	Basis secondary report ⁴² , total percentage of beneficiaries trained in Jharkhand through various government schemes is about 53%. Considering that these 53% of youth would have anyways been trained, even in the absence of R&R-CD programs of NTPC, the deadweight is estimated to be 53%
Community Infrastructure	50	Considering that 50% of the intervention would have happened through government support, even in the absence of R&R-CD intervention by NTPC, the deadweight is estimated to be 50%
Sports and Culture	85	Since 85% of the beneficiaries reported that activities related to sports and culture were organised either by schools or Govt., in the

-

⁴² http://jsdm.jharkhand.gov.in/jsdm/cms/en/

	absence of R&R- CD support from NTPC, the deadweight has been estimated to be 85%.

7.4.2 Attribution

Attribution is an assessment of how much of the outcome was caused by the contribution of other organisations or people. During the field visit, the beneficiaries and stakeholders surveyed shared that NTPC staff provided support through their initiatives, However, they also mentioned that the support from community, panchayat, other government schemes, etc. have been instrumental in achievement of the program's objectives. Therefore, based on our interactions with the beneficiaries and relevant stakeholders, an attribution percentage has been provided to NTPC for the outcome created. The table below presents the percentage attributed to NTPC across the various sectors.

Table 17: Percentage attribution to NTPC by beneficiaries and stakeholders

Sectors	Education	Health	Water	Skill Development	Community Infrastructure	Sports and culture
Attribution (%)	11	16	24	33	27	16

Source: KPMG Primary Data Analysis

7.4.3 Drop-off

Drop-off is the process of considering any deterioration of program outcomes over time. It refers to that portion of outcomes that are not sustained. The table below provides the duration of change and drop off percentage for the projects under each sector and rationale for the same.

Table 18: Drop off percentage for the R&R-CD activities in each of the sectors

Sector	Duration of outcome	Drop off (in %)	Drop-off Rationale			
Education	5	8	Interaction with the education-related stakeholder indicated that the average dropout rate of children in primary school is 8%. Therefore, considering that about 8% children drop out of school every year, we have estimated the drop off rate to be 8%			
Health	5	5	Since the health-related infrastructure provided will depreciate over time and will require repair and maintenance service, a drop-off of 5% has been considered for the SROI analysis.			

Water	5	5	Since the water related infrastructure provided will depreciate over time and will require repair and maintenance service, a drop-off of 5% has been considered for the SROI analysis.
Skill Development	5	5	The drop- off rate has been considered to be 5% as it is assumed to believe that the skill sets provided / learned during the training program will become redundant over a period of five year / would drop-off 5% annually. Thus, the drop-off is considered to be at 5%.
Community Infrastructure	5	5	Since the infrastructure provided will depreciate over time and will require repair and maintenance service, a drop-off of 5% has been considered for the SROI analysis.
Sports &Culture	1	0	The outcome lasts as long as the activity or a maximum period of one year- No drop-off is considered for projects with one-year duration of change

7.4.5 Displacement

Displacement is an assessment of how much of the outcomes displaced other outcomes. The programs intended to improve access to education, health services and community infrastructure, and skills for employability. No significant displacement was observed or reported for the projects.

7.5 Calculating impact

The impact of the program has been arrived at based on the following calculations:

Quantity of change multiplied by financial proxy (FP) minus deadweight, displacement, and attribution.

Impact for year one = Quantity of change x FP value x $(1 - \text{deadweight}) \times (1 - \text{displacement}) \times (1 - \text{attribution})$

Impact for subsequent years = Quantity of change x FP value x $(1 - \text{deadweight}) \times (1 - \text{displacement}) \times (1 - \text{attribution}) + [impact value of previous year] \times (1 - \text{drop-off})]$

Tables below gives details of applied Deadweight, Displacement, Attribution and Drop-off to arrive at the impact for each of the sectors.

Table 19: Cumulative impact for the R&R-CD Initiatives under each sector

Outcomes	Quantity of Change (in %)	Financial Proxy	Value (INR)	Deadweight (in%)	Displacement	Attribution	Dropoff	Cumulative Impact
Improved attendance, regularity, and improved academic performance of children in schools	34	Willingness to pay for schooling and education	28356	65	Nil	11	8	17465915
Reduced expenditure on education	51	Average cost saving of the beneficiaries on education related expenditures	ving of the eneficiaries and education lated 1041 65 Nil 11 8				8	967918
	Cı	umulative impac	t for R&R CD	activities in the	education sector ⁴³			18433833
Improved access to health infrastructure	41	Willingness to pay	255	76	Nil	16	5	1503382
Reduction of disease due to improved sanitation and disinfection	5	Amount savings	1800	76	Nil	16	5	234226

 $^{
m 43}$ Sample calculation is provided for education sector below Table 19

Reduced expenditure on health	68	Average cost saving of the b1eneficiaries on medical expenditures	3247	76	Nil	16	5	31863740		
Increased income due to engagement in economic activities in the time saved (due to improved health)	ome due to gagement in promic increase in									
	Cumulative Impact for R&R-CD activities in the health sector									
Improved access to water	63	Willingness to pay	750	10	Nil	24	5	38082101		
Reduced expenditure on health due to lesser incidence of water borne diseases	16	Average cost saving on medical expenditure	209	10	Nil	24	5	2762833		
Increased income due to engagement in economic activities in the time saved (due to lesser incidence of	15	Amounts increase in income	1169	10	Nil	24	5	14200651		

water borne diseases)								
Change in cost of availing water	16	Amounts change in cost of availing water	3100	10	Nil	24	5	41078088
Increased income due to engagement in economic activities in the time saved in fetching water	4	Amounts increase in income	751	10	Nil	28	5	2488832
	C	Cumulative impa	ct for R&R-CD	activities in wat	ter related project			98612505
Improved self- confidence	52	Cost of training on personality development and soft skill	9000	53	Nil	37	5	1939737
Increased income due to skills acquired	37	Amount Increase in income	13500	53	Nil	37	5	4073448
Improved Social Standing	56	Willingness to pay	1163	53	Nil	37	5	350909
Cumulative Impact for R&R-CD activities on Skill Development								6364094

Improved access to community infrastructure	38	Willingness to pay	450	50	Nil	27	5	7534066
Increase in income due to improved lighting after dark	1	Average increase in income	60000	50	Nil	27	5	35854969
Savings due to provision of facility for holding religious/ cultural/ events	8	Rent of hiring similar infrastructure / marriage hall in that area	5867	50	Nil	27	5	21034915
Improved income due to better connectivity due to construction of roads	26	Amount of revenue generated due to increased commercial activity after the dark	591	50	Nil	27	5	6710258
Improved income due to time saved in commuting	31	Amounts increase in income	4130	50	Nil	27	5	56770368
Enhanced sense of security due to reduced chances of accident	64	Willingness to pay	442	50	Nil	27	5	12418740

Improved sanitation due to construction of drains	19	Reduction in health expenditure	1664	50	Nil	27	5	13923680	
Cumulative impact for R&R-CD activities on community infrastructure									
Improved health due to enhanced physical activity	92	Willingness to pay	6600	88	Nil	23	0	12274662	
Improved access to cultural events	23	Willingness to pay	732	88	Nil	23	0	340144	
Reduced expenditure in organising events	39	Average amount reduction	13281	88	Nil	23	0	10521496	
	Cumulative impact for R&R-CD activities on Sports and culture								

Sample calculation for Education sector:

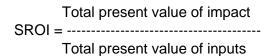
Outcomes/ Year	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Cumulative Impact	NPV as on 2016
Improved attendance, regularity, and improved academic performance of children in schools	1415292	3480342	3232698	3448289	3172426	1985839	391312	339719	17465915	13244871
Reduced expenditure on education	78432	192872	179148	191096	175808	110050	21686	18826	967918	733998
Total	1493723	3673214	3411846	3639384	3348234	2095889	412998	358545	18433833	14179906
Inputs	2016-17	2017-18	2018-19	2019-20	Total					NPV as on 2018-19
	7938726	1231709	313966	2521509	12005910					10,591,537

SROI for Education sector= (14179906) / (10591537) = 1.34

7.5.1 Calculating the SROI

The SROI value is expressed as a ratio of return and is derived from dividing the value of the impact by the value of the investment.

However, before the calculation is made, the impact value is adjusted to reflect the NPV of projected outcome values. This is to reflect the present value of benefits projected in future.



Further, discounting is applied to those values that have been projected for longer than one year. Here, we have assumed that the duration of impact for projects on education, vocational training and community infrastructure is 5 years and health, water and sports is 1 year. The interest rate used to discount the value of future benefits in this case is 7.5%

7.5.2 Program input

As part of this SROI analysis, inputs from NTPC are considered. The table below presents the cost incurred (in INR) by the NTPC Karanpura in each of the sectors.

Table 20: Program inputs

Year	Education	Health	Water	Community Infrastructure	Skill Development	Sports and Culture
2016-17	7938726	8883338	14875963	43319240.15	4197599	11066925.2
2017-18	1231709	5810544	16070232	35256651.13	277200	1847697
2018-19	313966	5662707	14416500	24375543.7	482130	3051566
2019-20	2521509	6281241	26301848	21322309	72599	3426901
Total (INR)	12005910	26637830	71664543	124273744	5029528	19393089.2

Source: Data provided by NTPC Karanpura

7.5.3 Net present value (NPV)

The impact value is adjusted to reflect the net present value (NPV) of the outcome values. The idea is to reflect the present-day value of benefits. A discount rate of 7.5% has been used for the NPV calculations.

The NPV of the benefits can be calculated by using the following calculations:

NPV = Value of benefits/((1 + discount rate) x time)

Table 21: Estimated SROI for the R&R-CD activities under each sector

Sectors	NPV of Social Impact created (INR)	NPV of Investment incurred (INR)	SROI
Education	14179906	10591537	1.34
Health	24749835	19,737,987	1.25
Water	72357726	59,043,753	1.23
Skill Development	19165605	16,916,142	1.05
Community Infrastructure	114836391	106,393,205	1.08
Sports and Culture	19656279	16,916,142	1.16

Source: KPMG calculations based on primary data collected during the survey



Chapter 8: Need Assessment

Need assessment is a systematic set of procedures for determining "needs", examining their nature and causes and prioritizing them for future action. "A need, in the simplest sense, is a measurable gap between two conditions: what currently is, and what should be. This requires ascertaining what the circumstances are at a point in time, what is desired in the future, and a comparison of the two." ⁴⁴ Thus, discrepancy between the current condition and wanted condition must be measured to appropriately identify the need. It is important to approach needs assessment using a participatory lens in order to understand and align how the community views its 'needs' and envisions its "wants", with the programmatic goals.

NTPC Karanpura conducted a socio-economic impact assessment survey in 2005 to understand the situational context and provide an overview of the beneficiaries in the project affected villages. Several needs of the community were also identified during this assessment which were then incorporated into the programmatic activities over the years. In 2020, NTPC Karanpura empaneled KPMG for conducting the need assessment survey for understanding the future needs and expectations of the community.

8.1 Objectives of the Need Assessment Survey

- To explore and gather data about the current conditions across various focus areaseducation, health and sanitation, livelihood, etc.
- To understand the difference or "gap" between the current condition and desired condition.
- To prioritize identified needs and gaps
- To learn more about what group or community needs are, as perceived by the various community stakeholders.
- To document needs, as is required in many applications for funding, and as is almost always helpful in advocating or lobbying for the cause.
- To guide formulation and alignment of programmatic activities as per the needs and issues as identified and prioritized by the community. Also, to promote more community participation and ownership in the program activities.

KPMG adopted a 'mixed method' approach-qualitative and quantitative-to conduct the need assessment survey. Review of documents, including the socio-economic impact assessment (2005), and data provided by the program team was undertaken to understand the objective and coverage of the program. Field visits were carried out in the 6 project affected villages for data collection from the beneficiaries and other relevant stakeholders. Discussions were held with Gram Pradhans and other salient stakeholders through in-depth interviews as well as focused group discussions to understand the needs and aspirations of the community. A statistical approach was adopted to decide on the sample size. In total, 394 beneficiaries were surveyed as part of this project. This sample had a proportionate representation of beneficiaries from all age groups and across genders and caste (Scheduled caste, scheduled tribe, and other backward class).

111

⁴⁴ Needs Assessment: Trends and a View Toward the Future," New Directions in Evaluation, No. 144, Winter, 2014 James W. Altschuld and Ryan Watkins (eds.)

8.2 Key Findings

The key findings from the need assessment survey are presented in the table below:

Table 22: Key findings of the NAS⁴⁵

Sector	Needs of the beneficiaries surveyed			
	Support in infrastructure			
	Improving the quality of education			
Education	Support in meeting education-related expenditure			
	Capacity building of schoolteachers			
	Provision of safe and regular drinking water supply and sanitation facilities			
	Support in healthcare infrastructure			
Health and Sanitation	Improving the quality of service			
	Provision of regular supply of medicines			
	Building and maintaining community toilets			
Water	Increasing the number of tankers and pipelines			
	Improved maintenance of the facilities created			
Skill Development	Provision for on-the-job training			
Skill Development	Support in employment			
Community Infrastructure	Provision of adequate quantity of assets (community halls, drains, schools etc.)			
	Regular upkeep of the infrastructure provided			
Sports & Culture	Improve accessibility for sports programs and cultural events			
·	Improve sports infrastructure and increase frequency of sports events			

8.2.1 Education

Among the beneficiaries surveyed, 62% shared that their children face various challenges in accessing quality school education. 93% of the beneficiaries surveyed stated that they were facing challenges in meeting the school expenses due to financial constraints. Stakeholder interactions highlighted that unemployment and poverty lead to children being engaged in earning

⁴⁵ Source: KPMG Primary Data Analysis

a livelihood or household chores to assist the family members, which further acted as a deterrent in accessing school education. 71% of the respondents shared their concerns around capacity of teachers and the quality of education provided in schools. About 89% of the respondents suggested that adequate number of qualified teachers should be onboarded for ensuring access to quality education. Further, to improve the learning experience of their children, 90% of the respondents suggested that NTPC Karanpura should provide trainings to the schoolteachers on subject matter as well as teaching methods. This will improve the quality of education and further enhance the impact created through the education-related intervention by NTPC team. Also, 89% respondents noted that interventions promoting digital learning, sports, and co-curricular activities, etc., should also be taken up to enhance education quality and provide a holistic learning environment for the children.

For 67% of the respondents, there was a need to improve the infrastructure in schools as poor infrastructure posed various challenges in accessing school education. Around 90% of the respondents noted that there is a need to build better education facilities with all amenitiesclassrooms, toilets, boundary walls, playgrounds, etc. According to the beneficiaries surveyed, there was a need to build computer labs, libraries, as well as furnishing the classrooms with adequate desk and benches. During our interactions with the stakeholders, it was indicated that the schools needed computers for their laboratories to improve access to computer literacy amongst students. 66% of the beneficiaries noted that there is a need to supply stationary items and books for the children. The stakeholders also highlighted the need for provision of safe and regular supply of drinking water as well as maintenance of toilets in schools. Also, improving access to solar energy was noted as a possible intervention that could help provide continuous electricity for the school and the village too. Around 86% of the beneficiaries surveyed shared the need for establishing a higher education institution in the locality. Among the beneficiaries surveyed, 84% highlighted the need to improve access to education particularly for girl children. During the field study, the stakeholders also raised concerns about the issue of early marriages for girls and the need for awareness programs to tackle this issue and promote education for girls. Around 89% of the beneficiaries surveyed recommended organizing and planning activities around girl education.

8.2.2 Health & Sanitation

Among the beneficiaries surveyed, 57% shared that the health infrastructure in the villages need further improvement. Around 78% shared that there is an issue of poor quality of service provided in the PHCs which can be addressed through improving the infrastructure and deploying experienced staff for providing health care services. About 89% of the beneficiaries were not satisfied with the support received for health and sanitation. It was noted that though there have been efforts to increase access to healthcare through MMU, there is scope for improvement. The MMU facility is available once a week and only covers common ailments. It is not equipped to address serious diseases and only has a limited stock of basic medicines. The villagers have to pay for healthcare facilities at a private clinic or travel to the PHC at Tandwa.

During the focused group discussions, beneficiaries suggested that there is a need to improve accessibility to healthcare services for the community members through constructing hospitals or permanent health centers. Furthermore, the beneficiaries surveyed voiced out their needs for

equipping mobile health care units with better facilities such as X-ray, blood testing, and regular supply of medicines. The beneficiaries surveyed also suggested that facilities to provide treatment for critical illness needs to be set up for improving the health care services in the community. The beneficiaries highlighted the need to eradicate open defecation through conducting awareness campaigns amongst the community members. Also, there is a need to construct toilets at both household and community levels to work towards making the villages open defecation free.

8.2.3 Water

NTPC in its targeted villages has addressed issues around access to safe water through installment of hand pumps, solar pumps, provision of water tankers, extension of existing pipelines and construction of borewells. Around 52% of the surveyed beneficiaries reported an improved access to safe drinking water due to NTPC's intervention, which contributed towards reduction in water borne diseases in the project villages. When asked about the challenges, about 47% beneficiaries surveyed shared that they have to travel long distances and 53% shared that they have to stand in long queues to avail water from the community pumps. 78% of the respondents shared that the water infrastructures installed needs regular maintenance. Typhoid, dysentery, and giardia were the most common water borne diseases in the project villages, as reported by the surveyed beneficiaries during the need assessment.

Around 96% of the beneficiaries suggested that access to water should be increased with 85% highlighting the need to increase amount of water supply as well. The need to increase access to water in the villages was also highlighted by the participants during the focused group discussions. Around 55% of the beneficiaries noted facing issues with the quality of water, primarily because the existing tanks have not been cleaned since after installation and requires maintenance. The beneficiaries expressed the need for regular maintenance and provision of support in setting up of tap water connection in each household to further enhance the impact created and increase the reach of the project. Around 78% of the beneficiaries suggested that water-related interventions can be scaled up and installation of ROs, solar plants and water pipes can be carried out to provide regular access to safe water. The need for maintenance of new and existing assets was reiterated while highlighting the need for increasing outreach through tankers and pipelines to ensure water supply to all households in the villages.

8.2.4 Skill Development

NTPC Karanpura has provided vocational trainings for the youth and women of the communities through various trainings such as computer, tailoring and stitching, mushroom cultivation, etc., to bridge the skill gap. These trainings were organized by NTPC to help the recipients become employable and enhance their livelihood, leading to an increase in income and enhanced socioeconomic status. 78% of the respondents indicated that the R&R-CD projects undertaken by NTPC were aligned and relevant to the needs of the community and 30% of them stated that the skill development intervention was able to address some of the requirements of the villages.

During the focused group discussion, employment opportunities and wages were the main areas of concerns for the surveyed beneficiaries. Lack of employment opportunities and low wages were the key issues that needed to be addressed by NTPC through focusing on improving livelihood opportunities. Around 96% of the beneficiaries expressed that there was a severe lack of employment opportunity while all of them noted that the wages were significantly low. About 81% of the beneficiaries requested for assistance with on-the-job training, support in market-oriented employment skill training and assistance in job placement.

8.2.5 Community Infrastructure

Beneficiaries surveyed shared that they were facing challenges in terms of limited accessibility and lack of maintenance of community assets/ infrastructure created by NTPC in their respective villages under their R&R community development project. 80% of the beneficiaries surveyed shared that a greater number of infrastructural input (toilets, drains, halls, roads, streetlights, etc.) needs to be provided. Around 78% of beneficiaries surveyed indicated that the infrastructure provided needs to be regularly repaired and maintained for continued usage by the beneficiaries. Around 91% of the beneficiaries surveyed noted the need for maintaining existing roads and streetlights as well as constructing new ones to improve connectivity and road safety for everyone.

Furthermore, 88% beneficiaries surveyed shared the need for constructing community halls in their respective villages and 86% highlighted the maintenance needs of existing halls. During the focused group discussions, the beneficiaries shared that they face power shortages and have access to less than 2-3 hours of electricity per day (Garilong village). It was suggested that the project interventions such as solar panels could help in improving access to affordable and regular supply of electricity for the villages.

8.2.6 Sports & Culture

Prior to NTPC's intervention, all the villages had very limited facilities and the quality of community infrastructure for sports and cultural events was not adequate. The project activities contributed towards fulfilling these needs by creating various provisions such as constructing a community building so that the villagers are able to organize functions comfortably. Around 89% of the beneficiaries surveyed shared that the there is a need to improve access to sports. About 97% of the respondents highlighted that sports activities must be made inclusive and more accessible for a wider range of beneficiaries especially the vulnerable sections of the community.

About 95% of the beneficiaries suggested that frequency of training should also be increased with special focus on the upgradation and maintenance of the sports infrastructure. Among the beneficiaries surveyed, 85% remarked that the sports infrastructure in the villages needed improvement. Around 95% beneficiaries noted that provision of one-time support-sports training kits, equipment, sports field, etc., for the beneficiaries is another area that should receive attention. During the focused group discussion, it was suggested that sports must be actively promoted in schools through ensuring availability of sports teacher, good playground in schools, regular sporting events, sports coaching programs, etc. Also, beneficiaries suggested that access to participation in cultural events should be improved upon to make it inclusive for a larger demographic of beneficiaries. The respondents felt that the process for selecting beneficiaries for financial assistance lacked a proper system and thus the focus of future program should be on the strengthening of these programs.

8.2.7 Gender

The issue of gender equality and women empowerment is also significant in the region as the study noted concerns around instances of early marriages for girls. The stakeholders expressed the need for targeted awareness and sensitization programs that would promote education amongst girls enabling them to pursue higher studies. Around 84% of the respondents highlighted the need to improve access to education particularly for girl children. Improving WASH facilities in schools would further help curb the drop-out rates amongst girl students. About 89% of the beneficiaries surveyed recommended organizing and planning activities around girl education. Also, strengthening skill development initiatives and promoting women's economic empowerment

would further promote girl education and delay the average age of marriage for girls in the area. Around 70% of the respondents for skill development program were women, which shows that NTPC has actively promoted inclusion of women for the trainings. Project activities can be designed to engage women through SHGs and micro-enterprises in order to promote additional income for the women.

Gender equality can be furthered promoted throughout the various interventions by actively ensuring participation of women beneficiaries. For instance, interventions in healthcare can be made inclusive through provision of female doctors. Also, project activities addressing infant mortality rate and maternal mortality rate can improve access to quality ante and post-natal healthcare for women. Similarly, improving access to safe water helps in saving time and effort for women of the household. Around 69% of the women beneficiaries surveyed reported improved water supply system in villages post intervention. However, the need to further improve access to safe and reliable water was expressed by around 96% of the beneficiaries overall. Also, solar streetlights improve sense of security and road safety for all, especially for women and children. Ensuring maintenance of solar streetlights that have been installed would also improve safety for girls and women.

8.3 Road Map: Suggestive Five-Year Plan

Table below presents a suggestive 5-year plan for NTPC Karanpura. This plan has been formulated basis interaction with the beneficiaries surveyed in the 6 villages.

Table 23: Suggestive 5-year plan⁴⁶

Sectors	Activities	Justification
Economic	Provision of scholarship support to students	93% of the beneficiaries surveyed shared that they were facing challenges in meeting the education-related expenditures and hence suggested that provision of scholarship to their children will be helpful.
	Planning activities to address infrastructural gaps in schools	67% beneficiaries surveyed requested for infrastructural support in schools
	Organizing training for the schoolteachers	71% beneficiaries surveyed expressed concerns around quality of education and suggested that quality of teaching needs to be improved through provision of comprehensive training to teachers on subject matter as well as on soft skills.

-

⁴⁶ Source: KPMG Primary Data Analysis

Education	Planning activities around improving access to digital education	During our interactions with the beneficiaries and stakeholders, it was indicated that the schools needed more computers for their laboratories to improve access to computer literacy amongst students.		
	Key villages: Dundua, Raham			
Health and Sanitation	Construction of community health centers in every village	97 % beneficiaries surveyed expressed the need to improve accessibility to healthcare for the community members through building better health facilities such as constructing of a permanent health center in the villages.		
	Increasing number of household and community toilets.	During the focused group discussions, beneficiaries suggested that there is a need to construct toilets at both household and community levels for combatting diseases and open defecation.		
	Upgrading existing PHCs	77% beneficiaries surveyed shared that there is a need for improving accessibility to healthcare services for the community members through strengthening existing systems and infrastructure		
	Key villages: Tandwa, Dundua			
Quality of Life	Setting up of water pipeline connections in households	81% beneficiaries shared that there is a need to further improve water infrastructure. 47% surveyed shared that they had to travel long distances and 53% noted that they have to stand in long ques to avail water from the community pumps.		
	Improve access to electricity through Solar Panels	Respondents shared that frequent fluctuation of power supply was an important issue affecting various interventions		
	Capacity building for better community management of infrastructural interventions	78% of beneficiaries surveyed observed that the infrastructure provided need to be regularly repaired and maintained. This can be efficiently done through better participation and accountability from community stakeholders.		
	Key villages: Tandwa, Naiparam, Raham			

Occupation and Employment	Skill Development Training	It was suggested by 81% respondents that NTPO should provide on the job trainings for the village youth. Around 96% of the beneficiaries expressed the lack of employment opportunities and the need for provision of employment support.			
	Skill training and support to promote small scale entrepreneurs	Specialized training program to promote self- employment through small business and initial investment support could be designed to promote entrepreneurship.			
	Key villages: Garilong, Naiparam				



Chapter 9: Conclusion and Recommendation

This study presents the need assessment survey and social impact evaluation of the R&R-CD projects of NTPC Karanpura. NTPC Karanpura has implemented various R&R-CD programs/ activities to support the development of communities in 6 villages around its plant. Major activities included provision of infrastructural support (construction of community buildings, classrooms, toilet blocks, boundary walls, etc.), supply of books and school shoes and socks to students, installation of RO water plants in villages for improved access to safe drinking water, organizing health camps. Mobile health care unit, support to PHCs to improve access to affordable health facilities, conducting training for the youth to improve their employability, among several others. Through these R&R-CD interventions, NTPC Karanpura has created positive impact on several indicators across sectors including attendance, regularity, and enrolment levels of the children, access to affordable health care services and reduced incidence of diseases, access to safe and reliable water, additional income due to reduced illness, improved skills and confidence level through skill development trainings, improved connectivity to rural infrastructure, improved sense of safety after dark and so forth. Overall NTPC Karanpura has contributed towards community development through implementation of its R&R-CD initiatives in the targeted villages. However, during the interactions, the beneficiaries surveyed shared that that there is a need to enhance the involvement of the larger community in all the phases of implementing the projects. Across all thematic areas, the beneficiaries stated that they had limited involvement, particularly on aspects related to program planning, designing, monitoring, selection and feedback mechanism.

Furthermore, the R&R-CD programs of NTPC could be further strengthened through provision of end-to-end support to the beneficiaries across all the sectors. For example, in the education sector, support should be provided for capacity building of teachers, provision of basic supplies to children on a continuous basis, infrastructure construction, regular maintenance of the infrastructure provided, constructing playgrounds for the children, etc., all of which together will contribute towards building an enabling environment for the children in schools. This can be done through onboarding individuals from the development sphere along with collaborating with NGO partners who are specialized in the education sector and with their expertise can play crucial role in implementing NTPC's program in a holistic manner.

Similarly, in the health sector, support should comprise both preventive and curative health care. It should include activities - conducting diagnostics for detecting diseases, supply of medicines, continuous monitoring on whether the beneficiaries are receiving follow up treatment, training the village youths and pharmacies on conducting basic testing and common medicines. All these will lead to an improved sustainability quotient of their models.

In water-related interventions, NTPC should enable end to end support, starting from installation of infrastructure to regular maintenance of the same with the required support from village heads and the agencies installing these infrastructures. Village heads should ensure that everyone in the community is able to access community assets installed/ constructed by NTPC.

In the skill development sector, beneficiaries should be provided with a judicious mix of business/ entrepreneurship trainings, on-site technical assistance and counselling, provision of income generating assets for enterprise development, and linkage with government schemes.

In activities pertaining to provision of community infrastructure, support should include the following- proper assessment of beneficiaries, provision of the assets in adequate numbers, and

ensuring the quality of infrastructure (streetlights) / physical assets provided. It is crucial for the agencies installing these infrastructures to undertake regular maintenance activities for ensuring continued usage by the project beneficiaries. Here, NTPC Karanpura can play the role of an enabler and ensure long term sustenance through provision of governance, monitoring, operational and financial support.

Recommendations

In summary, NTPC team has put in a dedicated effort towards enhancing the welfare of the community. However, to further improve the effectiveness and sustainability quotient of the impact created through these interventions, NTPC may consider adopting the following approaches:

I. Strengthening stakeholder governance

NTPC can enhance the sustainability of impact created, through strengthening its participatory approach and establishing mechanisms for continued active participation of the community stakeholders. Local community leaders and government representatives can be engaged in a more focused manner throughout project implementation to promote accountability, especially in designing and monitoring of the intervention. Feedback from Gram Pradhan(s) and other local leaders can be sought to build a governance structure for project with clear roles and responsibilities for various stakeholders.

II. Capacity building

NTPC can strengthen the project management systems through reviewing and building capacities of different stakeholders. Through imparting training and providing handholding support, NTPC can draw in various salient stakeholders and boost their involvement across project activities. Community stakeholders can then be efficiently involved in planning and implementation of project activities, while ensuring representation and inclusion of all stakeholders. Capacity building efforts further add to participatory decision-making at a community level which leads to increased ownership and support for project implementation.

III. Linkages and collaboration

NTPC can augment the impact created and ensure its sustainability through exploring opportunities for convergence and partnerships. The current project model is based on complete funding support from NTPC. Through encouraging convergence from other government or non-government sources, NTPC can work towards ensuring long-term support for project activities and creation of sustained impact. Also, collaborating with the NGOs with expertise in similar thematic and geographical regions could bolster both implementation as well as monitoring and evaluation processes.

IV. Holistically designed projects

NTPC can significantly contribute towards community development through ensuring that the project activities cover all crucial aspects of the community's requirement. The projects should be designed and implemented in partnership with the community and must include both short-term and long-term outcomes. Through designing projects that offer end to end support to the beneficiaries across all the sectors, NTPC will be able to create and sustain significant impact.

Disclaimer and Notice to Reader

- 1 This report has been prepared by KPMG Assurance and Consulting Services LLP exclusively for NTPC Karanpura, based on the terms of the Request for Proposal dated 21.11.2019 issued by NTPC Karanpura, KPMG's proposal for services dated 04.10.2019, and KPMG's acceptance letter dated 30.06.2021 against revised Purchase Order dated 21.06.2021.
- 2 The performance of KPMG's services and the report issued to the Client are based on and subject to the terms of the Contract.
- 3 This report is confidential and for the use of management only. It is not to be distributed beyond the management nor is to be copied, circulated, referred to or quoted in correspondence, or discussed with any other party, in whole or in part, without our prior written consent.
- 4 This report sets forth our views based on the completeness and accuracy of the facts stated to KPMG and any assumptions that were included. If any of the facts and assumptions is not complete or accurate, it is imperative that we be informed accordingly, as the inaccuracy or incompleteness thereof could have a material effect on our conclusions.
- 5 While performing the work, we assumed the genuineness of all signatures and the authenticity of all original documents. We have not independently verified the correctness or authenticity of the same.
- 6 We have not performed an audit and do not express an opinion or any other form of assurance. Further, comments in our report are not intended, nor should they be interpreted to be legal advice or opinion
- 7 Our report may make reference to 'KPMG Analysis'; this indicates only that we have (where specified) undertaken certain analytical activities on the underlying data to arrive at the information presented; we do not accept responsibility for the veracity of the underlying data.
- 8 In accordance with its policy, KPMG advises that neither it nor any of its partner, director or employee undertakes any responsibility arising in any way whatsoever, to any person other than Client in respect of the matters dealt with in this report, including any errors or omissions therein, arising through negligence or otherwise, howsoever caused.
- In connection with our report or any part thereof, KPMG does not owe duty of care (whether in contract or in tort or under statute or otherwise) to any person or party to whom the report is circulated to and KPMG shall not be liable to any party who uses or relies on this report. KPMG thus disclaims all responsibility or liability for any costs, damages, losses, liabilities, expenses incurred by such third party arising out of or in connection with the report or any part thereof.
- 10 By reading our report, the reader of the report shall be deemed to have accepted the terms mentioned hereinabove.





DISASTER MANA GEMENT PLAN OF NKSTPP (3X660 MW)-UNDER CONSTRUCTION

REV-02, Dated:18.05.2023

NORTH KARANPURA SUPER THERMAL POWER PROJECT (3X660 MW)

Post – North Karanpura, District- Chatra Jharkhand- 825415

Foreword

As the name suggests, On-site emergency plan is a documented meticulous planning to tackle and mitigate any catastrophic or hazardous situation creating emergency like situation in a plant or factory. In addition to ensuring safety to the extent possible, the document also takes care of the provisions and requirements of following acts / rules

- 1. The Factories Act 1948
- 2. Jharkhand Factories Rules 2015 (Amendment)
- 3. Factories Act (Amendment) 1987
- 4. Hazardous wastes (Management and Handling) Rules 1989
- 5. Environment (Protection) Act 1986

We appreciate the support extended by the Plant Management of NORTH KARANPURA SUPER THERMAL POWER PROJECT and his team in the preparation of this document.

We strongly feel that this document shall go a long way to improve the preparedness for any emergency in the plant.

K. K. Engineering

INDEX

S No.	Content	Page No.
1.	Preamble	5
2.	Introduction	6-8
3.	Objectives of On-site emergency plan	9
4.	Profile of the Company	10-11
5.	Important terms and Glossary	12-14
6.	Incident Information Summary Format	15
7.	Processes involved in power generation at NKSTPP	16-19
8.	Hazardous substances on Site	20
9.	Summary of Risk Analysis	21-22
10.	Events that can lead to a Major Accident	23-24
11.	Emergency Scenarios	25-27
12.	Nearby Residence and Population Centers	28
13.	Emergency Control Centre (ECC)	29
14.	Action Plan	30
15.	Core Team & Responsibilities	31-33
16.	Essential Staff	34
17.	Responsibilities of Response & Support Teams	34-41
18.	Designated person for media contacts	41
19.	Responsibility of the Corporate Centre	41-42
20.	Outside organizations to assist during Emergency and Protocol for liaison	43
21.	Communication and sequence of actions during and after an Emergency	43-44
22.	Alarm Systems	44-45
23.	Communication procedures	45-46
24.	Major Fires	46-51
25.	Explosion	51-53
26.	Liquid chemical release - Spill Containment and clean-up	54-55
27.	Medical (Handling of Multiple Injuries)	55
28.	Utility Failure Procedures	55
29.	Cyclone posing severe threat- Measures to be taken	55-57
30.	Assembly points & Evacuation	57-58
31.	Fire Fighting System	58

Annexure Index

Annexure – 1 Process flow diagram

Annexure − 2 Disaster Management Teams.

Annexure – 3 Preventive maintenance record (Format)

Annexure – 4 Check for Earthing pit (Format)

Annexure – 5 Examination of lifting machines and lifting tackles (Format)

Annexure – 6 First-aid fire-fighting equipment (Format)

Annexure – 7 Record of mock-drill (Format)

Annexure -8 Safety and personnel protective appliances

Annexure –9 Emergency check-list

Annexure – 10 Record of accidents (Format)

Annexure – 11 Material Safety Data Sheet For Toxic & Corrosive Chemicals

Annexure – 12 Vicinity Plan

Annexure – 13 Plant Layout

Annexure – 14 Details of First Aid Trained Staff.

1. PREAMBLE

The aim of NTPC is safe Project execution / Station operation / generation. All efforts right from the design stage itself emphasize safety and elimination of accidents in the industry. However, due to human errors or system malfunctioning accidents could happen. The suffering and damage as a result of an accident is determined by the potential for loss surrounding the event. By taking effective action at the time of occurrence of the incident, full potential loss can be largely avoided. Effective actions will be possible for handling major emergencies if preplanned procedures utilizing the combined resources of the factory and outside emergency services are practiced.

As per the provisions in the section 41-B (4) of the Factories Act 1987 (as amended) requires that every occupier is to draw up an On-site Emergency Plan with detailed disaster control measures for the factory and to educate the workers employed in the factory premises.

This is the statutory provision laid down in the act for preparation of On-site Emergency Plan to control disaster in the factories. Any accidents may cause emergency and it may lead to disaster, which may cause heavy damage to plant, property & harm to persons and create adverse effects on production.

This On-site Disaster Management Plan has been prepared in accordance with the above.

2. INTRODUCTION

Power plants deal with materials, which are generally hazardous in nature by virtue of their intrinsic chemical properties or their operating temperatures or pressures or a combination of these. Fire, explosion, toxic release or combinations of these are the hazards associated with industrial plants using hazardous chemicals. More comprehensive, systematic and sophisticated methods of Safety Engineering, such as, Hazard Analysis and Quantitative Risk Assessment have now been developed to improve upon the integrity, reliability and safety of industrial plants. The primary emphasis in safety engineering is to reduce risk to human life, property and environment.

M/s NORTH KARANPURA SUPER THERMAL POWER PROJECT is located at Tandwa in the district of Chatra of Jharkhand State. District head quarter is about 50Km from the site of the plant.

Name & address of the factory is as following:

M/s NORTH KARANPURA SUPER THERMAL POWER PROJECT VILL+ POST: TANDWA, DISTT.-CHATRA, JHARKHAND,

The plant was incorporated in 2014. The principal activity of the factory is to Power Generation

Some of the key information regarding production and operation of the plant is as follows:

• Main Product : Electricity

: Rated Capacity 3*660 MW (Total – 1960MW)

• By Product : Ash

It operates throughout the year 24*7. Sundays are used for maintenance of the plant.

Present manpower position can be categorized as following:

Managerial Personnel : 208Supervisory Personnel : 00

• Workers :

• Skilled : 28

• Un-Skilled :

• Contractual basis : 4000 (approx)

• Others :

• Security Personnel : 310 (approx)

Total: 4546 (Approx)

> Transport facilities available with the plant

Jeep - 28
 Tractor - 1
 Ambulance - 3

Disaster Management Teams of the plant is enclosed in annexure – 2. The employees other than contractual workers are regular employees of North Karanpura Super Thermal Power Project.

- ➤ The area in which the plant is situated is quite populated. The population within 1 Km radius is about 15000 (approx) and within 2.5 Km radius is about 25000 (approx).
- > Government bodies with whom liaising may be required are listed below:

• Police station : Tandwa Police Station (Tel- 9431706324)

D.C."s office
 Chatra (Tel -06553-261555)
 S.D.O."s office
 Simariya (Tel - 098351 64695)

• Factory Inspector"s office : Hazaribagh

- The nearby industries who"s help can be sought or services may be utilized under mutual-aid-scheme are listed below:
 - Parki Barwadih Coal Minning Project (NTPC).
 - Piparwar Coal Minning (CCL)
 - Amrapali Coal Minning (CCL)
 - Magadh Coal Minning (CCL)
- Medical facilities are available near the plant who's services can be utilized as per requirements: Nearby hospitals are
 - NTPC Hospital
 - PHC Tandwa
 - Distt Hospital Chatra
- ➤ There is a canteen operating near the plant boundary where tea, snacks and lunch is available on payment basis. Drinking water is available within the plant boundary.
- The climatic condition of the area in which the plant is situated is no different from that of Plateau of Chotanagpur belt of Jharkhand. Summers are hot and winters are cold. Except for rainy season, which normally lasts from June to September, the weather is generally dry. Wind proves to be the greatest influence in the dispersion fire, if any. Meteorological features of the Chotanagpur Plateau can broadly be summarised as follows:
 - * Temperature

• Mean monthly during summer : 32-42 deg. C

• Mean monthly during winter : 14-24 deg. C

Absolute maximum : 46 deg. CAbsolute minimum : 2 deg. C

* Rainfall

Mean annual : 1020 mmMean monthly (rainy season) : 230 mm

* Humidity

Maximum relative humidity : 85% (July-September)
Minimum relative humidity : 10 % (March-April)

* Wind

Mean velocity : 3-9 KmphMaximum velocity : 140 Kmph

• Predominant wind direction :

North westerly direction between

November to May

South Easterly direction between

July to October.

3. OBJECTIVES OF ON-SITE EMERGENCY PLAN

The objectives of the On-site emergency Plan is to develop, implement and maintain an integrated emergency management system for protection of people, property and the environment in the event of an on-site emergency caused by hazardous material or a major accident.

The ultimate goal is to reduce the vulnerability of the plant due to any emergency, to save lives and protect property by developing capabilities that mitigate the effects of, prepare for, respond to and recover from any emergency that could affect the area.

- a) It would help to accomplish the aforesaid objectives by assigning actions at plant at times & places in an emergency that exceeds the capability or routine responsibility of any one agency.
- b) It sets forth lines of authority and inter-group relationships, and shows how all actions will be coordinated. It describes how people and property will be protected in emergencies.
- c) The plan identifies resources viz. personnel, equipment, facilities, supplies available within or by agreement with others for use during response.
- d) This is a positive effort towards Emergency Management making use of the combinedresources of the plant and the outside services to achieve the following:
 - Effective Rescue and Medical treatment of casualties.
 - Safe guard other people in the premises.
 - Minimize damage to property and the environment.
 - Initially contain and ultimately bring the incident under control.
 - Identify the dead and injured, if any.
 - Provide for the needs of relatives, who come for any inquiry.
 - Provide authoritative information to the news media.
 - Secure the safe rehabilitation of affected area.
 - Preserve relevant records and equipment for the subsequent enquiry, (If conducted), into the cause and circumstances of the Emergency.

4. PROFILE OF THE COMPANY

NTPC is India"s largest energy conglomerate with roots planted way back in 1975 to accelerate power development in India. Since then it has established itself as the dominant power major with presence in the entire value chain of the power generation business.

The total installed capacity of the company is 57,494 MW (including JVs) with 25 coal based, 7 gas based stations, 2 Hydro based stations and 1 Wind based station. 8 Joint Venture stations are coal based and 11 Solar PV projects.

North Karanpura Super Thermal Power Project (3x660 MW) is owned by NTPC Ltd. and is under construction. Brief description of the project:

Name of the	North Karanpura Super Thermal Power Project (3X660 MW)					
Factory	Post- NTPC, North Karanpura, Distt. : Chatra					
	Jharkhand - 825415					
Location	Plant is located near Tandwa village in Chatra district in the state of					
	Jharkhand on Hazaribag-Chatra state highway (SH-7). Plant is					
	spread over 2245 acres of land.					
	Distances: i) 150 KMs.(approx) from Ranchi city via Hazaribagh & 110 KM					
	via Khalari / Patratu					
	ii) 50 Kms. from Hazaribag and					
	iii) 40 KMs. from Khalari					
	iv) 50 KM from Chatra, District HQ					
Nature of Industry	y v) Coal based "Thermal Power Plant" having generation capacity of 1980 MW (3 units of 660 MW)					

Principal Raw	vi) Raw Coal – 10.6 Million MT per annum	
Material	Transported from Magadh Coal Block of CCL to the project	
	site through cross country conveyor belt system. One external	
	coal handling plant and one internal coal handling plant are	
	envisaged. Water - Make up water requirement for this project	
	would be approx. 22 cusec (2200 m3/hr) and will be arranged	
	through barrage /weir across river Garhi.	
Name & Address of	Sh Tajinder Gupta, GGM (NK). Plant Head	
Occupier & Chief	Mobile No : 9650994662	
Incident Controller		
(CIC)		
Name & Address of	Sh. Ajay Kumar Shukla, GM (O&M)	
Factory Manager &	Mobile No : 9471001071	
Works Incident		
Controller (WIC)		
Access to the Plant	There is one gate for access & escape to the Power Project,	
and Escape Route	which is manned by CISF Security wing. All the plant	
	locations are connected through well laid plant roads for	

SALIENT FEATURES OF THE PROJECT

- 1. The project is situated on the coal bearing area.
- 2. The NKSTPP is the first power project in the country near a coal mine with environment friendly supercritical technology.
- 3. No permanent structures other than those required for operationalizing and running the power plant will be allowed to come up in the vicinity of the mining areas.
- 4. The project is equipped with Air Cooled Condenser (ACC) to reduce the water requirement by 80% as compared to conventional method to protect the environment by least use of land & water. Water consumption reduced from 90 Cusec to 22 Cusec.
- 5. Coal is to be transported from mine directly through a cross-country piped conveyor of length 8 km (Approx.) to the plant.

5. IMPORTANT TERMS AND GLOSSARY RELATED TO DMP

- 1. Accident: Unplanned event giving rise to death, ill health, injury, damage or other losses to personnel or property (IS-18001).
- 2. Assembly point: A notified common place in the plant where all the workers shall assemble in case of any emergency.
- 3. Chief Incident Controller (CIC): The person who has the overall responsibility of directing operations from the Emergency Control Centre.
- 4. Disaster: Disaster means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man made causes or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area.
- 5. Disaster Management: Disaster Management means a continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary or expedient for
 - i. Preventing of danger or threat of any disaster;
 - ii. Mitigation or reduction of risk of any disaster or its severity or consequences;
 - iii. Capacity-building;
 - iv. Preparedness to deal with any disaster;
 - v. Prompt response to any threatening disaster situation or disaster;
 - vi. Assessing the severity or magnitude of effects of any disaster;
 - vii. Evacuation, rescue and relief; and
 - viii. Rehabilitation and reconstruction.
- 6. Emergency: It is one which has the potential to cause serious injury or loss life and/or property and which tends to cause disruption inside and /or outside the works.
- 7. Emergency Control Centre: It is a place from which the operations to handle the emergency are directed and coordinated.

- 8. Emergency Plan: A formal written documented plan which, on the basis of identified potential accidents together with their consequences, describes how such accidents and their consequences should be handled, either onsite or off-site.
- 9. Emergency preparedness: Preparedness means the state of readiness to deal with a threatening disaster situation or disaster and the effects thereof.
- 10. Emergency Response: The efforts to minimize the severity of an accident by protecting the people, the environment or the property and bring back the scene to normal pre- emergency conditions.
- 11. Evacuation: Removal of persons from the accident site / neighboring place and diverting them to assembly point.
- 12. Hazard: A source or a situation with a potential to cause harm in terms of human injury or ill health, damage to property, damage to the environment or a combination of these.
- 13. Hazard Analysis: Identification of undesired events that may lead to the materialization of the hazard. The analysis of the mechanism by which those undesired events could occur and usually the estimation of the nature, characteristics and magnitude of the possible loss/damage to life and property. The loss/damage, severity would be analyzed and assessed for each hazard identified.
- 14. Hazardous Chemical: Hazardous chemicals means any chemical which satisfies any of the criteria laid down in Part I of Schedule I or listed in Column 2 of Part 2, any chemical listed in Column 2 of Schedules 2 and 3 of the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.
- 15. IDLH Value: Immediately Dangerous to Life or Health (IDLH) is a condition "that possesses a threat of exposure to airborne contaminants when that exposure is likely to cause immediate death or delayed permanent adverse health effects or prevent escape from such an environment".

- 16. Mock-drill: Simulated accident setup to test emergency response methods and for use as a training tool.
- 17. On-Site Emergency: An accident, which takes place within the boundaries and its effects are felt within the premises involving the people working within the specified boundaries of the plant.
- 18. Off-site Emergency: An accident, which takes place within the boundaries but its effects are also felt outside the premises involving the general public in the vicinity.
- 19. Works Incident Controller (WIC): The person who will take control of handling the emergency at the incident site.
- 20. Vulnerable Zone: It is an area, which may be affected or exposed by the release of hazardous chemicals.

6. INCIDENT INFORMATION SUMMARY FORMAT

The first information about an incident becomes a very vital input for effective handling of any emergency situation. It is important to gather as much as information as possible very quickly so as to facilitate various decisions and to initiate appropriate actions. In order to obtain maximum information from the person giving the first information about the incident, the suggested format for "Incident Information Summary" is given below. The questions given in the format are to be asked to the caller who is giving the first information. Answers for some of the questions may be unknown to the caller but it is important to gather more information as possible.

INCIDENT INFORMATION SUMMARY				
Date & Time	Name of the caller :			
Location of the incident	Caller"s contact No.			
Near by location:	Nearby population			
Nature of incident (ex. Leak, explosion, spill, fire, accident)	Time of release			
Possible effects	No. of dead or injured			
Where dead or injured are taken?	Rescue accomplished or Rescue needed?			
Name of the material released	If unknown, container type			
Placard/label information	Characteristics of material (ex. Color, smell etc)			
Present physical state of material	Total amount of material that may be released			
Other hazardous material in area	Amount of material released so far/duration of release			
Whether significant amount of material appear to be entering the atmosphere, water, storm drains, or soil?	Whether the release was in a confined space?			
Direction, height, color & odor of any vapor clouds or plumes	Weather conditions (wind direction, speed, inversion)			
Localterrainconditionssignificantto Dispersion of personnel at the scene	Any other relevant information?			

7. PROCESSES INVOLVED IN POWER GENERATION AT NKSTPP

a. Production of Steam:

Coal shall be transported to the plant by cross country pipe conveyor from Magadh Coal Block of CCL which is part of external CHP. Then coal is crushed in Crusher House of internal CHP and transported to the coal bunkers with the help of conveyor belts and fed to Coal mills where it is pulverized in to powder form. The pulverized coal is fed to the furnace through coal pipes with the help of hot and cold air mixture from Primary Air Fan (PA Fan). Atmospheric air from Forced Daft Fan (FD Fan) is heated in the air heaters and sent to the furnace as combustion air. Water is partly converted in to steam as it rises up in the furnace and get separated in the separator tank and passes through super heaters(SH) which are located inside the furnace where it becomes super saturated steam that finally goes to HP Turbine. The exhaust steam from HP Turbine (CRH line) comes back to the boiler where it is reheated and goes back (HRH line) to IP Turbine.

Flue gases from the furnace are extracted by Induced Draft Fan (ID Fan) which maintains balance draft in the furnace with FD Fan. These flue gases emit their heat energy to various super heaters and finally pass through air pre-heaters (PAH/ SAH) and goes to Electro Static Precipitator (ESP) where the ash particles are extracted, so that they do not pass through the Chimney to pollute the atmosphere. The dry ash is collected through vacuum system and is supplied to ash brick plant and cement plants.

Water requirement for boilers and other plant equipment as well as drinking water is being met by constructing a Barrage/Weir at Garhi River which is about 03 km from the main plant.

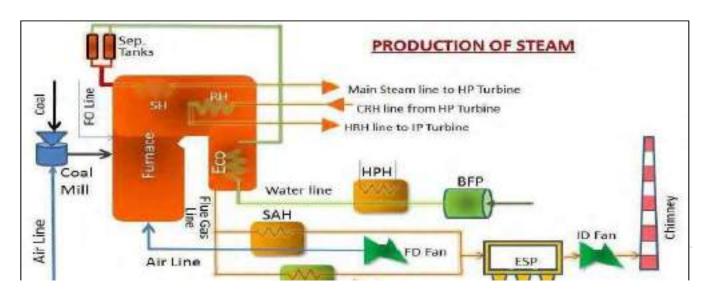
Intake Water Pump House near Tandwa village pumps raw water to the Reservoir at the plant having 1,60,000 M³ storage capacity. The approximate fresh water requirement is 2200 cubic metre per hour. Water used in the boiler is demineralized at DM Plant with anion / cation exchange process.

b. Steam to Power:

The Main Steam line conveys steam to HP Turbine through a stop valve and through control valves that automatically regulate the supply of steam to the turbine. The steam passes through each stage in turn until it reaches the end of the high pressure cylinder and in its passage some of its heat energy is changed into mechanical energy.

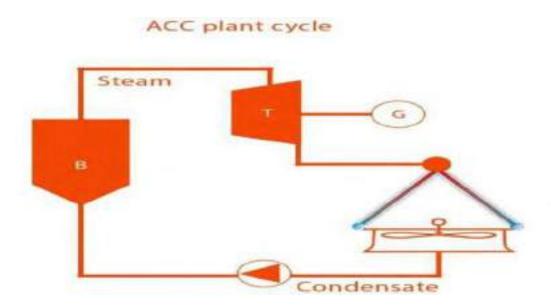
The steam leaving the high pressure cylinder (i.e. CRH) goes back to the boiler for reheating and returns (i.e. HRH) by a further pipe to the intermediate pressure cylinder. Here it passes through another series of stationary and moving blades.

Finally, the steam is taken to the low pressure cylinders, each of which it enters at the centre flowing outwards in opposite directions through the rows of turbine blades (an arrangement known as double flow) to the extremities of the cylinder. As the steam gives up its heat energy to drive the turbine, its temperature and pressure fall and it expands. Because of this expansion, the blades are much large and longer towards the low pressure ends of the turbine.



AIR COOLED CONDENSER

An air cooled condenser (ACC) is a direct dry cooling system where steam is condensed inside air-cooled finned tubes. The cool ambient air flow outside the finned tubes is what removes heat and defines the functionality of an ACC. In thermal power plants (T), the steam from the turbine exhaust flows into the ACC where condensation occurs. Then the condensate returns to the boiler (B) in a closed loop. Since the steam coming from the turbine is at a low pressure, the ACC works at a pressure close to a vacuum, and non-condensable gases (G) are removed continuously by an air evacuation unit.



ACCs work well in water-scarce areas

Air cooled condensers are used for thermal power plants like combined cycle, concentrated solar, coal, biomass, and waste to energy. Since these kinds of power plants, which are equipped with ACCs, do not require a large volume of cooling water, the power plants can easily be built in a region where water may not be available, or where its use is restricted or expensive.

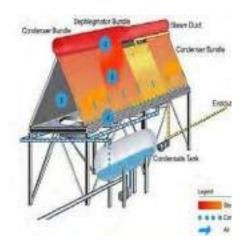
The Building blocks of an air cooled condenser

An air cooled condenser is made up of modules that are arranged in parallel rows. Each module contains a number of fin tube bundles. An axial flow forces the cooling air across the heat exchange area of the fin tubes.

The typical set-up for an ACC installation includes:

- i. the supporting structure
- ii. the steam ducting from the steam turbine interface
- iii. heat exchangers, finned tubes, fans, motors, gearboxes, and auxiliaries such as the condensate and drain pumps
- iv. condensate and duct drain tanks,
- v. the air evacuation units
- vi. related piping works and instrumentation





From the condensers, the condensate is pumped through low pressure heaters and De-aerator by the extraction pump (CEP), after which its pressure is raised to boiler pressure by the Boiler Feed Pump (BFP). It is further passed through feed heaters (HPH) to the economizer and the boiler for reconversion in to steam.

c. Switching and Transmission of Power:

The electricity produced in the stator winding of generator at about 21 kV and is fed through terminal connections to one side of a generator transformer that step up the voltage to 400 kV.

Power evacuation system of NKSTPP is detailed as under:

- 1. NK-Chandwa, 400KV Double Circuit Transmission Line
- 2. NK-Gaya, 400KV Double Circuit Transmission Line

Construction of above lines is being executed by M/s NKTL.

8. HAZARDOUS SUBSTANCES ON SITE

FLAMABLE AND SPILLAGE MATERIALS

Sl.	Material	Type of container	Location/nos. of	Max. Storage	Normal
No.			container	capacity	inventory
1	Hydrogen				
2	LDO	MS Tank	LDO Storage Area/2	3KL x 2	
3	Coal				
4	Ash				

TOXIC & CORROSIVE CHEMICALS / MATERIALS

(Material Safety Data Sheets of each Material are at Annexure-11)

Sl.	Material	Type of	Location & nos.	Max. Storage	Normal
No.		container	of container	capacity	inventory
1	Chlorine	Chlorine Tonners	Shall not be used		
2	Hydrochloric Acid (HCl 33%)	Horizontal dish ends rubber lined tank	DM Plant 8 Nos tank	800 M ³	500 M ³
3	Sodium Hydroxide (NaOH 48%)	Horizontal dish ends rubber lined tank	DM Plant 3 Nos tank	310 M ³	200 M ³
4	Ammonia Solution 25% (25 Ltr)	HDPE Jaricans	DM Plant & Central Stores 200 Cans	15000 Ltrs	10000 Ltrs

9. SUMMARY OF RISK ANALYSIS

Risk analysis of the following major hazard potential areas of NTPC North Karanpura Super Thermal Power Project.

- i. Hydrogen gas storage
- ii. Fuel Oil Pump House.
- iii. Ash Dyke breach.
- iv. Reservoir Bund breach
 - I. Effects of Hydrogen gas leakage at Hydrogen storage godown.
 - a. Bursting of a Hydrogen cylinder (Inventory = 0.5 Kg, ambient temperature and 150kgf/cm2).
 - b. Bursting of 10 Hydrogen cylinders at each unit makeup filling station (Inventory = 5 Kg, ambient temperature and 150 kgf/cm2).
 - c. Bursting of 420 Hydrogen cylinders at storage godown (where minimum inventory required for two units (Inventory = 210 Kg, ambient temperature ad 150 kgf/cm2).
 - II. Risk analysis summary in Fuel Oil Pump House:
 - a. In case of LDO leakage in the 6 mm hole from the outlet pipeline of LDO Tank, the liquid fuel comes out and can for oil pool within the bund area. In case there is pool fire, the effect would be within acceptable level.
 - b. In case of rupture of the LDO tank, can result liquid to come out and fill the pool area of the bund. In case there is pool fire, likely risk of damage to the objects from thermal radiations.
 - c. In case of Tank fire of LDO, there is likely risk of injury/damage to people& objects from thermal radiations.
 - III. Risk analysis summary in Ash Dyke Breach

A large quantity of Ash and water from station is getting stored inside the Ash dyke. During heavy rains and floods Ash pond dyke is vulnerable for breach and the breach of dyke can lead to major disaster and can affect the permanent township of NKSTPP and villages nearby to large extent.

IV. Risk analysis summary in Reservoir Breach of Bund

Three big water reservoirs are being made to meet the water requirement of the Plant. In case of breach of Bund there may be massive damage to township and nearby villages.

10. EVENTS THAT CAN LEAD TO A MAJOR ACCIDENT

Considering the process and the material being used at North Karanpura Super Thermal Power Project, the major hazard potential has been assessed and enumerated below.

Major	Major Hazard Potential						
Plant	Slow	Fast	Explosion	Bursting of	Releaseof	Release	Floods
Sections	Isolated	Spreading		pipes /	Hazardous	of	
	Fire	Fire		vessels	liquid	Hazard	
						ous	
						gases	
СНР	Coal	Conveyor	Coal dust				
	Yard						
Boiler	Mills &		Furnace	Steam lines,		Flue gas	
House	Burner			air receivers		from	
						ducts	
Turbine		Oil tanks	H2	Steam lines	Control		
House		control room	Generator		fluid		
DM Plant					HCl,		
					NaOH		
H2 Plant	H2		H2 holder				
	pipes		/				
			Cylinders				
GT & 400	Transfo		CT / PT /				
KV SW	rmer		CBs				
Fuel Oil		HFO / LDO		FO lines	HFO/LDO		
P/H		tanks					
Cable		Cables in					
Galleries		trays					

Chemical			Chemicals	
Godown				
Reservoir				Breach
				of Dam
Ash Dyke				Breach
				of bund

11. EMERGENCY SCENARIOS

From the major hazard potential assessment and summary of Risk Analysis probable emergency scenarios have been identified in the order of their seriousness. Except in the case in all other cases, the emergency scenario would be confined to On-site Emergency nature only. Significant On-site / Off-site emergency scenarios are as given below.

Major On-site Emergency Scenario-1:

Release of Liquid Chemicals:

There are chances of spill-over/leakage of HCl & NaOH from storage tanks and also due to bursting of acid/alkali lines in DM Plant. There are chances of chemical burns due to contact with acid/alkali.

Major On-site Emergency Scenario-2:

Hydrogen gas is used in the Generator for stator cooling. Fire and explosion in H₂ gas cylinder storage room is possible in case of total failure of entire protection systems or due an illicit act/sabotage.

Major On-site Emergency Scenario-3:

Major fire and explosion in LDO tanks or major pool fire may take place at FOPH due to total system failure or an illicit act/sabotage.

Other Emergency Scenarios:

a) Major Fire in Coal handling plant:

There have been occasions of major fire in conveyor galleries in various power plants. Fires may occur due to over friction in the belt conveyors,

spontaneous fire in the coal lumps/oil soaked waste in the surroundings of conveyor belt, hot works without precautions, poor housekeeping practices in the conveyor galleries, crusher house, track hopper and TPs. Initially the fire may be a slow and isolated but over a period of time, if a running conveyor catches this fire it spreads rapidly and engulf the whole conveyor gallery.

b) Major Fire in Cable Galleries/ Plant Control Room.

Major fire in Cable Galleries/Plant Control Room at TG Building can be turned in an emergency situation in case the protection systems fail. The fire may originate from over heating of cables, short circuits, etc.

c) Major Fire in Oil Tanks in TG Building and Transformers.

Major Fire in MOTs / COTs in TG building may occur due to hot works without precautions, poor housekeeping practices and intentional acts.

Similarly the fire and explosion in Transformers may occur due to;

Failure of terminal bushings and flash-over.

Sudden gas pressure formation due to transformer internal faults and subsequent failure of explosion vents and pressure release devices may cause explosion of transformer and fires.

Accumulated leakage of oil from different parts of transformers and spurious sparking nearby.

a. Release of Liquid Chemicals:

There are chances of spill-over/leakage of HCl & NaOH from storage tanks and also due to bursting of acid/alkali lines in DM Plant. There are chances of chemical burns due to contact with acid/alkali.

b. Boiler Explosion:

Whenever Boiler gets pressurised due to non-evacuation of steam, there are chances of Boiler explosion. However, various interlocks and protections are available for Boiler to taken care off to avoid Boiler explosion.

c. Turbo-Generator Explosion:

H2 gas explosion is a possible hazard in Generator. Various interlocks and protections are available to taken care off to avoid generator explosion.

Off-site Emergency Scenario:

In the case of water release / ash slurry release due to bund failure from the reservoir / ash pond, which are located away from the plant boundaries, would lead to emergency situations in the villages and fields in the vicinity of the reservoir / ash pond.

12. NEARBY RESIDENCE AND POPULATION CENTRES

EAST:

SL.NO.	NAME OF VILLAGE	DISTANCE IN KM	POPULATION
01	NAIPARAM	2	1833

WEST:

SL.NO.	NAME OF VILLAGE	DISTANCE IN KM	POPULATION
01.	RAHAM	1.5	5046
02.	KAMTA	1	2455

NORTH:

SL.NO.	NAME OF	DISTANCE IN KM	POPULATION
	VILLAGE		
01.	KAMTA	1	2455
02.	GARILONG	1	4322
03.	TANDWA	1.5	6475

SOUTH:

SL.NO.	NAME OF VILLAGE	DISTANCE IN KM	POPULATION
01.	DUNDWA	2	747
02.	RAHAM	1.5	5046

13. EMERGENCY CONTROL CENTRE (ECC)

The Emergency Control Centre is the place from where the operations to handle the emergency are directed and coordinated. It will be attended by the CIC, his support team and the senior officers of District Administration.

Location of ECC:

Safety Control Room in 'Unit#1 Control room' has been identified as Emergency Control Centre (ECC) with adequate means of communication to areas inside and outside the plant together with relevant data, personnel protective equipment and equipment to assist those manning the centre and to enable them to plan accordingly.

Alternate Emergency Control Centre would be the Fire Station Control Room. Depends upon the anticipated risk during an emergency, one of the above two ECCs shall be decided by CIC for use.

Facilities and Items in each ECC:-

- a. Safety data pertaining to all hazardous materials, which are likely to cause emergency.
- b. Procedure of major and special fire fighting, rescue operations, First Aid etc.
- c. Emergency call out list.
- d. Nominal Roll of Employees

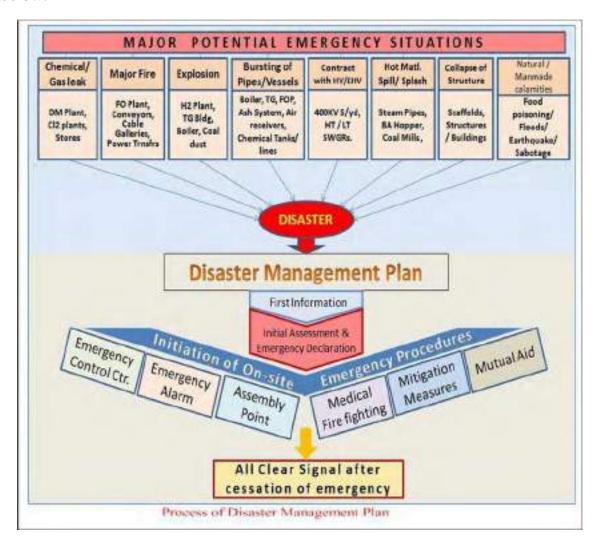
Manning of Emergency Control Centre:-

During normal working days, ECC will be under the control of Manager(Safety) in the day time. During an emergency, the ECC will be manned by the following personnel. However no other personnel shall have access to the Control Centre.

- 1. Chief Incident Controller (CIC), i.e., BUH (NK) or his Alternate
- 2. Members of Support team to CIC
- 3. Sr. Officers of outside services called in for assistance.

14. ACTION PLAN

The primary purpose of the Disaster Management Plan is to control and contain the incident so as to prevent it from spreading to nearby plants / population centers. It is not possible to cover every eventuality in the plan. However, the successful handling of emergency will depend on appropriate action and decisions being taken on the spot. For effective control and management of On-site emergency arising out of potential emergency situations, an action process flow is drawn out, as illustrated below.



Plant Emergency Organization: Various teams have been identified and their roles & responsibilities are explained in the action plan. The organization chart illustrates the reporting system in case of emergency.

15. CORE TEAM & RESPONSIBILITIES

The Core Team consisting of Chief Incident Controller, Works Incident Controller and the Support Team to CIC

RESPONSIBILITIES OF CORE TEAM:

(i) Responsibilities of Chief Incident Controller (CIC):

The Chief Incident Controller (CIC) has an overall responsibility for directing operations and calling outside help. The BUH assumes the role of CIC.

Specific responsibilities/duties and requirements to be ensured by CIC are as under:

- a. After assuming the position as CIC, he would get the information from the Works Incident Controller (WIC) and take overall control of the emergency.
- b. Decide and declare emergency.
- c. Decide and declare the location of ECC and Assembly point after consulting with WIC.
- d. Continually review and assess existing and possible developments to determine the most probable course of events and effective methods to deal with them.
- e. Direct a safe shut down and evacuation of plants, if required, in consultation with the WIC, his Support Team.
- f. Ensure that casualties are receiving adequate attention.
- g. Arrange for hospitalisation of victims and additional help if required.
- h. Ensure that families / relatives of affected persons are informed.
- If necessary, direct for information and liaison with Fire Services, Police Services, District Emergency Authorities and Officials of Directorate of Factories, Govt. of Jharkhand
- j. Ensure accounting of personnel and collate the actual attendance with the master list of persons including contractors and visitors.
- k. Arrange for the rescue of missing ones.
- 1. Arrange control of traffic movement within the Plant.

- m. Arrange for the safe removal of vehicles loaded with flammable or dangerous substances from the incident site.
- n. Arrange to maintain chronological record of the events.
- o. Decide whether off-site emergency exists or is likely to take place. If off site emergency exists-
 - Arrange to alert / evacuate the public living in the vicinity of the Plant.
 - ii. Call out outside emergency services.
 - iii. Inform district emergency authorities.
 - iv. Coordinate with district emergency authorities to mitigate the consequences outside the factory.
 - v. Coordinate with district emergency authorities for evacuation, shelter, rescue and rehabilitation of general public in the vicinity of affected area.
- p. Issue authorised statements to the press or the media in consultation with media contact person.
- q. Inform company senior officials.
- r. Declare cessation / termination of emergency after having full control on emergency event.
- s. Control rehabilitation of affected area after the emergency is over.
- (ii) Responsibilities of Support Team to CIC:

On knowing the major emergency, they will proceed to Emergency control centre to assist Chief Incident Controller.

They will:-

- a. Report to Chief Incident Controller and follow the instructions of CIC.
- b. Maintain a log of incidents.
- c. Arrange for urgently required materials through cash purchase or whatevermeans.

- d. Arrange funds for various relief measures as well as emergency purchase of materials and sending his representative for emergency purchase.
- e. Identify suitable staff to act as runners or messengers, between CIC and WIC, if the telephone and other system of communication fail due to any reason.

(iii) Responsibilities of Works Incident Controller (WIC):

The WIC operates from the nearest accident site. As per the response level matrix as indicated above assumes the role of WIC. The responsibilities of the WIC are as under:

- a. Take charge of the scene of emergency as WIC and assess the scale of emergency.
- b. In consultation with CIC, activate the on-site emergency plan.
- c. Provide advice to the heads of DMP Teams reporting to him.
- d. Search for trapped persons or casualties, if any.
- e. Initiate rescue operations until the rescue team arrives through available staff and evacuate the non-essential persons and direct them to report at the Assembly Point.
- f. Set up communication network with the Emergency Control Centre using Intercom / walkie-talkie / Mobile phones.
- g. Ensure that the outside emergency services have been called in, if required.
- h. Direct all operations within the affected area with following priorities
 - i. Secure safety of personnel, giving priority to saving life and preventing further injury.
 - ii. Advice and inform as required by the emergency responders, i.e. Fire and Security personnel or emergency services.
- i. Keep CIC informed of the developments.
- j. Preserve evidences, which would be necessary for subsequent investigation to find out the immediate and underlying causes of the emergency and for concluding preventive measures.

16. ESSENTIAL STAFF:

In case the plant is immediately affected or likely to be affected as decided by the Chief Incident Controller/Works Incident Controller, efforts will be needed to make shut down and make process units safe. They can do it without exposing themselves to undue risk. Essential staff also includes personnel for emergency works as identified by Head, such as for providing extra lighting or replacement of lighting, providing temporary bypass of the works.

17. RESPONSIBILITIES OF RESPONSE TEAMS AND SUPPORT TEAMS:

(i) Technical Advisory Team:

The team will immediately report to WIC at incident spot. Their responsibilities are:

- a. To identify source of hazard and try to neutralize/contain it with the co-ordination of Maintenance Team.
- b. To isolate remaining plant and keep that in safe condition
- c. To organize safe shutdown of plant, if necessary.
- d. To organize all support service like operation of fire pumps, sprinkler system etc.
- e. To measure gas concentrations in case of gas leakage at various places.

(ii) Fire and Rescue Team

This is the most important function and hence all care is taken to ensure that the team members have sufficient knowledge and skill in fire fighting and also to ensure that they have been trained and tested periodically.

Head (Fire/CISF) is the in-charge for the operation and handles this function in consultation with the WIC.

The fire and rescue team would typically consist of personnel from NTPC and CISF-Fire wing. This team would be assisted by security personnel for handling the injured one and also for rescue operation.

Functions of Team Leader

- 1. Rush to the spot of emergency on receipt of message.
- Assess the situation and co-ordinate rescue operation such as evacuation of affected personnel, and isolation of affected area.

- 3. Decide beforehand proper use of fire fighting equipment.
- 4. Ensure availability of PPE and their safe use by the team members
- 5. Check the wind direction and advise the fire fighting operation accordingly.
- 6. Ensure that sufficient numbers of trained fire fighting persons are always available on site.
- If required arrange to contact and call other trained fire persons from nearby industries with an information to CIC & WIC.
- 8. Keep / arrange liaison with members of Mutual Aid and establishments such as Industries as well as with Jharkhand Fire services for additional help.
- 9. Take part in the fire fighting, if situation so demands.

Functions of Team members

- 1. Be available at their work stations.
- 2. Note down the fire call details in the prescribed format.
- 3. Quickly respond and rush to the scene of emergency.
- 4. Report their team leader / senior person at site.
- 5. Know, understand and follow safe use of fire fighting equipment.
- 6. Use fire-fighting equipment properly.
- 7. Use appropriate PPE.
- 8. First priority would be given to save lives by rescuing people.

(iii) Medical Team

Leader of the team is Chief Medical Officer. The following medical arrangements should be made by the CMO and his team. The assistance of trained first-aiders would be taken in handling the victims.

Functions of Team members

- 1. Rush to the site with stretchers, Ambulance, first aid equipment"s and trained first aid persons.
- 2. Depute the trained first aid persons in dispensary.

- 3. Keep the required medicines in readiness and ensure that they would be available at any time dispensary.
- 4. Tie-up with nearby hospitals and maintain a list containing 24-hour telephone numbers.
- 5. Arrange ambulance for victims / injured/ affected person to the hospitals.
- 6. Administer first-aid and if required send the victims to the nearby hospital for further treatment.
- 7. Get in touch with WIC/ CIC for any type of medical aid required.
- 8. Ensure proper medical help is given to the victim.
- 9. Make necessary arrangement with nearby hospital(s) to treat victims if their number is large.
- 10. Maintain records of affected persons, treatment given to them, etc.

(iv) Maintenance Team

This team will assist WIC in management of the incident. The team would include personnel from Mechanical, Electrical, Control & Instrumentation and Civil.

Functions of Team Leader

- 1. Assess the emergency situation and guide the team members accordingly.
- 2. Keep liaison with other tem leaders and coordinators for requirement of their services if any.
- 3. Consult WIC and inform him the latest development and information of the situation.
- 4. Direct action to restore facilities, repairs, demolition as required under the circumstances
- 5. Ensure shutting off supply of electricity to the affected areas if so required.
- 6. Get necessary equipment"s like cranes, dozers, trucks, welding and cutting set etc as needed for tackling the emergency and make available required personnel to operate above facilities.
- 7. Make sufficient number of contractor workers available to do civil jobs, like filling sand bags, making bunds, closing drains,

- excavation & required for the emergency.
- 8. Keep workshops / facilities open with necessary personnel throughout emergency to cater any need for repairs of additional equipment.
- 9. Make arrangements of temporary lighting / emergency lighting for affected areas, shelters and other places of assembly.
- 10. Know and understand Operating Procedures for controlling or shutting down various operations through regular training programs.
- 11. Ensure that the team members also know and understand the Operating Procedures.
- 12. Guide the team in efficiently controlling/shutting down the operations in consultation with WIC.
- 13. Keep the contact details of all the team members handy, especially for any specific operation vis-a-vis persons, so that they can be contacted when not on duty.
- 14. Ensure that sufficient number of different categories of skilled personnel is available and used for the purpose.
- 15. Ensure own safety and the safety of team members.

Functions of Team Members.

- 1. Know, understand and follow the direction of the leader.
- 2. Contact the other team members for any assistance/ help.
- 3. Arrange to restore facilities, repairs, demolition as required under the circumstances
- 4. Arrange shutting off supply of electricity to the affected areas if so required.
- 5. Use necessary equipment"s like cranes, dozers, trucks, welding and cutting set etc. as needed for tackling the emergency and make available required personnel to operate above facilities
- 6. Arrange civil jobs, like filling sand bags, making bunds, closing drains, excavation & required for the emergency.
- Keep workshops / facilities open with necessary personnel throughout emergency to cater any need for repairs of additional equipment.

- 8. Make arrangements of temporary lighting / emergency lighting for affected areas, shelters and other places of assembly.
- 9. Preserve record and other evidence, which may be required for inquiry.

(v) Security & Traffic Control Team

It is very important that during the emergency, the movement of persons within the factory is controlled effectively, non-essential persons and vehicles are guided to pre-determined locations and only essential persons and vehicles are allowed to tackle the emergency. To prevent access by the public into an area used by the fire service and other services for support activities is another responsibility of this team. Security personnel would be the members of this team. The Leader of the team is AC/CISF.

Functions of the Leader

- 1. After getting information, arrange for cordoning of affected area and deploy manpower for this purpose.
- 2. Consult WIC / CIC and decide the locations for assembly of persons.
- 3. Guide the team members in adopting a particular procedure-like cordon, traffic control, entry of key and other required persons.
- 4. Consult WIC/CIC and decide the traffic movement in the plant.
- 5. Arrange Police help in consultation with WIC/CIC for control of traffic and public outside.
- 6. Allocate the team members to particular locations and brief them how to control the traffic.
- 7. Ensure availability of PPE for the Team members and self.

Functions of Team Members

- 1. The security person stationed near the affected area will reach at site and take charge for security.
- 2. Stop unauthorised entry at site and inside the plant.
- 3. Allow entry of only emergency vehicles- fire brigades, ambulance etc.

- 4. Receive the help under mutual aid members and direct such persons to the affected site.
- 5. Barricade the incident site and control the traffic movement
- 6. Know and understand traffic signs and rules to be followed during an emergency.
- 7. Understand and follow procedure for wearing PPE.
- 8. Guide the traffic as instructed by the team leader, using proper signs.
- 9. Curb the panic among people.

(vi) Administration Team

The role of Administration team is to provide the necessary common facilities during any disaster / emergency in the plant.

Functions of Team Members

- 1. Organise the transportation of personnel & equipment and relief materials.
- 2. Arrange for canteen services for personnel on duty as well as affected one"s like Food & refreshments etc.
- 3. Assess and maintain law and order situation inside the plant.
- 4. Arrange for temporary shelters for rehabilitation of those evacuated.
- 5. Arrange for help of security personnel for cordoning off the affected area, for fire fighting / rescue help and evacuation of casualties.
- 6. Arrange for head counts of employees, contractors, transporters and visitors.
- 7. Inform and assist the relatives of persons affected in emergency.
- 8. Keep the employees informed in township and seek their help if necessary.

(vii) Safety Team:

This team will assist WIC in management of the incident. The team would include personnel from Safety Department and Participative Safety Forums. AGM(Safety) will head the team.

Functions of Team Leader

- 1. Rush to the site of incident and assess the emergency situation and guide the team members accordingly.
- 2. Keep liaison with other tem leaders for requirement of services if any.

- 3. Ensure all facilities & requirements at ECC available.
- 4. In consultation with Chemistry and EMG departments, co-ordinate for monitoring of gas concentration at affected / likely affected areas.
- 5. Arrange required safety equipment and ensure safety of all members of emergency teams at incident site.
- 6. Guide authorities (Factories Deptt, Mutual aid organization etc.) on all safety related issues.
- 7. Collect and preserve evidences for subsequent inquires.

Functions of Team Members.

- 1. Keep ready all the apparatus required for monitoring of gas concentrations.
- Mobilise the additional PPEs and other Safety Equipment (like Gas monitors, fall arrestors, safety nets etc.) required for Emergency Operations.

(viii) Communication System Team:

The role of Communication team is to provide and ensure working of all types of communication systems and facilities in ECC and at the site of emergency. The Head of the team will be the head of IT Department & will be assisted by the department personnel.

On knowing the emergency the head of the communication team will immediately report to WIC at incident spot and take the guidance.

Functions of Team Members

- Maintaining the communication network in working condition during the period of emergency.
- 2. Attending urgent repairs in the communication system, if required.
- Keeping ready the additional communication facilities like Walkie
 Talkies / Radios, etc for use in case of other communication systems fail.

(ix) Transportation Team:

The role of Transportation team is to pool up the resources for transportation of emergency equipment and shifting of people from affected areas. On knowing the emergency the head of the Transportation team will immediately report to WIC at incident spot and take the guidance.

Functions of Team Members.

- 1. Taking in to possession all the plant vehicles, earth moving equipment under their control.
- 2. Arranging vehicles for evacuation of people from affected areas to assembly points.
- 3. Arranging vehicles for the officials comes to take part in emergency management activities.
- 4. Arranging mobile lifting equipment, earth moving equipment for emergency operations.
- 5. Keeping contact with travel agencies for additional vehicle requirement, if any.

18. DESIGNATED PERSON FOR MEDIA CONTACTS:

Any incident will attract the interest of the media, and a major accident is likely to involve wide spread in radio and television coverage. Unless appropriate arrangements are made, this can divert personnel from the task of handling emergency. It is essential to make arrangements for the authoritative release of information during any emergency of significant length, and a senior management member should be appointed as the sole source of information. Inquiries made to other employees should be directed to this appointed person. AGM(HR) has been designated as the authorized person for media contacts during On-site Emergency situations. However, he shall take complete information about the emergency and rescue operations from Chief Incident Controller before issuing the press releases/ media contacts.

19. RESPONSIBILITY OF CORPORATE CENTRE

Responsibilities of Chairman & Managing Director (CMD):

Upon receipt of information regarding occurrence, CMD shall constitute the Corporate Crisis Management Group with Director (Operations) as the Coordinator and Director (HR) and Executive Director (CP) as permanent members another two members can be co-opted by Director (Operations) depending on the type of emergency. The Crisis

Management Group will immediately initiate action on request of services required by the CIC.

As per terms of "Constitution of a Committee and Conduct of inquiry", Chairman & Managing Director(CMD) shall constitute inquiry committee.

A Task Force consisting of the following shall immediately proceed to the Disaster site to study the circumstances relating to the mishap.

- 1. General Manager (OS) or AGM (OS) in case GM (OS) is not available Coordinator.
- 2. General Manager (PE) or AGM (PE) in case GM (PE) is not available.
- 3. Sr. Medical Specialist.
- 4. Head of Safety.

If the Task Force coordinator feels necessary, it may co-opt any other official to help the Task Force.

CIC shall provide the OS Control Room with the first information of the occurrence when CMD is informed, Shift-in-Charge OS Control Room will in turn inform Directors and Delhi based Executive Directors regarding the occurrence. Information from site shall be collected at regular intervals by OS Control Room till the crisis Control Room under Addl. General Manager (IR) starts functioning.

A Crisis Control Room shall be set up at Corporate Centre, which shall be controlled by Addl. General Manager (IR). Information shall be collected regularly and given to the Chairman & Managing Director(CMD), Directors, Executive Director (HR) and other concerned officials to deal with the situation.

Group General Manager may requisites the services of the Helicopter for shifting of critically injured personnel to hospitals with advanced medical facilities. Request for same can be made along with the requirement of essential external services. Executive Director (CP) shall organize the deployment of the helicopter to the Plant. Thereafter helicopter movement shall be directed by Group General Manager till the crisis is over.

20. OUTSIDE ORGANISATIONS TO ASSIST DURING EMERGENCY AND PROTOCOLSFOR LIAISONING

To further strengthen the external resources, NKSTPP may take mutual aid from CCL which operated its coal mining operations nearby.

For Medical assistance, the company may take the services of Hospitals at Ranchi

- a. Medanta Hospital, Ranchi
- b. Medica Hospital, Ranchi
- c. Centavita Hospital, Ranchi
- d. Orchid Hospital, Ranchi

21. COMMUNICATION AND SEQUENCE OF ACTIONS DURING AN EMERGENCY

The Action Plan for effective communication and sequence of actions during and after an emergency consists of:

- a. First Information & Assessment of emergency.
- b. Responsibilities for Declaration of Emergency.
- c. Responsibility for All Clear Signal.

First Information:

The first person who observes/identifies the hazardous incident shall inform by telephone or by any other means, communicates to the EIC about the incident. In case, the information is received by Fire Station, In-charge of Fire Station Control room shall inform to ED(NK) about the incident before the fire team proceeds to the site of emergency.

Responsibility for Declaration of Major Emergency:

The Works Incident Controller or the EIC (incase WIC is not in the plant premises) on hearing the hazardous incident shall go to the scene of the incident, make an informal assessment of the situation and decide whether a major emergency exists or is likely to develop and inform the same to CIC. Based on the advice of WIC or EIC, the Chief Incident Controller (CIC) declares a Major Emergency and instructs to blow the emergency siren.

Once the Emergency siren is sounded, Emergency procedures will be activated.

Responsibility for "All Clear Signal":

After cessation of emergency, Works Incident Controller will communicate to Chief Incident Controller about it. After verification of status, CIC will communicate to announce the "All clear" by instruction to sound the "ALL CLEAR SIGNAL".

In case the receiver of the incident information is Fire Station Control Room, the person incharge should take the information in the Incident Summary Form and report the summary to the EIC immediately. In turn the EIC should conduct an initial assessment and proceed further as per the above chart.

22. ALARM SYSTEMS

The emergency siren will be sounded by the CISF from Fire Control Room which is manned round the clock.

The emergency siren audible to a distance of 3 Kms range is installed at the roof top of Fire Station Building in the Main Plant area.

The emergency alarm shall consist of repeated long and short blast for continuous period of 2 minutes. The purpose is to communicate all persons inside the plant about major emergency occurred in the plant.

The siren is sounded such that the nature of emergency can be distinguished as a major fire or other. The Siren is tested once in every three months for its effective functioning during emergencies.

EMERGENCY SIREN

Sl. NO.	ТҮРЕ	DURATION
		15 SECONDS ON,
1.	FIRE	5 SECONDS OFF
		(3 TIMES)
		20 SECONDS ON,
2.	CHEMICAL LEAK	10 SECONDS OFF
		(5 TIMES)

3. ALL CLEAR SIGNAL CONTINUOUS SIREN FOR THREE MINUTES (ONLY ONCE)

23. COMMUNICATION PROCEDURES

Procedure of Communication about Emergency to CIC, WIC, Heads and members of DMP Teams:

Communication to	Responsibility	Message of Communication / what is to be communicated	Communication channel
CIC, WIC	EIC	Details as per Incident Information Summary Form & findings of initial	Mobile Phone
		assessment of the emergency by him.	
Heads of DMP Teams	WIC	As mentioned above.	Mobile Phone
Members of DMP Teams	Head of DMP Team concern	Briefing the emergency and asking to rush to the site with requisite PPEs and facilities to accomplish defined	Mobile Phone / SMS
		tasks in the action plan.	

Procedure of Communication to All employees in the Plant:

Communication to	Responsibility	Communication channel
All employees inside the Plant	GM(Project)	PA system
Essential Staff	EIC	Mobile / Intercom Phone Or PA System

Procedure of Communication to Corp. Centre, External Services, District Administration and likely affected Villages:

Communication to	Responsibility	Message	Communication channel
CC, mutual aid	Head of HR	The message should be	Mobile Phone
organizations,		as advised by CIC.	/ landline
external / local			/mail etc
authorities, etc.			
Empaneled	CMO	The message depends	Mobile /
Hospitals		upon the type & nature of injuries.	Landline
			phone
People in the likely	Head of HR	The message should be as	Mobile PA
affected villages in		advised by CIC.	System
the vicinity of Plant			

Procedure for notifying families of injured employees:

Responsibility	Wording	Communication
		channel
AGM(HR) and his	Wording should be decided according	1. Responsible officer
identified team after	to the situation.	of HR in case of
identifying the		Serious/fatality.
injured employees		2. By phone in case of minor injuries.
and the		of filmor injuries.
severity of injuries.		

COMMUNICATION SYSTEMS AVAILABLE:

Public address system is being provided in the plants. Intercom telephones are being provided at all required locations. The facility is also be used to contact district authorities for information and help.

24. MAJOR FIRES:

Response Procedure:

- a. Evacuate all non-essential workers from the area and keep all passages, doors etc., clear for firefighting operations.
- b. Start rescue and firefighting operation immediately as deemed fit for the extent of fire.

- c. Ensure manning of Fire Water Pump house to start the hydrant pumps / maintaining the water pressure and to start additional pumps, if needed.
- d. Ensure isolation of all electrical power supplies in the affected area.
- e. Depending upon the extent of fire, additional fire crew / accessories turnouts to be called in.
- f. Arrange to call all "Off-duty" fire staff to report for firefighting operations.
- g. Establish co-ordination with external fire brigades called in.
- h. The instructions given in the Fire Orders of NTPC North Karanpura Unit shall be followed.

General precautions:

- i. Evacuate and cordon off the affected area. Entry to the authorized personnel only should be permitted.
- ii. Suitable breathing apparatus must be used wherever necessary.
- iii. Fire proximity suits, water gel blankets must be used where ever required.
- iv. While carrying out firefighting operations, safety of the persons / plant buildings/ equipments should be borne in mind.

Fire in Hydrogen generation plant:

There is a possibility of fire in the storage room due to hydrogen leakage from filled cylinders. Since the hydrogen fire is invisible, severe heat radiation and subsequent fire in the storage room may take place if the leak is not noticed and arrested in time.

<u>System Safety:</u> The storage room is well ventilated and vents provided on the top of the roof to easy dispersion of hydrogen gas. However to prevent any untoward incidents, the following precautions are taken.

- i. All electrical equipment and lighting fixtures are explosion poof in the entire plant.
- ii. Hydrogen gas sensors/leak detectors are provided in the cylinder storage area.
- iii. A detailed LMI is in practice.
- iv. Strict use of non sparking tools.
- v. Availability of Fire Hydrant water system & portable fire extinguishers in the plant.
- vi. Prohibition of use of mobiles, radios, etc. in side the plant.
- Prohibition of entry of unauthorized persons in the storage location and posting of security guard.

Response Procedure:

- a. Evacuate all non-essential workers from the area and keep all passages, doors etc., clear for firefighting operations.
- b. Start rescue and firefighting operation immediately as deemed fit for the extent of fire.
- c. Ensure manning of Fire Water Pump house to start the hydrant pumps / maintaining the water pressure and to start additional pumps, if needed.
- d. Ensure isolation of all electrical power supplies in the affected area.
- e. Seek for additional fire crew / ,Off-duty" fire staff turnouts, if found necessary.
- f. Establish co-ordination with external fire brigades, if called in.
- g. The instructions given in the Fire Orders of NTPC North Karanpura Unit shall be followed.

General precautions:

- i. Evacuate and cordon off the affected area. Entry to the authorized personnel only should be permitted.
- ii. Fire proximity suits, water gel blankets must be used wherever required.
- iii. While carrying out fire fighting operations, safety of the persons / plant buildings/ equipment should be borne in mind.

Fire in Fuel Oil Pump House:

There is chance of major fire in the FOPH and LDO tanks due to system malfunction or illicit acts.

<u>System Safety:</u> To prevent and control the fire, following fire safety arrangements have been made here.

- i. Foam Flooding system on all oil storage tanks.
- ii. Fire Detection system.
- iii. Fire Hydrants, Landing valves.
- iv. Foam Hydrant system.
- v. Round the clock security.

Response Procedure:

a. Evacuate all non-essential workers from the area and keep all passages, doors

- etc., clear for fire fighting operations.
- b. Start rescue and fire fighting operation immediately as deemed fit for the extent of fire.
- c. Start all fixed fire fighting systems manually if they are not operated automatically.
- d. Ensure manning of Fire Water Pump house to start the hydrant pumps / maintaining the water pressure and to start additional pumps, if needed.
- e. Depending upon the extent of fire, decide whether to shutdown the plant or part of the plant.
- f. Ensure isolation of all electrical power supplies in the affected area.
- g. Seek for additional fire crew / "Off-duty" fire staff turnouts, if found necessary.
- h. Establish co-ordination with external fire brigades, if called in.
- i. The instructions given in the Fire Orders of NTPC North Karanpura Unit shall be followed.

General precautions:

- i. Evacuate and cordon off the affected area. Entry to the authorized personnel only should be permitted.
- ii. Fire proximity suits, water gel blankets must be used wherever required.
- While carrying out fire fighting operations, safety of the persons / plant buildings/ equipment should be borne in mind.

Fire in Cable Galleries

The main hazard in cable galleries is fire due to over heating of cables, short circuits, etc. To prevent chance of fire origination in the cables, all the cables used in the North Karanpura are of Fire Retardant & Low Smoke (FRLS) type.

System Safety: To prevent further chances of fire in the cable galleries the following systems have been adopted in North Karanpura.

- i. Zoning of cable gallery and fireproof sealing between zones, cable entries/intersections and intermittent places on cable trays, cable raisers and cable entry points.
- ii. Providing Smoke detectors, flame sensors (linear heat sensing cables, quartzite bulbs).
- iii. Automatic MV Water spray system.

Response Procedure:

- a. Close ventilation system, if any in the cable gallery room.
- b. Exhaust the smoke using Smoke exhausters.
- c. Identify the affected portion of the gallery/tray and isolate electrically.
- d. In case identification is difficult, then isolate all possible connected supplies.
- e. Check if the water spray system is not operated automatically, operate manually if required.
- f. Extinguish fire preferably with CO₂ or DCP extinguishers.(Water can be used externally, if the cables are fully dead).
- g. In case of major fire, use breathing apparatus and fire suit.

Storage godowns:

Chances of major fire are only possible in gas cylinder storage / chemical storage areas in the stores.

<u>System Safety:</u> such chances are reduced by proper layout and by providing adequate fire safety measures.

Response Procedure in case of Fire on DA/LPG Cylinder:

- a) Try to shutoff the valve of the cylinder immediately.
- b) Separate the hot cylinder from other cylinders and cool it with copious flow of water.

Flashover & Fire in Switchgears:

Following reasons convert in to Fires or Flashovers in indoor / Outdoor Switch gears:-

- i. Short circuit either at bus-bars, breaker high voltage parts or cable termination chambers may occur due to reptiles or falling of internal accessories on to live parts.
- ii. Failure of supporting insulators of bus-bars, breakers, termination and subsequent earthing of supply may cause flash-over.
- Failure of measurement equipment like CTs & PTs may cause flashover in the concerned chambers.

<u>System Safety:</u> All switchgears are well designed to prevent chances of flash-over or fire. In addition, to take care of the above problems, the following precautions are taken.

- Plugging of cable gland plates and breaker inspection plates against reptile entry.
- ii. Periodical inspection/testing of switch gear equipment.
- Providing proper nomenclature of switchgear equipment with regards to voltage level, feeder description and panel numbering to avoid wrong identification.
- iv. Standard Operating procedures are prepared and followed in Operation and Maintenance of the switchgears.

Response Procedure:

- a. Evacuate all non-essential workers from the area and keep all passages, doors etc., clear for fire fighting operations.
- b. Start rescue and fire fighting operation immediately as deemed fit for the extent of fire.

25. EXPLOSION:

(a) Explosion in Hydrogen Generation Plant:

Explosion in H2 Plant and Cylinder storage room is only possible in case of total failure of entire protection system or due an illicit act/sabotage.

<u>System Safety:</u> The plant is well designed to prevent any chance of explosion. However to prevent any untoward incidents, the following measures have been adopted.

- i. The protection system of H2 Plant is designed such that at 20% of lower explosive limit it gives alarm and at 40% of lower explosive limit the plant trips automatically.
- ii. Gas purity will be monitored continuously and if the purity is less than 99%, the gas will be vented out to the atmosphere and the plant will be shut down automatically. However the purity of H2 gas is maintained 99.8%.
- iii. Hydrogen gas sensors are provided in the plant and cylinder storage area which are interlocked to the plant tripping system.
- iv. A detailed LMI is in practice.
- v. All electrical equipment including lighting fixtures are explosion poof in the entire plant.

- vi. Hydrogen holder / lines are purged with N₂ first before start-up and shutdown.
- vii. Prohibition of unauthorized persons in the plant and posting of security guard.

Response Procedure:

- a. Evacuate all non-essential workers from the affected area and keep all passages, doors etc., clear for rescue operations.
- b. Start rescue operation immediately after ensuring that there would be no consequent explosion chances.
- c. Any Fire in the exploded area shall be fought from safe distance and with utmost care.

(b) Explosion in Fuel Oil Pump House:

There is a remote chance of explosion in the Fuel Oil tanks at FOPH due to total failure of entire protection system or an illicit act/sabotage.

(c) Coal Dust Explosion:

Coal dust can explode when they are suspended in air in Conveyor galleries, crusher house, bunker area, track hopper and transfer points. A coal dust explosion may occur if the coal

dust is present in the concentration between UEL & LEL limits i.e., 30-2000 grams/M3 of air and also a source of ignition like sparks caused by friction or static electricity.

<u>System Safety:</u> However measures are adopted to prevent the chances of explosion in the design stage itself. To prevent the accumulation of dust, dust suppression systems are available at strategic locations.

(d) Boiler Explosion:

Whenever Boiler gets pressurized due to non-evacuation of steam, there are chances of Boiler explosion.

System Safety: Various interlocks and protections are available for Boiler to taken care off to avoid Boiler explosion.

(e) Turbo-Generator Explosion:

H₂ gas explosion is a possible hazard in Generator.

<u>System Safety:</u> the generator is designed to withstand explosion. Seal oil system is also provided for the generator to prevent the leakage of H₂ gas. And also the H₂ gas purity is continuously monitored and maintained always above 99%. All the H₂ cylinders are checked for high purity.

(f) Transformer Fire & Explosion:

The possibility of Fire & Explosion hazards in transformers are due to;

- Failure of terminal bushings and flash-over.
- Sudden gas pressure formation due to transformer internal faults and subsequent failure of explosion vents and pressure release devices may cause explosion of transformer and fires.
- Accumulated leakage of oil from different parts of transformers and spurious sparking nearby.

<u>System Safety:</u> All the transformers are provided with adequate inbuilt and external protection systems and monitoring devices. However to control the fire, the following measures have been adopted.

- Emulsifier system with deluge valve and fire detection devices on all transformers having capacity more than 16 MVA.
- Oil soaking pits with gravel fill beneath all the transformers.
- Fire Separation walls between transformers.
- Adequate number of Fire extinguishers.

Response Procedure:

- a) Isolate transformer from both sides, if it is not automatically de-energized.
- b) Stop forced oil circulating pump and forced air-cooling fans in service, wherever provided.
- c) Use water spray to cool the hot part, wherever provided.
- d) If oil has splashed out of transformer and also has caught fire, use only foam to extinguish fire. Do not use water.

26. LIOUID CHEMICAL RELEASE (Spill Containment & Cleanup):

There are chances of spill-over/leakage of HCl & NaOH from storage tanks and also due to bursting of acid/alkali lines in DM Plant. There are chances of chemical burns due to contact with acid/alkali.

<u>System Safety:</u> Dyke walls are provided to contain any overflow/leakage of acid/alkali from tanks which can be transferred in to the standby tank. The spill over, if any beyond the dyke, will be collected in neutralization pit.

Response Procedure in case of leakage of Hydrochloric Acid / Sodium Hydroxide

a) If leakage is from a Storage Tanks:

Any leakage from the storage tanks will be collected in the dyke provided, from where it will be recovered, if possible, and water flushed subsequently.

Non-key personnel should be kept away.

Material Safety data-sheet of respective chemical should be referred.

If recovery of acid/alkali is not possible, then the same shall be neutralized properly, before discharging to the drains. In case of contamination of land, the soil shall be neutralized properly with alkali/acid as the case may be.

b) If leakage is from a Pipeline:

Leakage of acid/alkali from a pipeline may either be from flange or from pipe itself:

- a. The pump should be switched off first.
- b. Isolate the pipeline.
- c. The pipeline should be drained.
- d. The defect should be attended either by repairing the defective part or replacing it, preferably by blanking wearing Face shield, Acid / Alkali proof suit & hand gloves.
- e. Chemicals spill on the body, if any should be immediately washed using drench showers/ eye wash fountains.
- f. Area should be flushed with water.
- g. Minor spillage can be neutralized by spreading lime powder.
- h. Water should be sprayed on leakage point to suppress toxic / corrosive fuming.
- i. Non-key personnel should be kept away.

<u>Note</u>: Water should not be sprayed on the leaking tank / pipeline.

Response Procedure in case of release of Ammonia Solution from the carboys / if leakage is from a Storage Tank:

Any leakage from the storage tanks will be collected in the dyke provided, from where it will be recovered, if possible, and water flushed subsequently. Non-key personnel should be kept away.

27. Medical (Handling of multiple injuries):

In the event of major emergency like Hydrogen Gas explosion (either at H2 Plant or at TG building) or major fire in FOPH, there would be multiple injuries / multiple casualties. In such cases, the entire Medical Team arrives immediately at the site of emergency and put up Medical camp at a safer location with beds, stretchers and all necessary medical aids. External medical help shall be called for including the voluntary organization like Red Cross, medical staff from mutual aid organizations and near by hospitals.

On receipt of victims, the medical team shall prioritize according the seriousness, hopes of survival, type of injury etc., and start treatment or first aid and if necessary refer the cases to empaneled hospitals with a prior intimation/ briefing of case history along with a medical attendant.

Company Ambulances and ambulances of mutual aid organizations or of near by hospitals & other organizations shall be utilized for shifting of casualties.

All the first aiders (employees of the company) who got First aid training shall assist the medical team in such eventual situations.

28. <u>Utility failure procedures:</u>

In case of any Emergency, if the power fails, it would affect the emergency operations at large. Diesel Generator are available in the plant to cater for power needs in the event of any emergency.

29. CYCLONE POSING SERVERE THREAT – MEASURES TO BE TAKEN:

- a) Suspending all works at height.
- b) Possibility of suspending operations /processes which are water/moisture sensitive shall be seriously considered.
- c) Protection from flying of roof sheets due to gales.
- d) Storm water drains shall be attended immediately to avoid clogging of drains.

- e) The possibility of reverse flow of water from the factory premises outlets shall be examined and effective steps like provision of isolation etc shall be ensured.
- f) The possibility of rain water flooding in the plant and possible consequences of marooning of plant roads, entry of water into main plant, offsites, stores, tank farms etc., shall be examined and steps shall be taken to handle such situations effectively.
- g) Storages of hazardous materials especially drums, carboys etc., in open areas shall be rechecked and shall be properly secured under shade with elevated floor level.
- h) Review of probabilities for collapse of tall structures, street lights, old constructions and temporary constructions etc, more so in the construction activity if any under progress. The probability of falling structures, and street lights and other flying objects on the equipment, pipelines containing the hazardous chemicals shall be specially reviewed.
- i) Unnecessary movements of persons in the open areas within the premises shall be discouraged during the heavy gales. Even essential movements of persons shall be predefined in such a way that open area movements are limited to bare minimum during gales.
- j) Care towards the possible shortcomings in electrical wiring, equipment when subjected to rain and gales shall be exercised.
- k) Emergency power back up shall be rechecked.
- 1) Adequate quantity of diesel shall be stored for continuous running of generators if necessary.
- m) Adequate quantity of dry food shall be stored for consumption of persons remained in the plant.
- n) All battery backups for communications, UPS etc shall be kept fully charged. Spare batteries shall be kept handy.
- o) Arrangements shall be made for releasing the periodical internal bulletins on the status of weather conditions through Public addressing system or other suitable means based on the updates from media etc for the benefit of the persons inside the plant & threat prone pump houses in order to release their anxieties if any.
- p) Special communication channel shall be arranged in the plant control room for the exclusive purpose of contacting the family members of the workers remained in the plant/pump houses or vice versa to avoid building up of anxieties among them.

If possible, a periodical SMS about the safety of the workers in the factory to their family members may be arranged to keep them at ease and it shall go a long way in keeping the workers with peace and to make them concentrate on their job.

- q) Special care shall be taken in preventing workers who come drenched & Workers may be advised to come with spare cloths fully packed and protected from becoming wet. Extra towels shall also be kept available.
- r) Medical officer shall be remained in the plant if possible or at least a trained first aider shall remain in the plant till the normalcy is restored.
- s) All essential employees shall be alerted in this regard and going on leave shall be discouraged during this cyclone period.
- t) Emergency preparedness shall cross checked and necessary protective gear like adequate rain coats, torch lights of suitable type etc shall be made available
- u) All important telephone numbers shall be kept handy and they shall be cross checked about their correctness as well as continuity. They shall be updated if changes are found.
- v) Fire fighting systems shall be checked and adequate quantity of foam shall be kept ready.
- w) Special care shall be taken while continuing/restarting the work after the cyclone with reference to condition of plant roads (other than black top), outdoor equipment especially the electrically connected, movement of heavy loads/vehicles, work at heights etc. Works of this nature shall be taken up only after satisfying suitability by the safety department or the by responsible concerned person as the case may be.

30. ASSEMBLY POINTS, EVACUATION AND HEAD COUNT

Evacuation & Assembly Points:

In case of emergency, the non essential personnel should be evacuated from the incident area and also from adjacent areas. Evacuation should be to a predetermined assembly point in a safe part of the works.

The persons, those are not part of immediate response teams, would evacuate their work area and report at the designated Assembly Point. The decision to evacuate the work area will be taken by CIC after getting feedback from the WIC/Shift In-charge. Evacuating visitors would be the responsibility of the concerned officer. Department Head should take care to evacuate any handicapped person in his area.

Assembly Points:

There are ten assembly points identified in the plant.

31. FIRE FIGHTING SYSTEM

Foam Hydrant System:

Foam Hydrants are provided in Fuel Oil Pump House area. Purpose of providing this system is to combat the fire of fuel oil tanks dyked area occurs due to spill over of oil. Water for Foam Hydrants is tapped from hydrant system.

Fire Extinguishers:

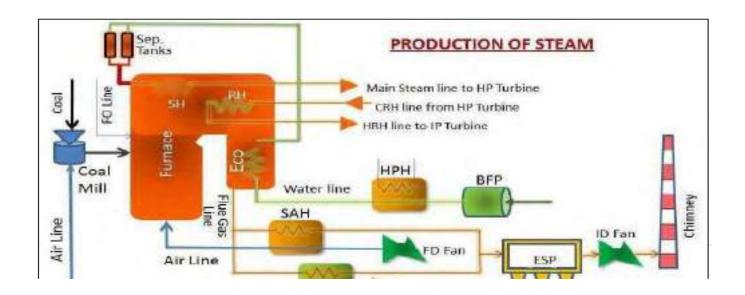
Fire Extinguishers are deployed in all the buildings of entire plant as per the requirements and in accordance with the guide lines of IS: 2190-1992.

FIRE STATION:

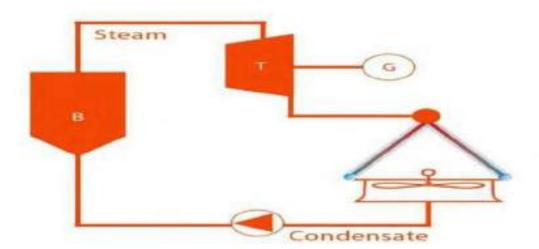
A full pledged Fire Station is available in the Plant which is managed by CISF-Fire Wing. The Fire Station has been equipped with all the required equipments for efficient operation of fire squad. The equipments include the following items mainly.

- 1. One Water Tender
- 2. One Foam Tender
- 3. One DCP Tender
- 4. One no. Fire Jeep
- 5. 10 Nos. Breathing Apparatus Sets.
- 6. 04 Fire Proximity Suits.
- 7. 02 First Aid Kits.
- 8. 02 Nos. Blower cum Exhausters, etc

Annexure-1 Process Flow Diagram



ACC plant cycle



ANNEXURE-2 DISASTER MANAGEMENT TEAMS

SUPPORT TEAM TO CIC

Ajay Kumar	Shukla	GM (O&M)	O & M	9471001071
Subhasis	Bose	GM(PROJ CONST)	PROJ CONST	9650996897
Brij Raj	Prasoon	AGM(TS)	TS	9650990017
Swarup	Khan	SR. MANAGER (CHEMISTRY)	CHEMISTRY	9650997461
Rajeev	Tripathi	AGM(ELECT ERECT)	ELECT ERECT	7522002825
A.K	Agarwal	AGM(Safety)	SAFETY	7054757778

TECHNICAL RESPONSE TEAM

Ajay Kumar	Shukla	GM (O&M)	O & M	9471001071
Rajeev	Tripathi	AGM(ELECT ERECT)	ELECT ERECT	7522002825
Jayesh S	Chaudhari	DGM (FQA)	FQA	9925503881
Dipak Kumar	Dalei	AGM(C & I ERECT)	C & I ERECT	9437964101
N.D	Pandey	AGM(CIVIL CONST)	CIVIL CONST	7349608575

FIRE FIGHTING TEAM

		AC (CISF)		9264443340
		FIRE INSPECTOR, CISF		9264443351
U.K	Mukherjee	SR. MANAGER (MAINT. PLNG.)	MAINT. PLNG.	9434047525
Uday	Kumar	AGM (MECH ERECT)	MECH ERECT	9471001324
Prashant	Soni	SR.MANAGER(P & S)	P & S	9425219116

MEDICAL TEAM

Shankar Sheo	Prasad	CHIEF MEDICAL OFFICER	MEDICAL	9434084523
Baby	Sarkar	SMO (MEDICAL)	MEDICAL	8004948305
Ade	Ashok	AMO (MEDICAL)	MEDICAL	9491172122
V.L.N	Saikiran	AMO (MEDICAL)	MEDICAL	9844745343
Gaurav	Sharma	AMO (MEDICAL)	MEDICAL	7300874471
Anil	Kumar	ASST. OFFICER (MEDICAL)	MEDICAL	8004948065

MAINTENANCE TEAM

Mukul	Rai	AGM (MECH MAINT.)	MAINT.	7458012805
Rajeev	Verma	AGM (IT)	IT	9650995009
Anil Kumar	Chawla	AGM(HR)	HR	9650701354
Sachin	Kumar	DGM (ELECT ERECT)	ELECT ERECT	9471003376
Lal Babu	Sharma	DGM (Maint)	Off. Site Maint	9473196778

ADMINISTRATIVE TEAM

Rajeev	Verma	AGM (IT)	IT	9650995009
Uday	Kumar	AGM (MECH ERECT)	MECH ERECT	9471001324
Anil Kumar	Chawla	AGM(HR)	HR	9650701354
Dharmendra	Singh	AGM (OPERATION.)	OPERATION.	9650998599
N.D	Pandey	AGM(CIVIL CONST)	CIVIL CONST	7349608575

SAFETY TEAM

Ajay Kumar	Agarwal	AGM(Safety)	SAFETY	7054757778
Prince	Kumar	DY.	SAFETY	9065519283
		MANAGER(SAFETY		
Prashant	Soni	SR.MANAGER(P & S)	P & S	9425219116

COMMUNICATION TEAM

Rajeev	Verma	AGM (IT)	IT	9650995009
Ajay	Chadha	DGM (IT)	IT	9650990882
Rahul	Prakash	SR.MANAGER(IT)	IT	9406712435
Sunny	Seth	SR.MANAGER(HR)	HR	9425570890

TRANSPORTATION TEAM

Neeraj	Bharati	DGM(MECH ERECT)	MECH ERECT	7389942202
Anil Binit	Lakra	DGM(MECH ERECT)	MECH ERECT	9425178269
Anil Kumar	Chawla	AGM(HR)	R & R	9650701354
Ananjan	Bhunia	MANAGER(HR)	HR	9434075924

SECURITY & TRAFFIC CONTROL TEAM

		AC, CISF		9264443340
		INSPECTOR,CISF		9264443341
		CISF CR		9264443342
Abhishek	Anand	SR.MANAGER(HR)	HR	9425281005
Sita Ram	Munda	ASST. MANAGER(SAFETY)	Safety	9473196353
Dheeraj	Gupta	DGM (HR)	HR	9650995877

Preventive Maintenance Record

	Name of		Date of	Veritive ivialitierial		Next Due Date of	
SI. No.	Equipment	Place of Installation	Examination	Components Checked	Components Changed	Examination	Remarks

Check of Earthing Pit

	Date of		Measured	Allowable		Next Due Date of	
SI. No.	Examination	Agency / Person	Resistance	Resistance	Steps Taken	Examination	Remarks

Examination of Lifting Machines and Lifting Tackles

	Name of	Location of	Date of	Agency /	Components	es and Litting rac		Next Due Date of	
SI. No.	equipment	Installation	Examination	Person	Checked	Observations	Steps Taken	Examination	Remarks
	• •								

First Aid Fire Fighting Equipment

						griding Equip	Location of	Date of Last		Signature of
SI. No.	Make	Equipment No.	Class of fire	Capacity	Date of Refill	Date of Expiry	Installation	Onspection	Remarks	Manager

Record of Mock Drills

			Vecola of Mock	211110	
SI. No.	Unit Where performed	Nature of Shadow Accident	Persons Involved	Steps Performed	Area of Weakness

Annexure-8

Safety and personnel protective appliances

- 1. Portable Generator
- 2. Flood Light / search light
- 3. Light extension ladder
- 4. Ropes (manila) / Safety belts
- 5. Spanner set
- 6. Rope ladder
- 7. Bolt cutter
- 8. Insulated fire axe
- 9. Fire hose
- 10. Helmets
- 11. Emergency torches
- 12. Fire suit
- 13. Public address system
- 14. First aid kit
- 15. Stretches

Annexure-9

Emergency Check-list

- 1. Assess the situation.
- 2. Operate the emergency alarm signal, if found necessary.
- 3. Inform the security.
- 4. Inform the unit-incharge of the units surrounding the affected area.
- 5. Inform the district administration / state authorities about the emergency and the proposed line of action.
- 6. Call the fire fighting and rescue team.
- 7. Inform the nearby industries to safeguard their units and extend help under mutual aid scheme.
- 8. Sound nearest hospitals and dispensary to remain prepared.
- 9. Coordinate the efforts to be made and actions to be taken to combat the emergency situation effectively.
- 10. Coordinate the rescue team.
- 11. Mark the affected area and safe roads of transport in the plant layout drawing displayed in the plant control room.
- 12. Any other precautions.

Annexure-10

Record of Accidents

Necola di Accidenta										
	Date & Time No. of Persons				Date of Reporting to	Period of Injury		•	Signature	
SI. No.	of Accident	Injured	Killed	Place	Description	Factory Inspector	Date of Return	Absent(days)	Remarks	of Manager
1										

MATERIAL SAFETY DATA SHEET FOR TOXIC & CORROSIVE CHEMICALS



1. PRODUCT IDENTIFICATION

Product Name: Hydrochloric Acid (HCI) /Muriatic acid/Hydrogen chloride, aqueous; Chlorohydric acid CAS#: 7647-01-0

Physical State: Liquid, Transparent, Colorless/ Pale yellow

Odor: Pungent, irritating

2. HAZARDS IDENTIFICATION

Emergency Overview: DANGER! Corrosive. Causes severe skin, eye, and digestive tract burns. Harmful if

swallowed. Mist or vapor extremely irritating to eyes and respiratory tract.

Safety Ratings: Health: 3, Severe Reactivity: 1, Slight

Flammability: 0, None Contact: 4, Extreme

OSHA Regulatory Status: This product is considered a "Hazardous Chemical" as defined by the OSHA

Hazard Communication Standard, 29 CFR 1910.1200.

Potential Acute Health Effects: Routes of Exposure Inhalation, ingestion, skin contact, eye contact

Exposure Limits: ACGIH: Ceiling: 2 ppm OSHA: Ceiling: 5

ppm

Personal Protective Equipment:

Eye/Face Protection: Wear safety glasses with side shields or goggles and a face shield.

Skin Protection: Wear appropriate chemical resistant clothing (with long sleeves) and appropriatechemical

resistant gloves.

Respiratory Protection: Chemical respirator with acid gas cartridge.

3. FIRST AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, administer oxygen. If the victim is notbreathing,

perform mouth-to-mouth resuscitation. Get medical attention immediately.

Ingestion: Do not induce vomiting. If vomiting occurs, keep head low so that vomit does notenter

lungs. Never give anything by mouth to an unconscious person. GET MEDICAL

ATTENTION IMMEDIATELY.

Skin Contact: Flush affected area with plenty of water for at least 15 minutes. Remove

contaminated clothing and shoes. Wash clothing before reuse. Get medical

attentionimmediately.

Eye Contact: Check for and remove contact lenses. Immediately flush eyes with gentle but largestream of

water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical

attention immediately.

4. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotectedpersonnel

away. Keep upwind. Keep out of lowareas. Wear appropriate personal protective equipment. Avoid

contact with eyes, skin, and clothing.

Methods for Containment: Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer,

basements or confined areas. Dike the spilled material, where this is possible.

Methods for Cleaning Up: Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, fleece), and place in a

suitable non-combustible container for reclamation or disposal. Neutralize spill area and washings with soda ash or lime. Never return spills in original containersforre-use.

Clean up in accordance with all applicable regulations.

5. HANDLING AND STORAGE

Handling: Wear personal protective equipment. Do not breathe vapors or spray mist. Do not ingest. When using, do not eat,

smoke, or drink. DO NOT add water to acid. ALWAYS add acid to water while stirring to prevent release of heat,

steam, and fumes.

Storage: Store in a cool, dry, ventilated area away from incompatible materials. Store in original container. Keep containers tightly

closed and upright. Keep away from food, drink and animal feeding stuffs. Keep out of the reach of children.

1. PRODUCT IDENTIFICATION

Product Name: Sodium hydroxide (NaOH) / Caustic Soda CAS#: 1310-73-2

Physical State: Thick Liquid, Colorless

Odor: Odorless

2. HAZARDS IDENTIFICATION

Emergency Overview: DANGER! Very hazardous in case of skin contact (corrosive, irritant,

permeator) of eye contact (irritant, corrosive), of ingestion, of inhalation.

Safety Ratings: Health: 3, Severe Reactivity: 2, Slight

Flammability: 0, None Contact: 4, Extreme

OSHA Regulatory Status: This product is considered a "Hazardous Chemical" as defined by the OSHA

Hazard Communication Standard, 29 CFR 1910.1200.

Potential Acute Health Effects: Routes of Exposure Inhalation, Ingestion, skin contact, eye contact

Exposure Limits: ACGIH: Ceiling: 2

ppm OSHA: Ceiling: 2

ppm

Personal Protective Equipment:

Eye/Face Protection: Wear safety glasses with side shields or goggles and a face shield.

Skin Protection: Wear appropriate chemical resistant clothing (with long sleeves) and appropriate

chemical resistant gloves.

Respiratory Protection: Chemical respirator.

3. FIRST AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, administer oxygen. If the victim is not

breathing, perform mouth-to-mouth resuscitation. Get medical attention

immediately.

Ingestion: Do not induce vomiting. If vomiting occurs, keep head low so that vomit does not

enter lungs. Never give anything by mouth to an unconscious person. GET

MEDICAL ATTENTION IMMEDIATELY.

Skin Contact: Flush affected area with plenty of water for at least 15 minutes. Remove

contaminated clothing and shoes. Wash clothing before reuse. Get medical

attentionimmediately.

Eye Contact: Check for and remove contact lenses. Immediately flush eyes with gentle but large

stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally.

Get medical attention immediately.

4. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected

personnel away. Keep upwind. Keep out of lowareas. Wear appropriate personal

protective equipment. Avoid contact with eyes, skin, and clothing.

Methods for Containment: Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer,

Basements or confined areas. Dike the spilled material, where this is possible.

Methods for Cleaning Up: Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, fleece), and

place in a suitable non-combustible container for reclamation or disposal. Neutralize spill area and washings with acetic acid. Never return spills in original containers for re-

use.

Clean up in accordance with all applicable regulations.

5. HANDLING AND STORAGE

Handling: Wear personal protective equipment. Do not breathe vapors or spray mist. Do not ingest. When using, do

not eat, smoke, or drink.

Storage: Store in a cool, dry, ventilated area away from incompatible materials. Store in original container. Keep

containers tightly closed and upright. Keep away from food, drink and animal feeding stuffs. Keep out of the

reach of children.

1. PRODUCT IDENTIFICATION

Product Name: Ammonium Hydroxide / Aqueous ammonia; Ammonia aqueous CAS#: 1336-21-6

Physical State: Liquid, Color less Odor: Irritable odor

2. HAZARDS IDENTIFICATION

Emergency Overview: DANGER! Corrosive. Causes severe skin, eye, and digestive tract burns. Harmful if

swallowed. Mist or vapor extremely irritating to eyes and respiratory tract.

Safety Ratings: Health: 2, Moderate Reactivity: 1, Slight

Flammability: 1, Slight Contact: 4, Extreme

OSHA Regulatory Status: This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard

Communication Standard, 29 CFR 1910.1200.

Potential Acute Health Effects: Routes of Exposure: Inhalation, Ingestion, skin contact, eye contact

Exposure Limits: ACGIH: Ceiling: 25 ppm

OSHA: Ceiling: 50ppm

Personal Protective Equipment:

Eye/Face Protection: Wear chemical safety goggles and a face shield.

Skin Protection: Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical

resistant gloves

Respiratory Protection: Chemical respirator

3. FIRST AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, administer oxygen. If the victim is not

breathing, perform mouth-to-mouth resuscitation. Get medical attentionimmediately.

Ingestion: Do not induce vomiting. If vomiting occurs, keep head low so that vomit does not enter

lungs. Never give anything by mouth to an unconscious person. GET MEDICAL

ATTENTION IMMEDIATELY.

Skin Contact: Flush affected area with plenty of water for at least 15 minutes. Remove contaminated

clothing and shoes. Wash clothing before reuse. Get medical attentionimmediately.

Eye Contact: Check for and remove contact lenses. Immediately flush eyes with gentle but large stream

of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical

attention immediately.

4. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected

personnel away. Keep upwind. Keep out of lowareas. Wear appropriate personal protective

equipment. Avoid contact with eyes, skin, and clothing.

Methods for Containment: Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer,

basements or confined areas. Dike the spilled material, where this is possible.

Methods for Cleaning Up: Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, fleece), and place

in a suitable non-combustible container for reclamation or disposal. Neutralize spill area and

washings with acetic acid. Never return spills in original containers forre-use.

Clean up in accordance with all applicable regulations.

5. HANDLING AND STORAGE

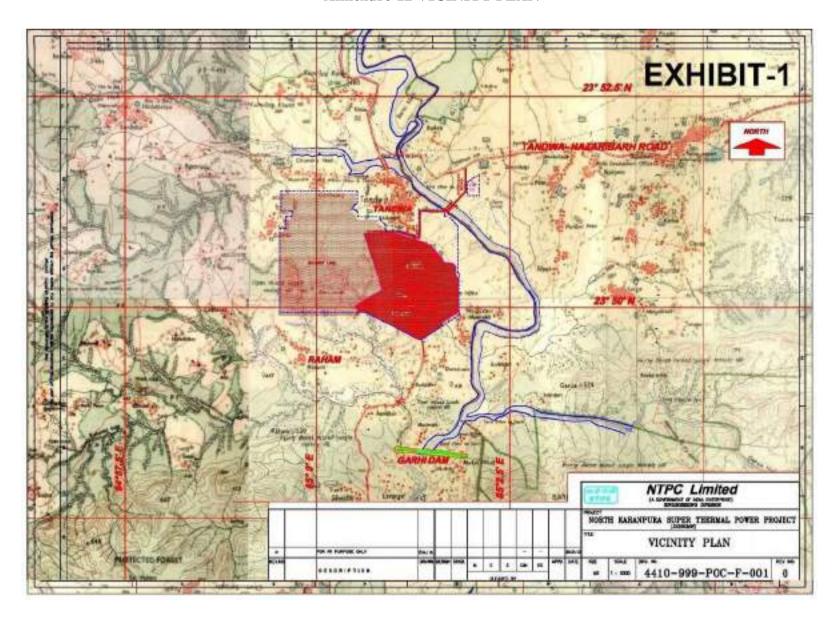
Handling: Wear personal protective equipment. Do not breathe vapors or spray mist. Do not ingest. When using, do not

eat, smoke, or drink.

Storage: Store in a cool, dry, ventilated area away from incompatible materials. Store in original container. Keep containers

tightly closed and upright. Keep away from food, drink and animal feeding stuffs. Keep out of the reach of children.

Annexure-12 VICINITY PLAN



ANNEXURE-14 DETAILS OF FIRST AID TRAINED STAFF

DETAILS OF FIRST AID TRAINED STAFF										
SL. NO	NAME	DESIGNATION	MOBILE	AGENCY						
1	SURESH TUDU	MEDICAL ATTENDANT	9122365435	GVK EMRI						
2	CHANDAN KUMAR	MEDICAL ATTENDANT	8210775985	GVK EMRI						
3	SLMAN ALI	MEDICAL ATTENDANT	6205886024	GVK EMRI						
4	MUDIT BAJPAI	EMT	7518088817	GVK EMRI						
5	SUNIL SINGH	EMT	7054312760	GVK EMRI						
6	RAVI KUMAR	EMT	9102499418	GVK EMRI						
7	RAVI KUMAR	EMT	9671489938	GVK EMRI						
8	OM PRAKASH	EMT	9835139483	GVK EMRI						
9	VIRENDRA KUMAR	EMT	9102255848	GVK EMRI						
10	ABHIRAM BANKIRA	DRESSER	7479597041	UPL						
11	BHUNESHWAR KUMAR	DRESSER	6200202508	UPL						
12	SAROJ KUMAR	DRESSER	7739545655	UPL						

