



एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)
(Formerly National Thermal Power Corporation Ltd.)

नबीनगर / Nabinagar

Ref:1086/NSTPS/ Env't, Mgt./03

Date: 31.12.2022

To,
The Ministry of Environment, Forest & Climate Change
Regional Office, Eastern Central Zone
Bunglow No A-2, Shyamli Colony
Ranchi- 834002
Email: ro.ranchi-mef@gov.in

Sub: Submission of Environment Clearance compliance status as on 31.12.2022 for Nabinagar STPS (3X660MW) of NTPC Nabinagar.

Ref: MOEF Clearance award letter no J-13012/127/2007/IA.II (T), dt. 27.12.2010.

Ref MOEF clearance award letter no J-13012/127/2007/IA.II (T) dt 14.01.2020.

Dear Sir,

With reference to the above, please find enclosed ECRR (Environment Clearance Compliance Report) of Nabinagar STPS (3X660MW) of NTPC Nabinagar as on dated 31.12.2022.

Yours Sincerely,

(Krishna Deo Pandey)
DGM (EMG)
NSTPS, Nabinagar.

S.N.	CONDITIONS	ECRR compliance as on 30.09.2022
Specific Conditions		
SC-01	Vision document specifying prospective plan for the site shall be formulated and submitted to the Ministry within six months.	Vision doc submitted with 1 st ECRR submitted on 27.05.2014.
SC-02	Land requirement shall be restricted to 1500 acres (including ash pond).	Total Land Acquired = 2971 Acres • Stage I - (3x660MW)- Around 1500 Acre (including Ash Pond), Under execution. • Stage II- (3x800MW) - around 1470 acres Proposed.
SC-03	Provision for installation of FGD shall be provided for future use.	FGD is provisioned and FGD work under progress.
SC-04	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm ³ . 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.	• ESP with efficiency of 99.97% is operational in running units to limit PM emission <30 mg/Nm ³ . • Provision for dust extraction system in coal handling area and ash handling areas including transfer points as well as other vulnerable dusty areas has been provisioned and being provided
SC-05	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.5 % and 34 % respectively at any given time. In case of variation of coal quality at any point of time fresh reference shall be made to MoEF for suitable amendments to environmental clearance condition wherever necessary.	Being complied In case of variation in supply of coal quality, fresh reference shall be made to MoEF.
SC-06	Stack of 275 m height shall be installed and provided with continuous online monitoring equipment for SO _x , NO _x and Particulate Matter. Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack may also monitored on periodic basis.	• 275 m stack has been provided with continuous online monitoring system for SO _x , NO _x and PM. • Exit velocity ≥ 22 m/sec is being complied • Hg Emission Monitoring is being carried out offline and online Hg analyser has also been installed and commissioned in Unit # 1, Unit # 2 and Unit # 3 Stacks.
SC-7	Existing de-generated water bodies (if any) in the study area shall be regenerated at the	Study of degenerated bodies in project area, conducted by National Institute of hydrology,

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	project proponent's expenses in consultation with the state Govt.	Roorkee. No degenerated water bodies reported in study.
SC-8	Detailed hydro-geological study shall be conducted (including sustainability of water source study) shall be carried out by an institute of repute and report submitted to the Regional Office (RO) of the ministry. Further hydro-geological study 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 and deterioration is observed specific mitigation measures shall be undertaken and reports/ data of water quality monitored regularly and maintained shall be submitted to the RO of the Ministry.	Hydro-geological study of NSTPS Nabinagar has been conducted by National Institute of Hydrology, Roorkee. Report of study has already been submitted. Hydro-geological study shall be reviewed annually to assess the impact of surface water and ground regime (especially around ash dyke). The water quality is being monitored and reports are being submitted.
SC-9	Source of water for meeting the requirement during lean season shall be specified and submitted to the Regional Office of the Ministry within three months.	Source of water for meeting the requirement during lean season shall be same as during normal period of operation. The source of the water is from Indrapuri Barrage on Sone River.
SC-10	No ground water shall be extracted for use in operation of the power plant even in lean season.	Ground water is not being extracted for operation of units under any circumstances.
SC-11	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 have been disturbed due to setting up and operation of NSTPS units.
SC-12	Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel/ Rivers (as applicable) even in lean season.	The quantity of water drawn for Nabinagar STPS from Indrapuri Barrage shall be limited to committed quantity for the project by State Govt. and therefore minimum required environmental flow shall be maintained.
SC-13	COC(Cycle of Concentration) of 5.0 shall be adopted. The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon. Arrangements shall be made that effluents and storm water do not get mixed.	COC of 5.0 has been adopted. Treated effluents are recycled and reused and plant has been designed for Zero liquid discharge. ZLD work is in progress.



	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/plantation.	A sewage treatment plant installed and operational and the treated sewage is being sent to horticulture ring for raising greenbelt/plantation.
SC-14	Additional soil for leveling 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 improved.	Complied.
SC-15	Utilization of 100% Fly Ash generated shall be made from 4th year of operation. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.	System for 100% extraction of dry fly ash along with suitable storage facilities has been designed. A utilization plan has been made for 100% fly ash utilization and all efforts are being made for 100 % ash utilization.
SC-16	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.	Dry Fly Ash Extraction system (DAES) is under construction which will collect 100% fly ash in dry form. Unutilized fly ash shall be disposed through High Concentrated slurry discharge (HCSD) and bottom ash through normal slurry mode. Heavy metal monitoring of bottom ash is being carried out periodically. Report attached as Annexure-'A' Heavy metal monitoring of Ash Pond effluent shall be carried out once as pond effluents are discharged.
SC-17	Ash pond shall be lined with HDP/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.	NSTPS has different systems for disposal of Fly ash and bottom ash <ul style="list-style-type: none"> • High Concentration Slurry Disposal System (HCSD) for fly Ash (Lagoon-I) • Wet Slurry Disposal with Ash Water Recirculation for Bottom Ash. (Lagoon – II & III) In HCSD lagoon (01 No), the disposed layers of ash are solidified, therefore leaching from HCSD lagoon is minimal. In one bottom ash lagoon, 300 mm thick high concentrated slurry is spread to make it impervious and in another BA lagoon 0.3m thick impervious liner of soil blended with bentonite to achieve a permeability $<1 \times 10^{-6}$ cm/sec is provided. Adequate safety measures have already been incorporated at design & construction level so as



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		to prevent dyke from breaching. Operational and preventive measures are in practice to prevent any occurrence of breaching.
SC-18	Disposal of Bottom Ash in abandoned mines (if proposed to be undertaken) shall be carried out only after obtaining permission from DGMS and it shall be ensured that the bottom and sides of the mined-out areas are adequately lined with clay before Bottom Ash is filled up. The project proponent shall inform the State Pollution Control Board well in advance before undertaking the activity.	Noted and disposal of Bottom Ash in abandoned mines is not envisaged. In case, it is carried out in future, it shall be carried out as per direction stipulated in EC conditions.
SC-19	Green Belt consisting of 3 tiers of plantations of native species around plant and at least 100 m width shall be raised. Wherever 100 m width is not feasible a 50 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 75 %.	Green belt is being developed with plantation of native species with specified tree density and survival rate by Forest Department, Govt. of Bihar. Approx. 1.26 lakh Saplings were planted under mass afforestation programme. Further for 20,000 saplings is being done by State Forest Deptt. Vide PO No. 5500040756 dtd.16.06.22 near Ash Dyke and MGR site area etc.
SC-20	The project proponent shall also adequately contribute in the development of the neighboring villages. Special package with implementation schedule for providing fluoride free potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.	As per Hydro-Geological Study by NIH, Roorkee, the concentration of fluoride is within the prescribed limit (i.e 1.5 mg/L) for drinking water requirement in surface water nearby NSTPS project area. However, as per NSTPS R&R community development scheme, requisite amount has been deposited to PHED, Deptt. Aurangabad for installation of 110 hand pump for safe drinking water in the nearby villages and 90% work is completed.
SC-21	Further an amount of Rs 60.53 Crores shall be earmarked as one-time capital cost for CSR programme as committed by the project proponent. Subsequently a recurring expenditure of Rs 10.40 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within	As per approved Community development (CD) plan under R&R scheme, work has been undertaken for 42.29 cr value upto FY 2021-22. Further, Proposal for 18.23 cr. CD activities is under pipeline for award of the work in FY 2022-2023 and FY 2023-24. Detail annexed as Annexure SC21.1. The recurring expenditure under CSR activities is finalized for Rs. 17.76 cr.

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	six month along with road map for implementation.	for R&M of toilets under SVA scheme and other miscellaneous CSR activities upto FY 2024-25.
SC-22	While identifying CSR activities it shall be ensured that need based assessment for the nearby villages within study area shall be conducted to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people shall be undertaken. Special scheme for Bidi workers of Solapur shall be formulated. Development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. Vocational training programme for possible self-employment and jobs shall be imparted to identified villagers free of cost.	Being complied. The suggested activities are included in approved CD plan by Collector Aurangabad for its implementation. NSTPS sponsored to 30 youths for skill development programme at CIPET Hazipur, Agro based training like vermicomposting provided to 50 PAPs, training for farmers and reimbursement of tuition fees for ITI course to the PAPs/their wards. In future Agro based training shall be imparted as a part of CD plan. Vocational training for skill development of village and sewing training in the village provided. Sewing machine has been provided in all 50 participants. Other need-based skill training shall also being organised in consultation with stakeholders....
SC-23	shall be ensured that in-built monitoring mechanism for the schemes identified is in place and annual social audit shall be got done from the nearest government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time.	Being complied. NSTPS/NTPC Ltd has in-built own system for monitoring and implementation of complete R&R Community Development Plan at the Unit Level, Region level and Corporate level. A specific social audit shall be undertaken after.
General Conditions		
GC-1	A well-designed rainwater harvesting shall be put in place before commissioning of the plant. Central Groundwater Authority/ Board shall be consulted for finalization of appropriate rainwater harvesting technology/design within a period of three months from the date of this clearance and details shall be furnished	Approval of CGW granted for construction of Rainwater harvesting. Vendor selection is in progress for RWH in NSTPS.
GC-2	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with	Provision for adequate safety measures is being implemented as stipulated. Details of safety measures and plant lay out has already been submitted to RO of ministry.

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	location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.	
GC-3	Storage facilities for auxiliary liquid fuel such as LDO and/ HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	License for storage of LDO has been granted by department of Explosive, Nagpur on 16.0.2018 and is valid upto 31.12.2026. Sulphur content in the liquid fuel does not exceed 0.5%. On site disaster management plan has been prepared and implemented.
GC-4	Regular monitoring of ground water level shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out particularly for heavy metals (Hg,Cr,As,Pb) and records maintained and submitted to the Regional Office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project.	Being Complied. Being complied. Ground water analysis report is attached as Annexure-B
GC-5	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.	Being complied Surface water analysis report is attached as Annexure-C
GC-6	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	First Aid and sanitation arrangements have been made for the drivers and other contractors. Toilets and drinking water arrangement are being made at main plant area.
GC-7	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dBA. For people working in the high noise area, requisite personal protective equipment like	Noise level monitoring being done. Noise level monitoring report is attached as Annexure-D

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	earplugs/earmuffs 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.	Requisite Personal protective equipment being ensured, and training imparted, and requisite training being imparted. Periodical examination of workers being carried out working in high noise area.
GC-8	Regular monitoring of ambient air ground level concentration of SO ₂ , NO _x , PM _{2.5} & 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.	AAQM at specified 04 locations is being carried out regularly. AAQM report is attached as Annexure-E . Online Ambient Air Quality station have already been Installed (in consultation with pollution control board) and commissioned and all are operational.
GC-9	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.	Housing of construction labour (as applicable) with all necessary infrastructure and facilities are being provided within the site by concerned agencies as per contract.
GC-10	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are 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.



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GC-11	A copy of the clearance letter shall be sent by the proponent to concern Panchayat, Zila Parisad/ Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions/representations, if any, received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	All three Units in operation. NPGCL Nabinagar is now merged with NTPC Ltd. named as Nabinagar Super Thermal Power Station (NSTPS). Data uploading on NTPC website is in progress.
GC-12	An Environmental Cell shall be created at the project site itself and shall be headed by an officer of appropriate seniority and qualification. It shall be ensured that the head of the Cell shall directly report to the head of the organization.	Complied.
GC-13	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 and the SPCB. The criteria pollutant levels namely, SPM, RSPM (PM _{2.5} & PM ₁₀), SO ₂ , NO _x (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.	Complied.
GC-14	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.

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GC-15	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.	Noted. Compliance report shall be submitted regularly. All three Units in operation. NPGCL Nabinagar is now merged with NTPC Ltd. named as Nabinagar Super Thermal Power Station (NSTPS). Data uploading on NTPC website is in progress.
GC-16	Regional Office of the Ministry of Environment & Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and up-date the same from time to time at least six-monthly basis. Criteria pollutants levels including NO _x (from stack & ambient air) shall be displayed at the main gate of the power plant.	Compliance report shall be submitted regularly. EIA/EMP has been submitted to Regional office. Display Board has been installed at the main Gate of the Power Plant. Real Time Environment Monitoring data is being displayed.
GC-17	Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. This cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	An amount of Rs. 801.3 Crores have been earmarked in the Feasibility Report for Nabinagar STPP towards environmental measures like ESP (102.9 cr), Chimney(95.45 cr), Cooling System (164.32), Ash Handling and Disposal (413.9cr), Effluent Treatment (12.49 cr), Recycle and Reuse, Sewage Treatment (1.0cr), Dust Extraction and Suppression System (2.66 cr), Fire Fighting and Safety, Green Belt and Afforestation etc. (6.0 cr), DM Plant and treatment (1.5 cr), Env.Lab equipments (1.0 cr) Various system are under implementation at site.

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GC-18	The project authorities shall inform the Regional Office as well as the Ministry regarding the 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 plant.	Investment approval for the project was accorded by Board of NTPC Limited on 21.01.2013 and the project is under construction. The First, second and third Unit has been commissioned and commercial operation has been started from 6 th Sep'2019, 23 rd July'2021 and 01 st Jun'2022 respectively.
GC-19	Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bangalore / CPCB/ SPCB who would be monitoring the compliance of environmental status.	Shall be extended as and when required.
ADDITIONAL CONDITIONS (J-13012/127/2007-1A.II(T))		
AC-1	The details of technology selection for adoption of FGD for control of SO _x shall be submitted. In case of wet FGD, details regarding source of limestone, impact of transportation, handling storage and disposal of Gypsum including land requirement shall be submitted.	Details submitted with previous compliance report dt 31.03.20
AC-2	In case SCR/SCNR is not adopted, an alternate technology analysis and justification of technology selection for NO _x reduction is to be submitted.	For NO _x reduction system: The boiler is of sliding pressure supercritical, once-through type, utilizing a Tangential Firing System for NO _x control in addition with SOFA and COFA system.
AC-3	Progress of construction power plant till its commissioning, installation of FGD and De-Nox measures shall be submitted as a part of six-monthly compliance reports.	Details of progress report attached as Annexure-F .
AC-4	Emission norms and specific water consumption as per ministry norms dated 07.12.2018 and 28.12.2018 shall be complied with. As committed, Flue gas desulphurization unit and selective catalytic reactor to control SO ₂ and NO _x respectively shall be installed.	Being complied. FGD erection is under progress.
AC-5	Water requirement for FGD to be installed in the existing units has to be provided.	Water balance diagram has been submitted along with previous compliance report.

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Registered Office : NTPC Bhawan, SCOPE Complex, 7 Institutional Area, Lodhi Road, New Delhi-110 003

कॉरपोरेट आइडेंटिफिकेशन नम्बर / Corporate Identification Number : L40101DL1975GOI007966 वेबसाइट / website:

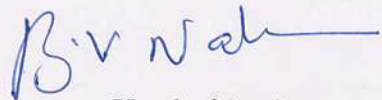
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नबीनगर / Nabinagar

	Therefore, water balance to be modified based on the water requirement for whole units including a plan on ZLD.	
AC-6	The stack emissions (min, max, average and 98 percentile) shall be submitted for the period of six months in the compliance report. Further daily water withdrawal, consumption, power generation and average PLF shall be submitted. The specific water consumption per MWhr shall be calculated based on water consumption shall be submitted in the compliance report.	Stack emission data for compliance period is enclosed at Annexure-G . Water consumption data for compliance period is enclosed at Annexure-H .
AC-7	The plant shall operate only after meeting the new emission norms as notified by ministry. Else, extension of timelines from CPCB for implementing pollution control measures for meeting new norms shall be obtained and copy of the same shall be submitted to Ministry.	SPM is within emission norm. SO _x emission shall be within stipulated norms after FGD installation and commissioning.


C.K.D. Pandey


Head of Station
Nabinagar Super Thermal Power Station,
Nabinagar

बी० वी० नागेश्वर राव / B.V. Nageswara Rao
मुख्य महाप्रबंधक / Chief General Manager
नबीनगर सुपर थर्मल पावर स्टेशन
Nabinagar Super Thermal Power Station

EMTRC CONSULTANTS PRIVATE LIMITED

EMTRC Lab: Recognized by Ministry of Environment, Forests & Climate Change, Govt. of India Gazette Notification SO: 3744 (E), 17-10-2019 Accredited by NABL - ISO/IEC 17025:2017 (TC-7376) Registered Office Tower 5 / 102 (FF), CWG village, NH24, Near Akshardham Temple, Delhi 110092 Phone: 9810032481. 011 21211228. email: emtrcikm@gmail.com . website: www.emtrc.in

-----TEST REPORT-----

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 179/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 1
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Bottom Ash
Date of Sampling : 21-06-2022
Sample Collected & Brought to Lab by : EMTRC Staff

	Parameters	Unit	RESULT
1	Lead	µg/g	4.8
2	Cadmium	µg/g	0.15
3	Chromium	µg/g	4.5
4	Manganese	µg/g	17.8
5	Zinc	µg/g	29.6
6	Copper	µg/g	7.5
7	Nickel	µg/g	8.0
8	Mercury	µg/g	0.04
9	Arsenic	µg/g	0.75
10	Vanadium	µg/g	BDL
11	Iron	µg/g	2.5
12	Selenium	µg/g	BDL

BDL= Below Detection Limits



MUKESH KUMAR
Authorized Signatory

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Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 1
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Fly Ash
Date of Sampling : 21-06-2022
Sample Collected & Brought to Lab by : EMTRC Staff

	Parameters	Unit	RESULT
1	Lead	µg/g	3.2
2	Cadmium	µg/g	0.12
3	Chromium	µg/g	2.2
4	Manganese	µg/g	11.8
5	Zinc	µg/g	15.5
6	Copper	µg/g	2.6
7	Nickel	µg/g	4.5
8	Mercury	µg/g	0.03
9	Arsenic	µg/g	0.28
10	Vanadium	µg/g	BDL
11	Iron	µg/g	1.58
12	Selenium	µg/g	BDL

BDL= Below Detection Limits



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TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 181/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 1
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Coal Sample
Date of Sampling : 21-06-2022
Sample Collected & Brought to Lab by : EMTRC Staff

	Parameters	Unit	RESULT
1	Lead	µg/g	4.5
2	Cadmium	µg/g	0.22
3	Chromium	µg/g	6.8
4	Manganese	µg/g	28.8
5	Zinc	µg/g	39.2
6	Copper	µg/g	8.5
7	Nickel	µg/g	9.2
8	Mercury	µg/g	0.10
9	Arsenic	µg/g	1.42
10	Vanadium	µg/g	BDL
11	Iron	µg/g	3.2
12	Selenium	µg/g	BDL
13	Ash	%	34.95
14	Sulphur	%	0.5

BDL= Below Detection Limits



MUKESH KUMAR
Authorized Signatory



Vardan EnviroLab

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

Test Report

Sample Number:	VEL/NPGCS/C/01	Report No.:	VEL/C/2208260001
Name & Address of the Party:	M/s Nabinagar Power Generating Company (NPGC) Shivanpur, P.O.-Ankhora Railway Station, Bihar Aurangabad, Bihar-824303, India	Format No.:	7.8 F-03
Sample Description:	Coal Sample	Party Reference No.:	4000280838-057-2035 Dated 14.06.2022
Sample Location:	CHP Area	Reporting Date:	31/08/2022
Sample Collected by:	Vardan EnviroLab Representative	Period of Analysis:	26/08/2022 to 31/08/2022
Parameter Required:	As per Work Order	Receipt Date:	26/08/2022
Sampling Quantity:	250 gm.	Sampling Date:	24/08/2022

TEST RESULTS

S. No.	Parameter	Test-Method	Results	Unit
1.	Arsenic (as As)	ICP-MS Method, APHA 3114 B :2012	0.005	mg/L
2.	Lead (as Pb)	ICP-MS Method, APHA 3114 B :2012	0.04	mg/L
3.	Mercury (as Hg)	ICP-MS Method, APHA 3114 B :2012	ND	mg/L
4.	Nickel (as Ni)	ICP-MS Method, APHA 3114 B :2012	1.10	mg/L
5.	Cadmium (as Cd)	ICP-MS Method, APHA 3114 B :2012	ND	mg/L
6.	Selenium (as Se)	ICP-MS Method, APHA 3114 B :2012	ND	mg/L
7.	Vanadium (as V)	ICP-MS Method, APHA 3114 B :2012	ND	mg/L
8.	Chromium (as Cr)	ICP-MS Method, APHA 3114 B :2012	0.90	mg/L
9.	Iron (as Fe)	ICP-MS Method, APHA 3114 B :2012	1.62	mg/L
10.	Copper (as Cu)	ICP-MS Method, APHA 3114 B :2012	ND	mg/L
11.	Zinc (as Zn)	ICP-MS Method, APHA 3114 B :2012	0.29	mg/L
12.	Manganese (as Mn)	ICP-MS Method, APHA 3114 B :2012	0.62	mg/L
13.	Total Sulphur	IS:1350 (Part-III)	0.48	%
14.	Ash	IS:1350 (P-I), 1984	21.46	%

End of Report

Checked By:
Sr. Analyst



www.vardan.co.in

Ph: 0124-4343750/752/753, 9810355569, 9953147268 E-mail: lab@vardan.co.in, bd@vardan.co.in



Vardan EnviroLab

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

Test Report

Sample Number:	VEL/NPGCS/ASH/01	Report No.:	VEL/ASH/2208260001
Name & Address of the Party:	M/s Nabinagar Power Generating Company (NPGC) Shivanpur, P.O.-Ankhora Railway Station, Bihar Aurangabad, Bihar-824303, India	Format No.:	7.8 F-03
Sample Description:	Fly Ash	Party Reference No.:	4000280838-057-2035 Dated 14.06.2022
Sample Collected by:	Vardan EnviroLab Representative	Reporting Date:	31/08/2022
Parameter Required:	As per Work Order	Period of Analysis:	26/08/2022 to 31/08/2022
Sampling Quantity:	250 gm.	Receipt Date:	26/08/2022
		Sampling Date:	24/08/2022

TEST RESULTS

S. No.	Parameter	Test-Method	Results	Unit
1.	Arsenic (as As)	USEPA 3050B & 200.7	BLQ (LOQ-0.5)	mg/kg
2.	Lead (as Pb)	USEPA 3050B & 200.7	3.49	mg/kg
3.	Mercury (as Hg)	USEPA 3050B & 200.7	BLQ (LOQ-0.5)	mg/kg
4.	Nickel (as Ni)	USEPA 3050B & 200.7	3.85	mg/kg
5.	Cadmium (as Cd)	USEPA 3050B & 200.7	BLQ (LOQ-0.5)	mg/kg
6.	Selenium (as Se)	USEPA 3050B & 200.7	BLQ (LOQ-0.5)	mg/kg
7.	Vanadium (as V)	USEPA 3050B & 200.7	BLQ (LOQ-0.5)	mg/kg
8.	Chromium (as Cr)	USEPA 3050B & 200.7	1.99	mg/kg
9.	Iron (as Fe)	USEPA 3050B & 200.7	1.77	mg/kg
10.	Copper (as Cu)	USEPA 3050B & 200.7	3.16	mg/kg
11.	Zinc (as Zn)	USEPA 3050B & 200.7	14.87	mg/kg
12.	Manganese (as Mn)	USEPA 3050B & 200.7	12.05	mg/kg

End of Report

(Checked By)
ANJU INDOLIA
Sr. Analyst



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Vardan EnviroLab

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

Test Report

Sample Number:	VEL/NPGCS/ASH/02	Report No.:	VEL/ASH/2208260002
Name & Address of the Party:	M/s Nabinagar Power Generating Company (NPGC) Shivanpur, P.O.-Ankhora Railway Station, Bihar Aurangabad, Bihar-824303, India	Format No.:	7.8 F-03
Sample Description:	Bottom Ash	Party Reference No.:	4000280838-057-2035 Dated 14.06.2022
Sample Collected by:	Vardan EnviroLab Representative	Reporting Date:	31/08/2022
Parameter Required:	As per Work Order	Period of Analysis:	26/08/2022 to 31/08/2022
Sampling Quantity:	250 gm.	Receipt Date:	26/08/2022
		Sampling Date:	24/08/2022

TEST RESULTS

S. No.	Parameter	Test-Method	Results	Unit
1.	Arsenic (as As)	USEPA 3050B & 200.7	0.81	mg/kg
2.	Lead (as Pb)	USEPA 3050B & 200.7	5.13	mg/kg
3.	Mercury (as Hg)	USEPA 3050B & 200.7	BLQ (LOQ-0.5)	mg/kg
4.	Nickel (as Ni)	USEPA 3050B & 200.7	7.56	mg/kg
5.	Cadmium (as Cd)	USEPA 3050B & 200.7	BLQ (LOQ-0.5)	mg/kg
6.	Selenium (as Se)	USEPA 3050B & 200.7	BLQ (LOQ-0.5)	mg/kg
7.	Vanadium (as V)	USEPA 3050B & 200.7	BLQ (LOQ-0.5)	mg/kg
8.	Chromium (as Cr)	USEPA 3050B & 200.7	4.23	mg/kg
9.	Iron (as Fe)	USEPA 3050B & 200.7	3.41	mg/kg
10.	Copper (as Cu)	USEPA 3050B & 200.7	6.89	mg/kg
11.	Zinc (as Zn)	USEPA 3050B & 200.7	27.56	mg/kg
12.	Manganese (as Mn)	USEPA 3050B & 200.7	16.43	mg/kg

End of Report

Checked By
Sr. Analyst



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Ph: 0124-4343750/752/753, 9810355569, 9953147268 E-mail: lab@vardan.co.in, bd@vardan.co.in

NSTPS R&R-Community Development Activities										
Education (Sath Padhe Sath Badhe) (5.0 crs.)										
Sl. No	Activities completed	LOA no./date	PO no.	Year	Award Value in Cr.	Expenditure incurred in cr.	Remarks	Under award in cr	Activity planned 2022-23	Balance amount
1	Distribution of 6500 School Bags with Stationary and Sweaters in 24 PAVs Govt. School students.			2016	0.45	0.45	Completed			0
2	Quiz & Painting Competition for PAVs Govt. Schools Student.			2017	0.0057	0.0057	Completed			0
3	Distribution of Computers to Kasturba Gandhi Girls school, Nabinagar.			2017	0.033	0.033	Completed			0
4	Skill Development Training Programme for PAVs 29th Students in CEPET, Hajipur.			2018	0.20	0.20	Completed			0
5	Meritorious Award to all PAVs School's for 8th, 10th and 12th passed Students.			2012-2021	0.075	0.075	Completed		0.02	0
6	Distribution of School Furnitures in 24 Govt. schools in affected villages.			2019	1.10	1.10	Completed			0
7	Reimbursement of Scholarship of 115 AP ITI students. (under process)			2019-20	0.36	0.36	Completed			0
8	Procurement of Play equipement for PAVs Govt. schools			2019	0.16	0.16	Completed			0
9	Internal Electrification of Schools under CD activities of NPGC.			2019	0.13	0.1	completed			0.03
10	Tailoring/Sewing Training Programme for PAVs women/girls			2020	0.042	0.025	completed		0.05	0.017
11	Conductioning Sports Compitition for PAVs Govt. School's Student.			2020	0.04	0.04	Completed			0
12	Boundary wall in Middle school Salaiya			2020-21	0.39	0.34	completed			0.0538
13	Development of Govt. school ground			2021-22			Under finalization		0.00	0
14	Library set up in Govt. schools			2021-22			Under finalization		0.040	0
15	Constn. of class rooms in Govt. high school Salaiya			2021-22			under tendering	1.92	0	0
Total Rs. in Crore (A)					2.99	2.89		1.92	0.11	0.10
Health (Sankalp Aarogayam)(6.7 crs.)										
Sl. No	Activities completed			Year	Award Value (Cr)	Expenditure incurred	Remarks	under award	Activity planned 2022-23	
1	Mobile Van Health Service through Indian Red Cross Society, Aurangabad for 22 PAVs .			2013-2021	0.90	0.90	Completed	0.00	0.40	0
2	Mobile Van Health Service through Indian Red Cross Society, Aurangabad for 22 PAVs . (new contract)			2021-23	0.35	0.30	Work in progress	0.00	0.50	0.05
3	03 General Health Camp for PAVs also organized & Eye camp			2016	0.07	0.07	Completed		0.05	0
4	Maternal and child healthcare			2021-22			under proposal		0.2	0
5	Tri- Cycle Distribution to PAVs .			2018	0.032	0.032	Completed		0.04	0
6	Two PHC Construction at Ankorah and Meh.			2017-2020	1.25	0.91	terminated new contract u	0.4		0.34
7	Internal Electrification of PHCs under CD activity.			2019	0.45	0.28	Completed			0.17
8	Tri-cycle Distribution to PAVs Phase-II			2020	0.023	0.023	Completed		0.1	0
9	Mega health check up in villages			2021-23			planned in Augst-Sep '22		0.3	0
10	Furniture and medical equipments to 02 APHC Meh & Ankorha.			2021	0.44	0.40	under procurement	0	0.5	0.04
11	Abulance for PHC			2021			proposed		0.2	0
12	Support to physically challenged			2021			under proposal	0.00	0.10	0
Total Rs. in Crore (B)					3.515	2.915		0.4	2.39	0.6

Sl. No	Activities completed	LOA no./date	PO no.	Year	Award Value in Cr.	Expenditure incurred in cr.	Remarks	Under award in cr	Activity planned 2022-23	Balance amount
Drinking Water (Jal Dhara) (1.5 crs.)										
Sl. No	Activities completed			Year	Award Value (Cr)	Expenditure (Cr)	Remarks	Under award in cr	Activity planned 2022-23	
1	Installation of 10 nos. Hand Pump for Saduri Resstallment Colony.			2018	0.025	0.025	Completed			0
2	Installation of 110 hand pumps in the 22 villages. (on deposit work basis)			2020-21	0.61	0.5	Work in progress			0.11
3	Installation of RO water			2021-22			under proposal	0	0.2	0
4	Installation of 110 hand pumps in the 22 villages. (on deposit work basis)			2021-2022			under proposal		0.6	0
Total Rs. in Crore (C)					0.635	0.53			0.8	0.11
Sanitation (Nirmal) and other activities (0.35+0.30 crs.)										
Sl. No	Activities completed			Year	Awarded Amont (Cr.)	Expenditure (Cr.)	Remarks	Under award in cr	Activity planned 2022-23	Balance amount
1	Distribution of Dustbin, Broom, Duster Cloth, Hand Wash Soap at 05 nos. Govt. Schools at PAVs.			2018	0.02	0.02	Completed			0
2	Community toilets in Govt. schools			2021-22			under proposal		0.23	0
3	swachhata abhiyan			2021-22	0.00		under proposal	0	0.1	0
Total Rs. in Crore (D)					0.02	0.02		0.00	0.33	0.00
Welfare & Cultural Activities (1.30 crs.)										
Sl. No	Activities completed	LOA no.		Year	Awarded Value (Cr.)	Expenditure (Cr.)	Remarks	Under award in cr	Activity planned 2022-23	
1	Assistance of PAPs Girl Marriage			2016	0.001	0.001	Completed			0
2	Distribution of Tripal for Baghi HSOs Resettled at Saduri RC.			2016	0.0043	0.0043	Completed			0
3	Providing 20 nos. Wheel chair to Railway Division, Mughalsarai.			2016	0.0138	0.0138	Completed			0
4	Distribution of 100 Blankets and Cloth, Balti, Tarpoline on request of Indian Cross Society, Aura ngabad.			2017	0.0322	0.0322	Completed			0
5	Sponsoring and Supporting Sports event and other activities.			2017	0.0155	0.0155	Completed			0
6	Vermicompost Training for PAPs by TM Bhagalpur University on 23-24th March 2018 at NPGC Campus.			2018	0.0041	0.0041	Completed			0
7	Distribution of blanket among helpless and poor people of PAPs of NPGCL project			2019-21	0.075	0.075	Completed			0
8	Contribution of Yagya, Rahra Village			2020	0.004	0.004	Completed			0
9	Jal Jivan Hariyali, 2020			2020	0.027	0.027	Completed			0
10	Organizing cricket/ahteletic games tournament for the villagers of the PAVs			2020-22	0.05	0.05	Completed	0	0.06	0
11	COVID-19 welfare activies like Food distribution to villagers, Face mask distribution, Sanitaztion activities			2020	0.28	0.28	Completed			0
12	Skill upgradation training (Agro based training) Vermi Composting and Bee keeping.			2022-23	0.05	0.05	under proposal		0.025	0
13	Blankets distribution to Poor villagers			2021-22	0.00	0.10		0	0.10	
14	Other welfare activities (misc.)			2021-22			under proposal		0.2	0
Total Rs. in Crore (E)					0.51	0.51		0	0.385	0

Sl. No	Activities completed	LOA no./date	PO no.	Year	Award Value in Cr.	Expenditure incurred in cr.	Remarks	Under award in cr	Activity planned 2022-23	Balance amount
Community Development Programme at Aurangabad District (10.40 crs.)										
Sl. No	Activities completed			Year	Awarded Value (Cr.)	Expenditure (Cr.)	Remarks	Under award in cr	Activity planned 2022-23	Balance amount
1	Furnishing of public meeting hall in District office, Aurangabad.			2017	0.066	0.066	Completed			0
2	Construction of Football Stadium at Nabinagar			2017	0.805	0.41	closing under process			0.395
3	Uplifment of Ramesh Chowk in Aurangabad.			2017	0.44	0.44	completed			0
4	Development of Cultural heritage at Deo Block.			2017	3.08	2.35	completed			0.73
5	Development of Gandhi Maidan, Aurangabad.			2017	0.72	0.54	completed			0.184
6	Financial Support during Chhath puja, Bihar Diwas, Sena Diwas, Surya Mahtosav,Goldcup and others Misc. works.			2017-2020	0.43	0.43	Completed.			0
7	Construction of Ground for Flag hosting at Gandhi Maidan Aurangabad			2018	0.07	0.07	Completed.			0
8	Construction of Vehicle Shed and Aluminium Frame Work at DLAO, Aurangabad			2019	0.118	0.118	completed			0
9	Installation of Inter-Telecome at Collectorate office, Aurangabad As per request of DM, Aurangabad			2019	0.04	0.04	completed			0
10	Instllation of Wrestling Mat at Aurangabad			2020	0.04	0.04	Completed			0
11	Installation of A.C. at Collectorate office, Aurangabad As per request of DM, Aurangabad			2020	0.035	0.035	Completed			0
12	Boundarywall, Gate and other misc. works at Gandhi Maidan aurangabad			2020	0.78	0.62	completed			0.16
13	Godrej furniture at DIstrict Collectorate			2021	0.08	0.08	Completed			0
14	200 KV DG Set for Aurangabad hospital.			2021			under finalization	0.24		0
15	Wooden Badminton court			2021	0.118	0.11	completed	0.00		0.008
16	Community hall			2021-22			under finalization		0.80	0
17	Other infrastruture workt on recommendation of Distt. Admn.			2021-22			Under finalization		1.00	0
Total Rs. in Crore (F)					6.82	5.35		0.24	1.8	1.477
INFRASTRUCTURE (Buniyadi Sanrachna) (34.98 Crs.)										
Sl. No	Activities completed			Year	Awarded Value (In Cr.)	Expenditure (In Cr.)	Remarks	Under award	Activity planned 2022-23	Balance amount
1	Construction of Road near by village & Repair Ankorha-Majhiwan Road			2016-17	0.93	0.60	Completed			0.33
2	Construction of PCC Road at Kundwa to Indrapura			2018-20	0.66	0.48	Completed			0.18
3	Construction of PCC Road to village Parsa			2017	0.39	0.37	Completed			0.02
4	Construction of PCC Road to village Ankhora			2018-19	0.44	0.4	Completed			0.04
5	Construction of PCC Road to village Meh			2019-20	0.18	0.095	Completed			0.085

Sl. No	Activities completed	LOA no./date	PO no.	Year	Award Value in Cr.	Expenditure incurred in cr.	Remarks	Under award in cr	Activity planned 2022-23	Balance amount
6	Madhe Community Ghat			2017-18	0.165	0.165	Completed			0
7	Narari Khurd Community Ghat			2017-19	0.20	0.17	Completed			0.03
8	Construction of PCC Road to village Madhe-Sivanpur			2017	0.27	0.272	Completed			-0.002
9	Construction of PCC Road to village Sasna			2016	0.19	0.15	Completed			0.04
10	Construction of PCC Road to village Nararikala Village			2017	0.23	0.21	Completed			0.02
11	Construction of PCC Road to village Prembiga Village			2018	0.19	0.17	Completed			0.02
12	Construction of temporary drain at Marar Sargara Vilage			2018	0.009	0.0069	Completed			0.0021
13	Strengthening of Ankohra village apporoch Road			2018	0.045	0.04	Completed			0.005
14	Construction of PCC Ground at community centre Shivanpur			2018	0.03	0.03	Completed			0
15	Construction of PCC Road to village Nararikhurd			2019	0.34	0.20	Completed			0.14
16	Construction of PCC Road to village Benibigha			2017-19	0.67	0.67	Completed			0
17	Construction of Road at Belauti Village			2019	0.13	0.08	Completed			0.05
18	Construction of Road at Pathra Village			2019	0.21	0.16	Completed			0.05
19	Construction of Road & Drain at Raghunathpur Village			2020	0.60	0.30	Completed			0.3
20	Construction of Road at Rampur Village			2019-20	0.36	0.30	Completed			0.06
21	Construction of Road & Drain at Saduri R C			2019-20	0.22	0.15	Completed			0.07
22	Construction of PCC Road at Simra Dusad Village			2019-20	0.49	0.26	completed			0.23

Sl. No	Activities completed	LOA no./date	PO no.	Year	Award Value in Cr.	Expenditure incurred in cr.	Remarks	Under award in cr	Activity planned 2022-23	Balance amount
23	Construction of Power Sub Station in Kundwa Village			2016-19	5.66	5.65	Completed			0.01
24	Supply Installation of 100 Nos. Solar Street Light System for Project Affected Villages of NPGC			2016-17	0.265	0.265	Completed			0
25	Madhe Road Repairs			2016	0.04	0.04	Completed			0
26	Reparing & maintenance of Road from Narari Khurd Thana to Gate no 01			2019	0.04	0.04	Completed			0
27	Shifting of Chourahi Baba Religious place from Main Plant area.			2020	0.215	0.11	work under progress			0.105
28	Construction of road at Madar under CD activities of NPGC			2020	0.582	0.483	completed			0.099
29	Construction of internal road & Drain at Saduri Village under CD Activities			2020	0.233	0.22	completed			0.013
30	Construction of PCC Roads and drainage system PAVs ,under CD activities (Kurwa village-Ash dyke area)			2020	0.34	0.34	completed			0
31	Construction of Road at Khaira under CD activities of NPGC			2020	0.534	0.38	completed			0.154
32	Construction of internal road at Meh under CD activities of NPGC			2020	0.48	0.48	completed			0
33	Strengthening of Meh-Indrapuri Barrage road			2020	1.48	1.01	completed			0.47
34	Construction of road at Rahara under CD activities of NPGC			2020	1.035	0.60	completed			0.435
35	Construction of road at Kurwa under CD activities of NPGC			2020	1.19	1.01	completed			0.18
36	Construction and development work of Ghat at village-Salaiya under CD activities for NPGC			2020	0.24	0.22	completed			0.02
37	Construction of road & drains at Ankorha under CD activities of NPGC			2020-21	1.78	1.20	work under progress	0		0.58
38	Construction of road on both side of boundary wall along approach road leading to plant under CD works			2020-21	0.785	0.74	Completed			0.045
39	Construction of road at Majhiwan under CD activities of NPGC			2020-21	0.69	0.61	Work in progress			0.08
40	Construction of Roads at village-Sasna under CD activities for NPGC			2020-21	0.68	0.41	Work in progress			0.27
41	Construction of road at Madhe under CD activities of NPGC			2020-21	2.27	1.68	work under progress			0.59

Sl. No	Activities completed	LOA no./date	PO no.	Year	Award Value in Cr.	Expenditure incurred in cr.	Remarks	Under award in cr	Activity planned 2022-23	Balance amount
42	Construction of road at Shivanpur under CD activities of NPGC			2020-21		0	work yet to award	1.00		0
43	Construction of Dariyabad Internal Road			2020-21	0.215	0.215	completed & closed			0
44	Construction of PCC Road and drainage system PAVs under CD activities (Khaira-Dariyabad)			2020-21	0.36	0.35	completed			0.01
45	Construction of Road at Amba under CD activities of NPGC			2020-21	0.165	0.165	Completed.			0
46	Construction of Kurhwa link road connecting labour colony road(along north main plant boundary wall) and Kurhwa-Ankorha road) under CD works of NPGC			2020-21	0.43	0.40	Completed			0.03
47	Construction of PCC road at Village -Indrapura under CD Activities for NPGC			2020-21	0.10	0.10	Completed			0
48	Construction of Belauti-salaiya Cement concrete road			2020-21	0.69	0.55	Under Progress90% completed			0.14
49	Construction of road in village Benibigha			2021	0		under vetting		0.38	0
50	construction of ghat in kudwan			2021-22			under vetting	0.7		0
51	Balance road in kudwan			2021-22			Under finalization		0.5	0
52	Balance road in Marar			2021-22			Under finalization		0.37	0
53	Balance road in shivanpur			2021-22			Under finalization		1.42	0
54	Construction (Relocation) of Temple on Govt land in Saduri rehabilitation colony.			2020-21	0.1	0.1	completed			0
55	Constn. of community hall at Badem			2021	0.24	0.12	Under Progress	0		0.12
57	Constn of road and drain in villages			2021-22			Under finalization		1.5	0
58	Other infrasturture work in consultation with stakeholders			2021-22			Under finalization		1.20	0
Total Amount (G)					27.788	22.7669		1.7	5.37	5.0211
										0
Total Amount in Cr. (A+B+C+D+E+F+G)					42.2737	34.96		4.26	11.185	7.3089
Total CD Budget in Crs				60.53						0

Sl. No	Community Development activities	Amount (Rs. in cr.)	Total Awarded Amount	Executed	Under Award	Activity planned
1	EDUCATION (Sath Padhe Sath Badhe)	5.00	2.99	2.89	1.92	0.11
2	HEALTH (Sankalp Arogyam)	6.70	3.52	2.92	0.40	2.39
3	DRINKING WATER (Nirmal Jal)	1.50	0.64	0.53	0.00	0.8
4	SANITATION (Nirmal)	0.35	0.02	0.02	0.00	0.33
5	INFRASTRUCTURE (Buniyadi Sanrachna)	34.98	27.79	22.77	1.70	5.37
6	WELFARE, SPORTS & CULTURAL ACTIVITIES	1.30	0.51	0.51	0.00	0.385
7	OTHERS	0.30	0.00	0.00	0.00	0
8	COMMUNITY DEVELOPMENT PROGRAMME AT AURANGABAD	10.40	6.82	5.35	0.24	1.8
	TOTAL Rs. (In cr.)	60.53	42.27	34.96	4.26	11.19

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TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 167/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 2
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Ground Water
Date of Sampling : 14-06-2022
Location of Sampling : Meh Bazar
Sampling Procedure : Grab Sampling
Sample Collected & Brought to Lab by : EMTRC Staff

TEST RESULTS

	Parameters	Unit	Test Methods	RESULT	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	Temperature	°C	APHA, 23 rd Ed.2017-2550B	26	-	-
2	pH	-	APHA, 23 rd Ed.2017-4500B	8.01	6.5 to 8.5	No relaxation
3	Turbidity	NTU	APHA, 23 rd Ed.2017-2030B	<0.5	1	5
4	Conductivity	µmhos/cm	APHA, 23 rd Ed.2017-2510	660	-	-
5	Total Dissolved Solids	mg/l	APHA, 23 rd Ed.2017-2540B	450	500	2000
6	Total Suspended Solids	mg/l	APHA, 23 rd Ed.2017-2540B	4	-	-
7	Dissolved Oxygen	mg/l	APHA, 23 rd Ed.2017-4500C	Nil	-	-
8	BOD (3 Days 27°C)	mg/l	IS 3025 (Part 44) 1993	<1.0	-	-
9	COD	mg/l	APHA, 23 rd Ed.2017-5220C	<5.0	-	-
10	P-Alkalinity	mg/l	APHA, 23 rd Ed.2017-2320B	BDL	200	600
11	M-Alkalinity	mg/l	APHA, 23 rd Ed.2017-2320B	140	200	600
12	Total Hardness as CaCO ₃	mg/l	APHA, 23 rd Ed.2017-2340C	170	200	600
13	Calcium as Ca	mg/l	APHA, 23 rd Ed.2017-4500B	44	75	200
14	Magnesium as Mg	mg/l	APHA, 23 rd Ed.2017-4500B	14.6	30	100
15	Sodium	mg/l	APHA, 23 rd Ed.2017-3500B	24	-	-
16	Potassium	mg/l	APHA, 23 rd Ed.2017-3500B	1.8	-	-
17	Chlorides as Cl	mg/l	APHA, 23 rd Ed.2017-4500B	35	250	1000
18	Sulphate as SO ₄	mg/l	APHA, 23 rd Ed.2017-4500E	38	200	400
19	Nitrates as NO ₃	mg/l	APHA, 23 rd Ed.2017-4500	10.8	45	No relaxation
20	Fluoride as F	mg/l	APHA, 23 rd Ed.2017-4500D	0.58	1.0	1.5
21	Reactive silica as SiO ₃	mg/l	APHA, 23 rd Ed.2017-4500A+C	7.0	-	-
22	Colloidal silica as SiO ₃	mg/l	APHA, 23 rd Ed.2017-4500A+B	<0.1	-	-
23	Total Organic Carbon as TOC	mg/l	APHA, 23 rd Ed.2017-5310A+B	<0.02	-	-
24	Boron as B	mg/l	APHA, 23 rd Ed.2017-4500B	<0.2	0.5	1.0
25	Iron as Fe	mg/l	APHA, 23 rd Ed.2017-3111B	0.18	0.3	No relaxation
26	Copper as Cu	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	0.05	1.5
27	Zinc as Zn	mg/l	APHA, 23 rd Ed.2017-3111B	<0.1	5	15
28	Nickel as Ni	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	0.02	No relaxation
29	Manganese as Mn	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.1	0.3
30	Vanadium as V	mg/l	APHA, 23 rd Ed.2017-3111B	<0.002	-	-
31	Arsenic as As	mg/l	APHA, 23 rd Ed.2017-3114	<0.001	0.01	0.05

ENVIRONMENT MONITORING TRAINING & RESEARCH CENTRE

EMTRC Lab: F-66, Road-2, UPSIDC Industrial Area, Masuri Gulawthi Road, Ghaziabad (UP) 201009

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Tower 5 / 102 (FF), CWG village, NH24, Near Akshardham Temple, Delhi 110092
Phone: 9810032481. 011 21211228. email: emtrcikm@gmail.com . website: www.emtrc.in

32	Lead as Pb	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	0.01	No relaxation
33	Chromium as Cr ⁺³	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
34	Chromium as Cr ⁺⁶	mg/l	APHA, 23 rd Ed.2017-3500B	<0.05	0.05	No relaxation
35	Total Chromium as Cr	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
36	Selenium as Se	mg/l	IS3025(Part 56)	<0.01	0.01	No relaxation
37	Cadmium as Cd	mg/l	APHA, 23 rd Ed.2017-3111B	<0.001	0.003	No relaxation
38	Mercury as Hg	mg/l	APHA, 23 rd Ed.2017-3112	<0.001	0.001	No relaxation
39	Total coliform	MPN/100ml	APHA, 23 rd Ed.2017-9230B	Nil	Nil	Nil
40	E.coli	MPN/100ml	APHA, 23 rd Ed.2017-9230F	Nil	Nil	Nil

BDL= Below Detection Limits



MUKESH KUMAR
Authorized Signatory

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TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 168/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 2
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Ground Water
Date of Sampling : 14-06-2022
Location of Sampling : Switch Yard (Near Road)
Sampling Procedure : Grab Sampling
Sample Collected & Brought to Lab by : EMTRC Staff

TEST RESULTS

	Parameters	Unit	Test Methods	RESULT	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	Temperature	°C	APHA, 23 rd Ed.2017-2550B	26	-	-
2	pH	-	APHA, 23 rd Ed.2017-4500B	7.72	6.5 to 8.5	No relaxation
3	Turbidity	NTU	APHA, 23 rd Ed.2017-2030B	<0.5	1	5
4	Conductivity	µmhos/cm	APHA, 23 rd Ed.2017-2510	620	-	-
5	Total Dissolved Solids	mg/l	APHA, 23 rd Ed.2017-2540B	410	500	2000
6	Total Suspended Solids	mg/l	APHA, 23 rd Ed.2017-2540B	4	-	-
7	Dissolved Oxygen	mg/l	APHA, 23 rd Ed.2017-4500C	Nil	-	-
8	BOD (3 Days 27°C)	mg/l	IS 3025 (Part 44) 1993	<1.0	-	-
9	COD	mg/l	APHA, 23 rd Ed.2017-5220C	<5.0	-	-
10	P-Alkalinity	mg/l	APHA, 23 rd Ed.2017-2320B	BDL	200	600
11	M-Alkalinity	mg/l	APHA, 23 rd Ed.2017-2320B	130	200	600
12	Total Hardness as CaCO ₃	mg/l	APHA, 23 rd Ed.2017-2340C	120	200	600
13	Calcium as Ca	mg/l	APHA, 23 rd Ed.2017-4500B	40	75	200
14	Magnesium as Mg	mg/l	APHA, 23 rd Ed.2017-4500B	4.8	30	100
15	Sodium	mg/l	APHA, 23 rd Ed.2017-3500B	20	-	-
16	Potassium	mg/l	APHA, 23 rd Ed.2017-3500B	1.5	-	-
17	Chlorides as Cl	mg/l	APHA, 23 rd Ed.2017-4500B	26	250	1000
18	Sulphate as SO ₄	mg/l	APHA, 23 rd Ed.2017-4500E	30	200	400
19	Nitrates as NO ₃	mg/l	APHA, 23 rd Ed.2017-4500	8.5	45	No relaxation
20	Fluoride as F	mg/l	APHA, 23 rd Ed.2017-4500D	0.52	1.0	1.5
21	Reactive silica as SiO ₃	mg/l	APHA, 23 rd Ed.2017-4500A+C	6.8	-	-
22	Colloidal silica as SiO ₃	mg/l	APHA, 23 rd Ed.2017-4500A+B	<0.1	-	-
23	Total Organic Carbon as TOC	mg/l	APHA, 23 rd Ed.2017-5310A+B	<0.02	-	-
24	Boron as B	mg/l	APHA, 23 rd Ed.2017-4500B	<0.2	0.5	1.0
25	Iron as Fe	mg/l	APHA, 23 rd Ed.2017-3111B	0.16	0.3	No relaxation
26	Copper as Cu	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	0.05	1.5
27	Zinc as Zn	mg/l	APHA, 23 rd Ed.2017-3111B	<0.1	5	15
28	Nickel as Ni	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	0.02	No relaxation
29	Manganese as Mn	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.1	0.3

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30	Vanadium as V	mg/l	APHA, 23 rd Ed.2017-3111B	<0.002	-	-
31	Arsenic as As	mg/l	APHA, 23 rd Ed.2017-3114	<0.001	0.01	0.05
32	Lead as Pb	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	0.01	No relaxation
33	Chromium as Cr ⁺³	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
34	Chromium as Cr ⁺⁶	mg/l	APHA, 23 rd Ed.2017-3500B	<0.05	0.05	No relaxation
35	Total Chromium as Cr	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
36	Selenium as Se	mg/l	IS3025(Part 56)	<0.01	0.01	No relaxation
37	Cadmium as Cd	mg/l	APHA, 23 rd Ed.2017-3111B	<0.001	0.003	No relaxation
38	Mercury as Hg	mg/l	APHA, 23 rd Ed.2017-3112	<0.001	0.001	No relaxation
39	Total coliform	MPN/100ml	APHA, 23 rd Ed.2017-9230B	Nil	Nil	Nil
40	E.coli	MPN/100ml	APHA, 23 rd Ed.2017-9230F	Nil	Nil	Nil

BDL= Below Detection Limits



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TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 169/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 2
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Ground Water
Date of Sampling : 14-06-2022
Location of Sampling : Shivanpur (Pota Cabin)
Sampling Procedure : Grab Sampling
Sample Collected & Brought to Lab by : EMTRC Staff

TEST RESULTS

	Parameters	Unit	Test Methods	RESULT	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	Temperature	°C	APHA, 23 rd Ed.2017-2550B	26	-	-
2	pH	-	APHA, 23 rd Ed.2017-4500B	7.85	6.5 to 8.5	No relaxation
3	Turbidity	NTU	APHA, 23 rd Ed.2017-2030B	<0.5	1	5
4	Conductivity	µmhos/cm	APHA, 23 rd Ed.2017-2510	590	-	-
5	Total Dissolved Solids	mg/l	APHA, 23 rd Ed.2017-2540B	400	500	2000
6	Total Suspended Solids	mg/l	APHA, 23 rd Ed.2017-2540B	6	-	-
7	Dissolved Oxygen	mg/l	APHA, 23 rd Ed.2017-4500C	Nil	-	-
8	BOD (3 Days 27°C)	mg/l	IS 3025 (Part 44) 1993	<1.0	-	-
9	COD	mg/l	APHA, 23 rd Ed.2017-5220C	<5.0	-	-
10	P-Alkalinity	mg/l	APHA, 23 rd Ed.2017-2320B	BDL	200	600
11	M-Alkalinity	mg/l	APHA, 23 rd Ed.2017-2320B	154	200	600
12	Total Hardness as CaCO ₃	mg/l	APHA, 23 rd Ed.2017-2340C	150	200	600
13	Calcium as Ca	mg/l	APHA, 23 rd Ed.2017-4500B	48	75	200
14	Magnesium as Mg	mg/l	APHA, 23 rd Ed.2017-4500B	7.3	30	100
15	Sodium	mg/l	APHA, 23 rd Ed.2017-3500B	22	-	-
16	Potassium	mg/l	APHA, 23 rd Ed.2017-3500B	1.6	-	-
17	Chlorides as Cl	mg/l	APHA, 23 rd Ed.2017-4500B	25	250	1000
18	Sulphate as SO ₄	mg/l	APHA, 23 rd Ed.2017-4500E	7.2	200	400
19	Nitrates as NO ₃	mg/l	APHA, 23 rd Ed.2017-4500	4.8	45	No relaxation
20	Fluoride as F	mg/l	APHA, 23 rd Ed.2017-4500D	0.45	1.0	1.5
21	Reactive silica as SiO ₃	mg/l	APHA, 23 rd Ed.2017-4500A+C	6.5	-	-
22	Colloidal silica as SiO ₃	mg/l	APHA, 23 rd Ed.2017-4500A+B	<0.1	-	-
23	Total Organic Carbon as TOC	mg/l	APHA, 23 rd Ed.2017-5310A+B	<0.02	-	-
24	Boron as B	mg/l	APHA, 23 rd Ed.2017-4500B	<0.2	0.5	1.0
25	Iron as Fe	mg/l	APHA, 23 rd Ed.2017-3111B	0.15	0.3	No relaxation
26	Copper as Cu	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	0.05	1.5
27	Zinc as Zn	mg/l	APHA, 23 rd Ed.2017-3111B	<0.1	5	15
28	Nickel as Ni	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	0.02	No relaxation
29	Manganese as Mn	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.1	0.3
30	Vanadium as V	mg/l	APHA, 23 rd Ed.2017-3111B	<0.002	-	-
31	Arsenic as As	mg/l	APHA, 23 rd Ed.2017-3114	<0.001	0.01	0.05
32	Lead as Pb	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	0.01	No relaxation

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Phone: 9810032481. 011 21211228. email: emtrcikm@gmail.com . website: www.emtrc.in

33	Chromium as Cr ⁺³	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
34	Chromium as Cr ⁺⁶	mg/l	APHA, 23 rd Ed.2017-3500B	<0.05	0.05	No relaxation
35	Total Chromium as Cr	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
36	Selenium as Se	mg/l	IS3025(Part 56)	<0.01	0.01	No relaxation
37	Cadmium as Cd	mg/l	APHA, 23 rd Ed.2017-3111B	<0.001	0.003	No relaxation
38	Mercury as Hg	mg/l	APHA, 23 rd Ed.2017-3112	<0.001	0.001	No relaxation
39	Total coliform	MPN/100ml	APHA, 23 rd Ed.2017-9230B	Nil	Nil	Nil
40	E.coli	MPN/100ml	APHA, 23 rd Ed.2017-9230F	Nil	Nil	Nil

BDL= Below Detection Limits



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TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 170/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 2
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Ground Water
Date of Sampling : 14-06-2022
Location of Sampling : Near Auxiliary Boiler Inside the Plant
Sampling Procedure : Grab Sampling
Sample Collected & Brought to Lab by : EMTRC Staff

TEST RESULTS

	Parameters	Unit	Test Methods	RESULT	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	Temperature	°C	APHA, 23 ¹⁰ Ed.2017-2550B	26	-	-
2	pH	-	APHA, 23 ¹⁰ Ed.2017-4500B	7.74	6.5 to 8.5	No relaxation
3	Turbidity	NTU	APHA, 23 ¹⁰ Ed.2017-2030B	<0.5	1	5
4	Conductivity	µmhos/cm	APHA, 23 ¹⁰ Ed.2017-2510	270	-	-
5	Total Dissolved Solids	mg/l	APHA, 23 ¹⁰ Ed.2017-2540B	190	500	2000
6	Total Suspended Solids	mg/l	APHA, 23 ¹⁰ Ed.2017-2540B	4	-	-
7	Dissolved Oxygen	mg/l	APHA, 23 ¹⁰ Ed.2017-4500C	Nil	-	-
8	BOD (3 Days 27°C)	mg/l	IS 3025 (Part 44) 1993	<1.0	-	-
9	COD	mg/l	APHA, 23 ¹⁰ Ed.2017-5220C	<5.0	-	-
10	P-Alkalinity	mg/l	APHA, 23 ¹⁰ Ed.2017-2320B	BDL	200	600
11	M-Alkalinity	mg/l	APHA, 23 ¹⁰ Ed.2017-2320B	70	200	600
12	Total Hardness as CaCO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-2340C	90	200	600
13	Calcium as Ca	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	32	75	200
14	Magnesium as Mg	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	2.4	30	100
15	Sodium	mg/l	APHA, 23 ¹⁰ Ed.2017-3500B	15	-	-
16	Potassium	mg/l	APHA, 23 ¹⁰ Ed.2017-3500B	0.4	-	-
17	Chlorides as Cl	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	12	250	1000
18	Sulphate as SO ₄	mg/l	APHA, 23 ¹⁰ Ed.2017-4500E	3.8	200	400
19	Nitrates as NO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500	2.5	45	No relaxation
20	Fluoride as F	mg/l	APHA, 23 ¹⁰ Ed.2017-4500D	0.36	1.0	1.5
21	Reactive silica as SiO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500A+C	4.8	-	-
22	Colloidal silica as SiO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500A+B	<0.1	-	-
23	Total Organic Carbon as TOC	mg/l	APHA, 23 ¹⁰ Ed.2017-5310A+B	<0.02	-	-
24	Boron as B	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	<0.2	0.5	1.0
25	Iron as Fe	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	0.06	0.3	No relaxation
26	Copper as Cu	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.05	1.5
27	Zinc as Zn	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	0.15	5	15
28	Nickel as Ni	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.02	No relaxation
29	Manganese as Mn	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.05	0.1	0.3
30	Vanadium as V	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.002	-	-
31	Arsenic as As	mg/l	APHA, 23 ¹⁰ Ed.2017-3114	<0.001	0.01	0.05
32	Lead as Pb	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.01	No relaxation

ENVIRONMENT MONITORING TRAINING & RESEARCH CENTRE

EMTRC Lab: F-66, Road-2, UPSIDC Industrial Area, Masuri Gulawthi Road, Ghaziabad (UP) 201009

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33	Chromium as Cr ⁺³	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
34	Chromium as Cr ⁺⁶	mg/l	APHA, 23 rd Ed.2017-3500B	<0.05	0.05	No relaxation
35	Total Chromium as Cr	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
36	Selenium as Se	mg/l	IS3025(Part 56)	<0.01	0.01	No relaxation
37	Cadmium as Cd	mg/l	APHA, 23 rd Ed.2017-3111B	<0.001	0.003	No relaxation
38	Mercury as Hg	mg/l	APHA, 23 rd Ed.2017-3112	<0.001	0.001	No relaxation
39	Total coliform	MPN/100ml	APHA, 23 rd Ed.2017-9230B	Nil	Nil	Nil
40	E.coli	MPN/100ml	APHA, 23 rd Ed.2017-9230F	Nil	Nil	Nil

BDL= Below Detection Limits



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TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 171/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 2
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Ground Water
Date of Sampling : 14-06-2022
Location of Sampling : Narari Kurd
Sampling Procedure : Grab Sampling
Sample Collected & Brought to Lab by : EMTRC Staff

TEST RESULTS

	Parameters	Unit	Test Methods	RESULT	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	Temperature	°C	APHA, 23 ¹⁰ Ed.2017-2550B	26	-	-
2	pH	-	APHA, 23 ¹⁰ Ed.2017-4500B	8.14	6.5 to 8.5	No relaxation
3	Turbidity	NTU	APHA, 23 ¹⁰ Ed.2017-2030B	<0.5	1	5
4	Conductivity	µmhos/cm	APHA, 23 ¹⁰ Ed.2017-2510	470	-	-
5	Total Dissolved Solids	mg/l	APHA, 23 ¹⁰ Ed.2017-2540B	320	500	2000
6	Total Suspended Solids	mg/l	APHA, 23 ¹⁰ Ed.2017-2540B	4	-	-
7	Dissolved Oxygen	mg/l	APHA, 23 ¹⁰ Ed.2017-4500C	Nil	-	-
8	BOD (3 Days 27°C)	mg/l	IS 3025 (Part 44) 1993	<1.0	-	-
9	COD	mg/l	APHA, 23 ¹⁰ Ed.2017-5220C	<5.0	-	-
10	P-Alkalinity	mg/l	APHA, 23 ¹⁰ Ed.2017-2320B	BDL	200	600
11	M-Alkalinity	mg/l	APHA, 23 ¹⁰ Ed.2017-2320B	104	200	600
12	Total Hardness as CaCO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-2340C	90	200	600
13	Calcium as Ca	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	32	75	200
14	Magnesium as Mg	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	2.4	30	100
15	Sodium	mg/l	APHA, 23 ¹⁰ Ed.2017-3500B	20	-	-
16	Potassium	mg/l	APHA, 23 ¹⁰ Ed.2017-3500B	1.1	-	-
17	Chlorides as Cl	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	22	250	1000
18	Sulphate as SO ₄	mg/l	APHA, 23 ¹⁰ Ed.2017-4500E	14.5	200	400
19	Nitrates as NO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500	4.2	45	No relaxation
20	Fluoride as F	mg/l	APHA, 23 ¹⁰ Ed.2017-4500D	0.45	1.0	1.5
21	Reactive silica as SiO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500A+C	6.2	-	-
22	Colloidal silica as SiO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500A+B	<0.1	-	-
23	Total Organic Carbon as TOC	mg/l	APHA, 23 ¹⁰ Ed.2017-5310A+B	<0.02	-	-
24	Boron as B	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	<0.2	0.5	1.0
25	Iron as Fe	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	0.15	0.3	No relaxation
26	Copper as Cu	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.05	1.5
27	Zinc as Zn	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.1	5	15
28	Nickel as Ni	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.02	No relaxation
29	Manganese as Mn	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.05	0.1	0.3
30	Vanadium as V	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.002	-	-
31	Arsenic as As	mg/l	APHA, 23 ¹⁰ Ed.2017-3114	<0.001	0.01	0.05
32	Lead as Pb	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.01	No relaxation

ENVIRONMENT MONITORING TRAINING & RESEARCH CENTRE

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33	Chromium as Cr ⁺³	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
34	Chromium as Cr ⁺⁶	mg/l	APHA, 23 rd Ed.2017-3500B	<0.05	0.05	No relaxation
35	Total Chromium as Cr	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
36	Selenium as Se	mg/l	IS3025(Part 56)	<0.01	0.01	No relaxation
37	Cadmium as Cd	mg/l	APHA, 23 rd Ed.2017-3111B	<0.001	0.003	No relaxation
38	Mercury as Hg	mg/l	APHA, 23 rd Ed.2017-3112	<0.001	0.001	No relaxation
39	Total coliform	MPN/100ml	APHA, 23 rd Ed.2017-9230B	Nil	Nil	Nil
40	E.coli	MPN/100ml	APHA, 23 rd Ed.2017-9230F	Nil	Nil	Nil

BDL= Below Detection Limits



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TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 172/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 2
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(Version: 1, Date: 07.12.2020)
Type of Sample : Ground Water
Date of Sampling : 14-06-2022
Location of Sampling : Near C-Type Quarter
Sampling Procedure : Grab Sampling
Sample Collected & Brought to Lab by : EMTRC Staff

TEST RESULTS

	Parameters	Unit	Test Methods	RESULT	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	Temperature	°C	APHA, 23 ¹⁰ Ed.2017-2550B	26	-	-
2	pH	-	APHA, 23 ¹⁰ Ed.2017-4500B	7.68	6.5 to 8.5	No relaxation
3	Turbidity	NTU	APHA, 23 ¹⁰ Ed.2017-2030B	<0.5	1	5
4	Conductivity	µmhos/cm	APHA, 23 ¹⁰ Ed.2017-2510	440	-	-
5	Total Dissolved Solids	mg/l	APHA, 23 ¹⁰ Ed.2017-2540B	290	500	2000
6	Total Suspended Solids	mg/l	APHA, 23 ¹⁰ Ed.2017-2540B	5	-	-
7	Dissolved Oxygen	mg/l	APHA, 23 ¹⁰ Ed.2017-4500C	Nil	-	-
8	BOD (3 Days 27°C)	mg/l	IS 3025 (Part 44) 1993	<1.0	-	-
9	COD	mg/l	APHA, 23 ¹⁰ Ed.2017-5220C	<5.0	-	-
10	P-Alkalinity	mg/l	APHA, 23 ¹⁰ Ed.2017-2320B	BDL	200	600
11	M-Alkalinity	mg/l	APHA, 23 ¹⁰ Ed.2017-2320B	110	200	600
12	Total Hardness as CaCO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-2340C	90	200	600
13	Calcium as Ca	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	28	75	200
14	Magnesium as Mg	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	4.8	30	100
15	Sodium	mg/l	APHA, 23 ¹⁰ Ed.2017-3500B	16	-	-
16	Potassium	mg/l	APHA, 23 ¹⁰ Ed.2017-3500B	0.5	-	-
17	Chlorides as Cl	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	15	250	1000
18	Sulphate as SO ₄	mg/l	APHA, 23 ¹⁰ Ed.2017-4500E	10.8	200	400
19	Nitrates as NO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500	4.5	45	No relaxation
20	Fluoride as F	mg/l	APHA, 23 ¹⁰ Ed.2017-4500D	0.42	1.0	1.5
21	Reactive silica as SiO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500A+C	5.6	-	-
22	Colloidal silica as SiO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500A+B	<0.1	-	-
23	Total Organic Carbon as TOC	mg/l	APHA, 23 ¹⁰ Ed.2017-5310A+B	<0.02	-	-
24	Boron as B	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	<0.2	0.5	1.0
25	Iron as Fe	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	0.10	0.3	No relaxation
26	Copper as Cu	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.05	1.5
27	Zinc as Zn	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.1	5	15
28	Nickel as Ni	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.02	No relaxation
29	Manganese as Mn	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.05	0.1	0.3
30	Vanadium as V	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.002	-	-
31	Arsenic as As	mg/l	APHA, 23 ¹⁰ Ed.2017-3114	<0.001	0.01	0.05
32	Lead as Pb	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.01	No relaxation

ENVIRONMENT MONITORING TRAINING & RESEARCH CENTRE

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33	Chromium as Cr ⁺³	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
34	Chromium as Cr ⁺⁶	mg/l	APHA, 23 rd Ed.2017-3500B	<0.05	0.05	No relaxation
35	Total Chromium as Cr	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
36	Selenium as Se	mg/l	IS3025(Part 56)	<0.01	0.01	No relaxation
37	Cadmium as Cd	mg/l	APHA, 23 rd Ed.2017-3111B	<0.001	0.003	No relaxation
38	Mercury as Hg	mg/l	APHA, 23 rd Ed.2017-3112	<0.001	0.001	No relaxation
39	Total coliform	MPN/100ml	APHA, 23 rd Ed.2017-9230B	Nil	Nil	Nil
40	E.coli	MPN/100ml	APHA, 23 rd Ed.2017-9230F	Nil	Nil	Nil

BDL= Below Detection Limits



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TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 173/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 2
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Ground Water
Date of Sampling : 14-06-2022
Location of Sampling : Near D-Type Quarter
Sampling Procedure : Grab Sampling
Sample Collected & Brought to Lab by : EMTRC Staff

TEST RESULTS

	Parameters	Unit	Test Methods	RESULT	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	Temperature	°C	APHA, 23 ¹⁰ Ed.2017-2550B	26	-	-
2	pH	-	APHA, 23 ¹⁰ Ed.2017-4500B	7.75	6.5 to 8.5	No relaxation
3	Turbidity	NTU	APHA, 23 ¹⁰ Ed.2017-2030B	<0.5	1	5
4	Conductivity	µmhos/cm	APHA, 23 ¹⁰ Ed.2017-2510	410	-	-
5	Total Dissolved Solids	mg/l	APHA, 23 ¹⁰ Ed.2017-2540B	280	500	2000
6	Total Suspended Solids	mg/l	APHA, 23 ¹⁰ Ed.2017-2540B	5	-	-
7	Dissolved Oxygen	mg/l	APHA, 23 ¹⁰ Ed.2017-4500C	Nil	-	-
8	BOD (3 Days 27°C)	mg/l	IS 3025 (Part 44) 1993	<1.0	-	-
9	COD	mg/l	APHA, 23 ¹⁰ Ed.2017-5220C	<5.0	-	-
10	P-Alkalinity	mg/l	APHA, 23 ¹⁰ Ed.2017-2320B	BDL	200	600
11	M-Alkalinity	mg/l	APHA, 23 ¹⁰ Ed.2017-2320B	104	200	600
12	Total Hardness as CaCO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-2340C	90	200	600
13	Calcium as Ca	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	28	75	200
14	Magnesium as Mg	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	4.8	30	100
15	Sodium	mg/l	APHA, 23 ¹⁰ Ed.2017-3500B	18	-	-
16	Potassium	mg/l	APHA, 23 ¹⁰ Ed.2017-3500B	0.6	-	-
17	Chlorides as Cl	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	15	250	1000
18	Sulphate as SO ₄	mg/l	APHA, 23 ¹⁰ Ed.2017-4500E	11.2	200	400
19	Nitrates as NO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500	4.2	45	No relaxation
20	Fluoride as F	mg/l	APHA, 23 ¹⁰ Ed.2017-4500D	0.45	1.0	1.5
21	Reactive silica as SiO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500A+C	4.5	-	-
22	Colloidal silica as SiO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500A+B	<0.1	-	-
23	Total Organic Carbon as TOC	mg/l	APHA, 23 ¹⁰ Ed.2017-5310A+B	<0.02	-	-
24	Boron as B	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	<0.2	0.5	1.0
25	Iron as Fe	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	0.10	0.3	No relaxation
26	Copper as Cu	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.05	1.5
27	Zinc as Zn	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.1	5	15
28	Nickel as Ni	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.02	No relaxation
29	Manganese as Mn	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.05	0.1	0.3
30	Vanadium as V	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.002	-	-
31	Arsenic as As	mg/l	APHA, 23 ¹⁰ Ed.2017-3114	<0.001	0.01	0.05
32	Lead as Pb	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.01	No relaxation

ENVIRONMENT MONITORING TRAINING & RESEARCH CENTRE

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EMTRC Lab: Recognized by Ministry of Environment, Forests & Climate Change, Govt. of India Gazette Notification SO: 3744 (E), 17-10-2019 Accredited by NABL - ISO/IEC 17025:2017 (TC-7376) Registered Office Tower 5 / 102 (FF), CWG village, NH24, Near Akshardham Temple, Delhi 110092 Phone: 9810032481. 011 21211228. email: emtrcikm@gmail.com . website: www.emtrc.in

33	Chromium as Cr ⁺³	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
34	Chromium as Cr ⁺⁶	mg/l	APHA, 23 rd Ed.2017-3500B	<0.05	0.05	No relaxation
35	Total Chromium as Cr	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
36	Selenium as Se	mg/l	IS3025(Part 56)	<0.01	0.01	No relaxation
37	Cadmium as Cd	mg/l	APHA, 23 rd Ed.2017-3111B	<0.001	0.003	No relaxation
38	Mercury as Hg	mg/l	APHA, 23 rd Ed.2017-3112	<0.001	0.001	No relaxation
39	Total coliform	MPN/100ml	APHA, 23 rd Ed.2017-9230B	Nil	Nil	Nil
40	E.coli	MPN/100ml	APHA, 23 rd Ed.2017-9230F	Nil	Nil	Nil

BDL= Below Detection Limits



MUKESH KUMAR
Authorized Signatory

EMTRC CONSULTANTS PRIVATE LIMITED

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TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 174/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 2
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Ground Water
Date of Sampling : 14-06-2022
Location of Sampling : Meh Village
Sampling Procedure : Grab Sampling
Sample Collected & Brought to Lab by : EMTRC Staff

TEST RESULTS

	Parameters	Unit	Test Methods	RESULT	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	Temperature	°C	APHA, 23 ¹⁰ Ed.2017-2550B	26	-	-
2	pH	-	APHA, 23 ¹⁰ Ed.2017-4500B	7.96	6.5 to 8.5	No relaxation
3	Turbidity	NTU	APHA, 23 ¹⁰ Ed.2017-2030B	<0.5	1	5
4	Conductivity	µmhos/cm	APHA, 23 ¹⁰ Ed.2017-2510	510	-	-
5	Total Dissolved Solids	mg/l	APHA, 23 ¹⁰ Ed.2017-2540B	370	500	2000
6	Total Suspended Solids	mg/l	APHA, 23 ¹⁰ Ed.2017-2540B	5	-	-
7	Dissolved Oxygen	mg/l	APHA, 23 ¹⁰ Ed.2017-4500C	Nil	-	-
8	BOD (3 Days 27°C)	mg/l	IS 3025 (Part 44) 1993	<1.0	-	-
9	COD	mg/l	APHA, 23 ¹⁰ Ed.2017-5220C	<5.0	-	-
10	P-Alkalinity	mg/l	APHA, 23 ¹⁰ Ed.2017-2320B	BDL	200	600
11	M-Alkalinity	mg/l	APHA, 23 ¹⁰ Ed.2017-2320B	140	200	600
12	Total Hardness as CaCO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-2340C	120	200	600
13	Calcium as Ca	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	36	75	200
14	Magnesium as Mg	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	7.3	30	100
15	Sodium	mg/l	APHA, 23 ¹⁰ Ed.2017-3500B	20	-	-
16	Potassium	mg/l	APHA, 23 ¹⁰ Ed.2017-3500B	1.2	-	-
17	Chlorides as Cl	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	18	250	1000
18	Sulphate as SO ₄	mg/l	APHA, 23 ¹⁰ Ed.2017-4500E	12.5	200	400
19	Nitrates as NO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500	0.52	45	No relaxation
20	Fluoride as F	mg/l	APHA, 23 ¹⁰ Ed.2017-4500D	0.45	1.0	1.5
21	Reactive silica as SiO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500A+C	6.5	-	-
22	Colloidal silica as SiO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500A+B	<0.1	-	-
23	Total Organic Carbon as TOC	mg/l	APHA, 23 ¹⁰ Ed.2017-5310A+B	<0.02	-	-
24	Boron as B	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	<0.2	0.5	1.0
25	Iron as Fe	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	0.12	0.3	No relaxation
26	Copper as Cu	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.05	1.5
27	Zinc as Zn	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	0.22	5	15
28	Nickel as Ni	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.02	No relaxation
29	Manganese as Mn	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.05	0.1	0.3
30	Vanadium as V	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.002	-	-
31	Arsenic as As	mg/l	APHA, 23 ¹⁰ Ed.2017-3114	<0.001	0.01	0.05
32	Lead as Pb	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	0.01	No relaxation

ENVIRONMENT MONITORING TRAINING & RESEARCH CENTRE

EMTRC Lab: F-66, Road-2, UPSIDC Industrial Area, Masuri Gulawthi Road, Ghaziabad (UP) 201009

EMTRC CONSULTANTS PRIVATE LIMITED

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Phone: 9810032481. 011 21211228. email: emtrcikm@gmail.com . website: www.emtrc.in

33	Chromium as Cr ⁺³	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
34	Chromium as Cr ⁺⁶	mg/l	APHA, 23 rd Ed.2017-3500B	<0.05	0.05	No relaxation
35	Total Chromium as Cr	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	0.05	No relaxation
36	Selenium as Se	mg/l	IS3025(Part 56)	<0.01	0.01	No relaxation
37	Cadmium as Cd	mg/l	APHA, 23 rd Ed.2017-3111B	<0.001	0.003	No relaxation
38	Mercury as Hg	mg/l	APHA, 23 rd Ed.2017-3112	<0.001	0.001	No relaxation
39	Total coliform	MPN/100ml	APHA, 23 rd Ed.2017-9230B	Nil	Nil	Nil
40	E.coli	MPN/100ml	APHA, 23 rd Ed.2017-9230F	Nil	Nil	Nil

BDL= Below Detection Limits



MUKESH KUMAR
Authorized Signatory



Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/01
Name & Address of the Project: M/s Nabinagar Power Generating Company (NPGC)
Shivanpur, P.O.-Ankhora Railway Station, Bihar
Aurangabad, Bihar-824303, India

Sample Description: Ground Water
Sample Location: Near Auxiliary Boiler
Sample Collected by: Vardan EnviroLab Representative
Preservation: Refrigerated
Sampling and Analysis Protocol: APHA 23rd Edition 2017 & IS 3025

Report No.: VEL/GW/2208260001
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 01/09/2022
Period of Analysis: 26/08/2022 to 01/09/2022
Receipt Date: 26/08/2022
Sampling Date: 24/08/2022
Sampling Quantity: 2.0 Ltr.
Sampling Type: Grab
Parameter Required: As per work order

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA 4500H+ B Electrometric Method	7.39	--	6.5 to 8.5	No Relaxation
2.	Temperature	APHA 2550 B Thermometer Method	23.6	°C	--	--
3.	Electrical Conductivity	APHA 2510 B Conductivity Meter Method	519	µS/cm	--	--
4.	Turbidity	APHA 2130 B Nephelometric Method	BLQ(LOQ-1.0)	NTU	1	5
5.	Total Dissolved Solids	APHA 2540 C Gravimetric Method	327.00	mg/L	500	2000
6.	Total Suspended Solids	APHA 2540 D Gravimetric Method	46.00	mg/L	--	--
7.	Dissolved Oxygen	APHA 4500 OB	6.9	mg/L	--	--
8.	BOD (5 Days at 20°C)	APHA 5210 C Ultimate BOD Test	BLQ(LOQ-2.0)	mg/L	--	--
9.	Chemical Oxygen Demand	APHA, 5220 B Open Reflux Method	4.16	mg/L	--	--
10.	P-Alkalinity	APHA 2320 B Titration Method	Nil	mg/L	--	--
11.	M-Alkalinity	APHA 2320 B Titration Method	72.75	mg/L	--	--
12.	Calcium Hardness	APHA 3500 Ca B EDTA Titrimetric Method	144.59	mg/L	--	--
13.	Magnesium Hardness	APHA 3500 Mg B Calculation Method	74.69	mg/L	--	--
14.	Total Hardness	APHA 2340 C EDTA Titrimetric Method	219.56	mg/L	200	600
15.	Sodium	APHA 3500 K Flame Photometric Method	38.6	mg/L	--	--
16.	Potassium	APHA 3500 Na B Flame Photometric Method	2.9	mg/L	--	--
17.	Sulphate as SO ₄	APHA 4500 E Turbidimetric Method	38.46	mg/L	200	400
18.	Nitrate as NO ₃	IS 3025 (Part -34), Chromotropic Method	7.96	mg/L	45	No Relaxation
19.	Fluoride as F	APHA 4500 F D SPADNS Method	0.62	mg/L	1.0	1.5

Checked By
Sr. Analyst



www.vardan.co.in

Ph: 0124-4343750/752/753, 9810355569, 9953147268 E-mail: lab@vardan.co.in, bd@vardan.co.in



Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/01			Report No.: VEL/GW/2208260001			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
20.	Chloride as Cl	APHA 4500 Cl B Argentometric Method	52.82	mg/L	250	1000
21.	Reactive Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	16.23	mg/L	--	--
22.	Colloidal Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	2.18	mg/L	--	--
23.	Total Organic Carbon	IS 3025 (P-69) 2018	0.39	mg/L	--	--
24.	Boron	APHA 4500 C Carmine Method	BLQ(LOQ-0.01)	mg/L	0.5	2.4
25.	Iron as Fe	APHA 3500 Fe B 1,10 Phenanthroline Method	BLQ(LOQ-0.01)	mg/L	1.0	No relaxation
26.	Copper as Cu	APHA 3111 B,Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	1.5
27.	Zinc as Zn	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.01)	mg/L	5	15
28.	Manganese as Mn	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.01)	mg/L	0.1	0.3
29.	Nickel as Ni	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.02	No Relaxation
30.	Arsenic as As	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.005)	mg/L	0.01	No Relaxation
31.	Vanadium as V	IS 3025 (P-65)	BLQ(LOQ-0.002)	mg/L	--	--
32.	Lead as Pb	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.01	No Relaxation
33.	Chromium as Cr ³⁺	APHA 3500 Cr Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
34.	Chromium as Cr ⁶⁺	APHA 3500 Cr B Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
35.	Selenium as Se	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.001)	mg/L	0.01	No Relaxation
36.	Cadmium as Cd	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.003	No Relaxation
37.	Mercury as Hg	APHA 3112 B Cold Vapor AAS Method	BLQ(LOQ-0.0005)	mg/L	0.001	No Relaxation
38.	Total Chromium as Cr	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	No Relaxation
39.	Total coliform	IS 1622:1981	50	MPN/100ml	--	--
40.	E. coli	IS 15185:2016	Absent	Per 100ml	Shall not be detectable in any 100 ml sample	

Note-*BLQ-Below Limit of Quantification, LOQ-Limit of Quantification

End of Report

Checked By
Sr. Analyst

Signature
KHUSHBU SHARMA
Senior Microbiologist

Signature
Dr. Shiv Prakash Singh
Authorised Signatory

VEL/E-03/1/TR/PN0527

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Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/02
Name & Address of the Project: M/s Nabinagar Power Generating Company (NPGC)
Shivanpur, P.O.-Ankhora Railway Station, Bihar
Aurangabad, Bihar-824303, India
Sample Description: Ground Water
Sample Location: Main Bazar Area
Sample Collected by: Vardan EnviroLab Representative
Preservation: Refrigerated
Sampling and Analysis Protocol: APHA 23rd Edition 2017 & IS 3025

Report No.: VEL/GW/2208260002
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 01/09/2022
Period of Analysis: 26/08/2022 to 01/09/2022
Receipt Date: 26/08/2022
Sampling Date: 24/08/2022
Sampling Quantity: 2.0 Ltr.
Sampling Type: Grab
Parameter Required: As per work order

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA 4500H+B Electrometric Method	7.34	--	6.5 to 8.5	No Relaxation
2.	Temperature	APHA 2550 B Thermometer Method	25.6	°C	--	--
3.	Electrical Conductivity	APHA 2510 B Conductivity Meter Method	595	µS/cm	--	--
4.	Turbidity	APHA 2130 B Nephelometric Method	BLQ(LOQ-1.0)	NTU	1	5
5.	Total Dissolved Solids	APHA 2540 C Gravimetric Method	381.00	mg/L	500	2000
6.	Total Suspended Solids	APHA 2540 D Gravimetric Method	59.00	mg/L	--	--
7.	Dissolved Oxygen	APHA 4500 OB	6.7	mg/L	--	--
8.	BOD (5 Days at 20°C)	APHA 5210 C Ultimate BOD Test	BLQ(LOQ-2.0)	mg/L	--	--
9.	Chemical Oxygen Demand	APHA, 5220 B Open Reflux Method	BLQ(LOQ-4.0)	mg/L	--	--
10.	P-Alkalinity	APHA 2320 B Titration Method	Nil	mg/L	--	--
11.	M-Alkalinity	APHA 2320 B Titration Method	247.35	mg/L	--	--
12.	Calcium Hardness	APHA 3500 Ca B EDTA Titrimetric Method	283.81	mg/L	--	--
13.	Magnesium Hardness	APHA 3500 Mg B Calculation Method	53.00	mg/L	--	--
14.	Total Hardness	APHA 2340 C EDTA Titrimetric Method	337.37	mg/L	200	600
15.	Sodium	APHA 3500 K Flame Photometric Method	58.4	mg/L	--	--
16.	Potassium	APHA 3500 Na B Flame Photometric Method	1.9	mg/L	--	--
17.	Sulphate as SO ₄	APHA 4500 E Turbidimetric Method	49.65	mg/L	200	400
18.	Nitrate as NO ₃	IS 3025 (Part -34), Chromotropic Method	12.64	mg/L	45	No Relaxation
19.	Fluoride as F	APHA 4500 F D SPADNS Method	0.53	mg/L	1.0	1.5

(Checked By)
ANJU INDRIA
Sr. Analyst

(Approved By)
Prakash
Singh
Authorised Signatory



Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/02			Report No.: VEL/GW/2208260002			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
20.	Chloride as Cl	APHA 4500 Cl B Argentometric Method	42.26	mg/L	250	1000
21.	Reactive Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	18.34	mg/L	--	--
22.	Colloidal Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	1.39	mg/L	--	--
23.	Total Organic Carbon	IS 3025 (P-69) 2018	0.35	mg/L	--	--
24.	Boron	APHA 4500 C Carmine Method	BLQ(LOQ-0.01)	mg/L	0.5	2.4
25.	Iron as Fe	APHA 3500 Fe B 1,10 Phenanthroline Method	BLQ(LOQ-0.01)	mg/L	1.0	No relaxation
26.	Copper as Cu	APHA 3111 B, Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	1.5
27.	Zinc as Zn	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.01)	mg/L	5	15
28.	Manganese as Mn	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.01)	mg/L	0.1	0.3
29.	Nickel as Ni	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.02	No Relaxation
30.	Arsenic as As	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.005)	mg/L	0.01	No Relaxation
31.	Vanadium as V	IS 3025 (P-65)	BLQ(LOQ-0.002)	mg/L	--	--
32.	Lead as Pb	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.01	No Relaxation
33.	Chromium as Cr ³⁺	APHA 3500 Cr Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
34.	Chromium as Cr ⁶⁺	APHA 3500 Cr B Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
35.	Selenium as Se	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.001)	mg/L	0.01	No Relaxation
36.	Cadmium as Cd	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.003	No Relaxation
37.	Mercury as Hg	APHA 3112 B Cold Vapor AAS Method	BLQ(LOQ-0.0005)	mg/L	0.001	No Relaxation
38.	Total Chromium as Cr	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	No Relaxation
39.	Total coliform	IS 1622:1981	60	MPN/100ml	--	--
40.	E. coli	IS 15185:2016	Absent	Per 100ml	Shall not be detectable in any 100 ml sample	

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

End of Report

(Checked By)
Sr. Analyst

Khushbu Sharma
01/09/2022
KHUSHBU SHARMA
Senior Microbiologist



VEL/E-03/1/1/TR/PN/6526

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Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/03
Name & Address of the Project: M/s Nabinagar Power Generating Company (NPGC)
Shivanpur, P.O.-Ankhora Railway Station, Bihar
Aurangabad, Bihar-824303, India
Sample Description: Ground Water
Sample Location: Village-Sasana
Sample Collected by: Vardan EnviroLab Representative
Preservation: Refrigerated
Sampling and Analysis Protocol: APHA 23rd Edition 2017 & IS 3025

Report No.: VEL/GW/2208260003
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 01/09/2022
Period of Analysis: 26/08/2022 to 01/09/2022
Receipt Date: 26/08/2022
Sampling Date: 24/08/2022
Sampling Quantity: 2.0 Ltr.
Sampling Type: Grab
Parameter Required: As per work order

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA 4500H+ B Electrometric Method	7.34	--	6.5 to 8.5	No Relaxation
2.	Temperature	APHA 2550 B Thermometer Method	25.8	°C	--	--
3.	Electrical Conductivity	APHA 2510 B Conductivity Meter Method	328	µS/cm	--	--
4.	Turbidity	APHA 2130 B Nephelometric Method	BLQ(LOQ-1.0)	NTU	1	5
5.	Total Dissolved Solids	APHA 2540 C Gravimetric Method	199.00	mg/L	500	2000
6.	Total Suspended Solids	APHA 2540 D Gravimetric Method	26.00	mg/L	--	--
7.	Dissolved Oxygen	APHA 4500 OB	7.2	mg/L	--	--
8.	BOD (5 Days at 20°C)	APHA 5210 C Ultimate BOD Test	BLQ(LOQ-2.0)	mg/L	--	--
9.	Chemical Oxygen Demand	APHA, 5220 B Open Reflux Method	BLQ(LOQ-4.0)	mg/L	--	--
10.	P-Alkalinity	APHA 2320 B Titration Method	Nil	mg/L	--	--
11.	M-Alkalinity	APHA 2320 B Titration Method	164.90	mg/L	--	--
12.	Calcium Hardness	APHA 3500 Ca B EDTA Titrimetric Method	123.15	mg/L	--	--
13.	Magnesium Hardness	APHA 3500 Mg B Calculation Method	10.49	mg/L	--	--
14.	Total Hardness	APHA 2340 C EDTA Titrimetric Method	133.88	mg/L	200	600
15.	Sodium	APHA 3500 K Flame Photometric Method	41.7	mg/L	--	--
16.	Potassium	APHA 3500 Na B Flame Photometric Method	1.6	mg/L	--	--
17.	Sulphate as SO ₄	APHA 4500 E Turbidimetric Method	24.87	mg/L	200	400
18.	Nitrate as NO ₃	IS 3025 (Part -34), Chromotropic Method	5.63	mg/L	45	No Relaxation
19.	Fluoride as F	APHA 4500 F D SPADNS Method	0.43	mg/L	1.0	1.5

(Checked By)
ANJU INFOLIA
Sr. Analyst

(Approved By)
Dr. Prakash Singh
Authorised Signatory



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Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/03			Report No.: VEL/GW/2208260003			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
20.	Chloride as Cl	APHA 4500 Cl B Argentometric Method	26.41	mg/L	250	1000
21.	Reactive Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	20.47	mg/L	--	--
22.	Colloidal Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	4.16	mg/L	--	--
23.	Total Organic Carbon	IS 3025 (P-69) 2018	0.23	mg/L	--	--
24.	Boron	APHA 4500 C Carmine Method	BLQ(LOQ-0.01)	mg/L	0.5	2.4
25.	Iron as Fe	APHA 3500 Fe B 1,10 Phenanthroline Method	BLQ(LOQ-0.01)	mg/L	1.0	No relaxation
26.	Copper as Cu	APHA 3111 B, Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	1.5
27.	Zinc as Zn	APHA 3111 B Air Acetylene Method	BLQ(LOQ-0.01)	mg/L	5	15
28.	Manganese as Mn	APHA 3111 B Direct Air Acetylene Flame Method	BLQ(LOQ-0.01)	mg/L	0.1	0.3
29.	Nickel as Ni	APHA 3111 B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.02	No Relaxation
30.	Arsenic as As	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.005)	mg/L	0.01	No Relaxation
31.	Vanadium as V	IS 3025 (P-65)	BLQ(LOQ-0.002)	mg/L	--	--
32.	Lead as Pb	APHA 3111 B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.01	No Relaxation
33.	Chromium as Cr ³⁺	APHA 3500 Cr Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
34.	Chromium as Cr ⁶⁺	APHA 3500 Cr B Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
35.	Selenium as Se	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.001)	mg/L	0.01	No Relaxation
36.	Cadmium as Cd	APHA 3111 B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.003	No Relaxation
37.	Mercury as Hg	APHA 3112 B Cold Vapor AAS Method	BLQ(LOQ-0.0005)	mg/L	0.001	No Relaxation
38.	Total Chromium as Cr	APHA 3111 B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	No Relaxation
39.	Total coliform	IS 1622:1981	40	MPN/100ml	--	--
40.	E. coli	IS 15185:2016	Absent	Per 100ml	Shall not be detectable in any 100 ml sample	

Note-*BLQ-Below Limit of Quantification, LOQ-Limit of Quantification

End of Report

Checked By:
Sr. Analyst

Khushbu Sharma
01/09/2022
KHUSHBU SHARMA
Senior Microbiologist



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Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/04
Name & Address of the Project: M/s Nabinagar Power Generating Company (NPGC)
Shivanpur, P.O.-Ankhora Railway Station, Bihar
Aurangabad, Bihar-824303, India
Sample Description: Ground Water
Sample Location: Village-Raghunanthpur
Sample Collected by: Vardan EnviroLab Representative
Preservation: Refrigerated
Sampling and Analysis Protocol: APHA 23rd Edition 2017 & IS 3025

Report No.: VEL/GW/2208260004
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 01/09/2022
Period of Analysis: 26/08/2022 to 01/09/2022
Receipt Date: 26/08/2022
Sampling Date: 24/08/2022
Sampling Quantity: 2.0 Ltr.
Sampling Type: Grab
Parameter Required: As per work order

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA 4500H+ B Electrometric Method	7.89	--	6.5 to 8.5	No Relaxation
2.	Temperature	APHA 2550 B Thermometer Method	26.4	°C	--	--
3.	Electrical Conductivity	APHA 2510 B Conductivity Meter Method	541	µS/cm	--	--
4.	Turbidity	APHA 2130 B Nephelometric Method	BLQ(LOQ-1.0)	NTU	1	5
5.	Total Dissolved Solids	APHA 2540 C Gravimetric Method	342.00	mg/L	500	2000
6.	Total Suspended Solids	APHA 2540 D Gravimetric Method	36.00	mg/L	--	--
7.	Dissolved Oxygen	APHA 4500 OB	6.9	mg/L	--	--
8.	BOD (5 Days at 20°C)	APHA 5210 C Ultimate BOD Test	BLQ(LOQ-2.0)	mg/L	--	--
9.	Chemical Oxygen Demand	APHA, 5220 B Open Reflux Method	BLQ(LOQ-4.0)	mg/L	--	--
10.	P-Alkalinity	APHA 2320 B Titration Method	Nil	mg/L	--	--
11.	M-Alkalinity	APHA 2320 B Titration Method	271.69	mg/L	--	--
12.	Calcium Hardness	APHA 3500 Ca B EDTA Titrimetric Method	262.40	mg/L	--	--
13.	Magnesium Hardness	APHA 3500 Mg B Calculation Method	42.30	mg/L	--	--
14.	Total Hardness	APHA 2340 C EDTA Titrimetric Method	305.24	mg/L	200	600
15.	Sodium	APHA 3500 K Flame Photometric Method	65.4	mg/L	--	--
16.	Potassium	APHA 3500 Na B Flame Photometric Method	2.6	mg/L	--	--
17.	Sulphate as SO ₄	APHA 4500 E Turbidimetric Method	45.12	mg/L	200	400
18.	Nitrate as NO ₃	IS 3025 (Part -34), Chromotropic Method	10.02	mg/L	45	No Relaxation
19.	Fluoride as F	APHA 4500 F D SPADNS Method	0.66	mg/L	1.0	1.5

(Checked By)
ANJU INDRANILIA
Sr. Analyst



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Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/04			Report No.: VEL/GW/2208260004			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
20.	Chloride as Cl	APHA 4500 Cl B Argentometric Method	29.05	mg/L	250	1000
21.	Reactive Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	24.56	mg/L	--	--
22.	Colloidal Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	2.87	mg/L	--	--
23.	Total Organic Carbon	IS 3025 (P-69) 2018	0.37	mg/L	--	--
24.	Boron	APHA 4500 C Carmine Method	BLQ(LOQ-0.01)	mg/L	0.5	2.4
25.	Iron as Fe	APHA 3500 Fe B 1,10 Phenanthroline Method	BLQ(LOQ-0.01)	mg/L	1.0	No relaxation
26.	Copper as Cu	APHA 3111 B, Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	1.5
27.	Zinc as Zn	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.01)	mg/L	5	15
28.	Manganese as Mn	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.01)	mg/L	0.1	0.3
29.	Nickel as Ni	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.02	No Relaxation
30.	Arsenic as As	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.005)	mg/L	0.01	No Relaxation
31.	Vanadium as V	IS 3025 (P-65)	BLQ(LOQ-0.002)	mg/L	--	--
32.	Lead as Pb	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.01	No Relaxation
33.	Chromium as Cr ³⁺	APHA 3500 Cr Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
34.	Chromium as Cr ⁶⁺	APHA 3500 Cr B Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
35.	Selenium as Se	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.001)	mg/L	0.01	No Relaxation
36.	Cadmium as Cd	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.003	No Relaxation
37.	Mercury as Hg	APHA 3112 B Cold Vapor AAS Method	BLQ(LOQ-0.0005)	mg/L	0.001	No Relaxation
38.	Total Chromium as Cr	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	No Relaxation
39.	Total coliform	IS 1622:1981	90	MPN/100ml	--	--
40.	E. coli	IS 15185:2016	Absent	Per 100ml	Shall not be detectable in any 100 ml sample	

Note-*BLQ-Below Limit of Quantification, LOQ-Limit of Quantification

End of Report

Anju
(Checked By)
ANJU TRIPATHI
Sr. Analyst

Khushbu
01/09/2024
KHUSHBU SHARMA
Senior Microbiologist





Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/05
Name & Address of the Project: M/s Nabinagar Power Generating Company (NPGC) Shivanpur, P.O.-Ankhora Railway Station, Bihar Aurangabad, Bihar-824303, India
Sample Description: Ground Water
Sample Location: Near D-Type
Sample Collected by: Vardan EnviroLab Representative
Preservation: Refrigerated
Sampling and Analysis Protocol: APHA 23rd Edition 2017 & IS 3025

Report No.: VEL/GW/2208260005
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 01/09/2022
Period of Analysis: 26/08/2022 to 01/09/2022
Receipt Date: 26/08/2022
Sampling Date: 24/08/2022
Sampling Quantity: 2.0 Ltr.
Sampling Type: Grab
Parameter Required: As per work order

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA 4500H+ B Electrometric Method	6.92	--	6.5 to 8.5	No Relaxation
2.	Temperature	APHA 2550 B Thermometer Method	26.4	°C	--	--
3.	Electrical Conductivity	APHA 2510 B Conductivity Meter Method	569	µS/cm	--	--
4.	Turbidity	APHA 2130 B Nephelometric Method	BLQ(LOQ-1.0)	NTU	1	5
5.	Total Dissolved Solids	APHA 2540 C Gravimetric Method	356.00	mg/L	500	2000
6.	Total Suspended Solids	APHA 2540 D Gravimetric Method	58.00	mg/L	--	--
7.	Dissolved Oxygen	APHA 4500 OB	6.9	mg/L	--	--
8.	BOD (5 Days at 20°C)	APHA 5210 C Ultimate BOD Test	BLQ(LOQ-2.0)	mg/L	--	--
9.	Chemical Oxygen Demand	APHA, 5220 B Open Reflux Method	BLQ(LOQ-4.0)	mg/L	--	--
10.	P-Alkalinity	APHA 2320 B Titration Method	Nil	mg/L	--	--
11.	M-Alkalinity	APHA 2320 B Titration Method	295.85	mg/L	--	--
12.	Calcium Hardness	APHA 3500 Ca B EDTA Titrimetric Method	267.74	mg/L	--	--
13.	Magnesium Hardness	APHA 3500 Mg B Calculation Method	58.39	mg/L	--	--
14.	Total Hardness	APHA 2340 C EDTA Titrimetric Method	326.66	mg/L	200	600
15.	Sodium	APHA 3500 K Flame Photometric Method	61.5	mg/L	--	--
16.	Potassium	APHA 3500 Na B Flame Photometric Method	1.4	mg/L	--	--
17.	Sulphate as SO ₄	APHA 4500 E Turbidimetric Method	44.78	mg/L	200	400
18.	Nitrate as NO ₃	IS 3025 (Part -34), Chromotropic Method	8.54	mg/L	45	No Relaxation
19.	Fluoride as F	APHA 4500 F D SPADNS Method	0.72	mg/L	1.0	1.5

(Checked By)

 Sr. Analyst

(Approved By)

 Dr. Shiv Bhatnagar
 Authorised Signatory



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Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/05			Report No.: VEL/GW/2208260005			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
20.	Chloride as Cl	APHA 4500 Cl B Argentometric Method	36.97	mg/L	250	1000
21.	Reactive Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	21.35	mg/L	--	--
22.	Colloidal Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	1.24	mg/L	--	--
23.	Total Organic Carbon	IS 3025 (P-69) 2018	0.33	mg/L	--	--
24.	Boron	APHA 4500 C Carmine Method	BLQ(LOQ-0.01)	mg/L	0.5	2.4
25.	Iron as Fe	APHA 3500 Fe B 1,10 Phenanthroline Method	BLQ(LOQ-0.01)	mg/L	1.0	No relaxation
26.	Copper as Cu	APHA 3111 B, Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	1.5
27.	Zinc as Zn	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.01)	mg/L	5	15
28.	Manganese as Mn	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.01)	mg/L	0.1	0.3
29.	Nickel as Ni	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.02	No Relaxation
30.	Arsenic as As	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.005)	mg/L	0.01	No Relaxation
31.	Vanadium as V	IS 3025 (P-65)	BLQ(LOQ-0.002)	mg/L	--	--
32.	Lead as Pb	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.01	No Relaxation
33.	Chromium as Cr ³⁺	APHA 3500 Cr Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
34.	Chromium as Cr ⁶⁺	APHA 3500 Cr B Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
35.	Selenium as Se	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.001)	mg/L	0.01	No Relaxation
36.	Cadmium as Cd	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.003	No Relaxation
37.	Mercury as Hg	APHA 3112 B Cold Vapor AAS Method	BLQ(LOQ-0.0005)	mg/L	0.001	No Relaxation
38.	Total Chromium as Cr	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	No Relaxation
39.	Total coliform	IS 1622:1981	70	MPN/100ml	--	--
40.	E. coli	IS 15185:2016	Absent	Per 100ml	Shall not be detectable in any 100 ml sample	

Note-*BLQ-Below Limit of Quantification, LOQ-Limit of Quantification

End of Report

(Checked By)
KHUSHBU SHARMA
Sr. Analyst

(Signature)
KHUSHBU SHARMA
Senior Microbiologist



VEL/E-03/1/TR/PM6519

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Vardan EnviroLab

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

Test Report

Sample Number:	VEL/NPGCS/GW/06	Report No.:	VEL/GW/2208260006
Name & Address of the Project:	M/s Nabinagar Power Generating Company (NPGC) Shivanpur, P.O.-Ankhora Railway Station, Bihar Aurangabad, Bihar-824303, India	Format No.:	7.8 F-01
Sample Description:	Ground Water	Party Reference No.:	NIL
Sample Location:	Village-Shivanpur (Pota Kevin)	Reporting Date:	01/09/2022
Sample Collected by:	Vardan EnviroLab Representative	Period of Analysis:	26/08/2022 to 01/09/2022
Preservation:	Refrigerated	Receipt Date:	26/08/2022
Sampling and Analysis Protocol:	APHA 23 rd Edition 2017 & IS 3025	Sampling Date:	24/08/2022
		Sampling Quantity:	2.0 Ltr.
		Sampling Type:	Grab
		Parameter Required:	As per work order

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA 4500H+ B Electrometric Method	7.42	--	6.5 to 8.5	No Relaxation
2.	Temperature	APHA 2550 B Thermometer Method	24.9	°C	--	--
3.	Electrical Conductivity	APHA 2510 B Conductivity Meter Method	518	µS/cm	--	--
4.	Turbidity	APHA 2130 B Nephelometric Method	BLQ(LOQ-1.0)	NTU	1	5
5.	Total Dissolved Solids	APHA 2540 C Gravimetric Method	331.00	mg/L	500	2000
6.	Total Suspended Solids	APHA 2540 D Gravimetric Method	51.00	mg/L	--	--
7.	Dissolved Oxygen	APHA 4500 OB	6.8	mg/L	--	--
8.	BOD (5 Days at 20°C)	APHA 5210 C Ultimate BOD Test	BLQ(LOQ-2.0)	mg/L	--	--
9.	Chemical Oxygen Demand	APHA, 5220 B Open Reflux Method	4.98	mg/L	--	--
10.	P-Alkalinity	APHA 2320 B Titration Method	Nil	mg/L	--	--
11.	M-Alkalinity	APHA 2320 B Titration Method	305.55	mg/L	--	--
12.	Calcium Hardness	APHA 3500 Ca B EDTA Titrimetric Method	235.63	mg/L	--	--
13.	Magnesium Hardness	APHA 3500 Mg B Calculation Method	85.18	mg/L	--	--
14.	Total Hardness	APHA 2340 C EDTA Titrimetric Method	321.30	mg/L	200	600
15.	Sodium	APHA 3500 K Flame Photometric Method	42.8	mg/L	--	--
16.	Potassium	APHA 3500 Na B Flame Photometric Method	1.5	mg/L	--	--
17.	Sulphate as SO ₄	APHA 4500 E Turbidimetric Method	29.34	mg/L	200	400
18.	Nitrate as NO ₃	IS 3025 (Part -34), Chromotropic Method	10.2	mg/L	45	No Relaxation
19.	Fluoride as F	APHA 4500 F D SPADNS Method	0.68	mg/L	1.0	1.5

(Checked By)
ANJU IN
Sr. Analyst

(Approved By)
Prakash Singh
Authorised Signatory



Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/06			Report No.: VEL/GW/2208260006			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
20.	Chloride as Cl	APHA 4500 Cl B Argentometric Method	21.13	mg/L	250	1000
21.	Reactive Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	22.41	mg/L	--	--
22.	Colloidal Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	3.59	mg/L	--	--
23.	Total Organic Carbon	IS 3025 (P-69) 2018	0.38	mg/L	--	--
24.	Boron	APHA 4500 C Carmine Method	BLQ(LOQ-0.01)	mg/L	0.5	2.4
25.	Iron as Fe	APHA 3500 Fe B 1,10 Phenanthroline Method	BLQ(LOQ-0.01)	mg/L	1.0	No relaxation
26.	Copper as Cu	APHA 3111 B, Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	1.5
27.	Zinc as Zn	APHA 3111 B Air Acetylene Method	BLQ(LOQ-0.01)	mg/L	5	15
28.	Manganese as Mn	APHA 3111 B Direct Air Acetylene Flame Method	BLQ(LOQ-0.01)	mg/L	0.1	0.3
29.	Nickel as Ni	APHA 3111 B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.02	No Relaxation
30.	Arsenic as As	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.005)	mg/L	0.01	No Relaxation
31.	Vanadium as V	IS 3025 (P-65)	BLQ(LOQ-0.002)	mg/L	--	--
32.	Lead as Pb	APHA 3111 B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.01	No Relaxation
33.	Chromium as Cr ³⁺	APHA 3500 Cr Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
34.	Chromium as Cr ⁶⁺	APHA 3500 Cr B Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
35.	Selenium as Se	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.001)	mg/L	0.01	No Relaxation
36.	Cadmium as Cd	APHA 3111 B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.003	No Relaxation
37.	Mercury as Hg	APHA 3112 B Cold Vapor AAS Method	BLQ(LOQ-0.0005)	mg/L	0.001	No Relaxation
38.	Total Chromium as Cr	APHA 3111 B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	No Relaxation
39.	Total coliform	IS 1622:1981	50	MPN/100ml	--	--
40.	E. coli	IS 15185:2016	Absent	Per 100ml	Shall not be detectable in any 100 ml sample	

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

End of Report

ANJU (Checked By)
Sr. Analyst

KHUSHBU SHARMA
Senior Microbiologist



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Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/07
Name & Address of the Project: M/s Nabinagar Power Generating Company (NPGC)
Shivanpur, P.O.-Ankhora Railway Station, Bihar
Aurangabad, Bihar-824303, India
Report No.: VEL/GW/2208260007
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 01/09/2022
Period of Analysis: 26/08/2022 to 01/09/2022
Receipt Date: 26/08/2022
Sampling Date: 24/08/2022
Sampling Quantity: 2.0 Ltr.
Sampling Type: Grab
Parameter Required: As per work order

Sample Description: Ground Water
Sample Location: STP Township
Sample Collected by: Vardan EnviroLab Representative
Preservation: Refrigerated
Sampling and Analysis Protocol: APHA 23rd Edition 2017 & IS 3025

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA 4500H+ B Electrometric Method	7.85	--	6.5 to 8.5	No Relaxation
2.	Temperature	APHA 2550 B Thermometer Method	25.6	°C	--	--
3.	Electrical Conductivity	APHA 2510 B Conductivity Meter Method	542	µS/cm	--	--
4.	Turbidity	APHA 2130 B Nephelometric Method	BLQ(LOQ-1.0)	NTU	1	5
5.	Total Dissolved Solids	APHA 2540 C Gravimetric Method	341.00	mg/L	500	2000
6.	Total Suspended Solids	APHA 2540 D Gravimetric Method	54.00	mg/L	--	--
7.	Dissolved Oxygen	APHA 4500 OB	6.9	mg/L	--	--
8.	BOD (5 Days at 20°C)	APHA 5210 C Ultimate BOD Test	BLQ(LOQ-2.0)	mg/L	--	--
9.	Chemical Oxygen Demand	APHA, 5220 B Open Reflux Method	BLQ(LOQ-4.0)	mg/L	--	--
10.	P-Alkalinity	APHA 2320 B Titration Method	Nil	mg/L	--	--
11.	M-Alkalinity	APHA 2320 B Titration Method	252.29	mg/L	--	--
12.	Calcium Hardness	APHA 3500 Ca B EDTA Titrimetric Method	198.13	mg/L	--	--
13.	Magnesium Hardness	APHA 3500 Mg B Calculation Method	69.22	mg/L	--	--
14.	Total Hardness	APHA 2340 C EDTA Titrimetric Method	267.75	mg/L	200	600
15.	Sodium	APHA 3500 K Flame Photometric Method	59.7	mg/L	--	--
16.	Potassium	APHA 3500 Na B Flame Photometric Method	2.3	mg/L	--	--
17.	Sulphate as SO ₄	APHA 4500 E Turbidimetric Method	36.41	mg/L	200	400
18.	Nitrate as NO ₃	IS 3025 (Part -34), Chromotropic Method	14.08	mg/L	45	No Relaxation
19.	Fluoride as F	APHA 4500 F D SPADNS Method	0.78	mg/L	1.0	1.5

ANJU KUMAR
(Checked By)
Sr. Analyst

VARDAN ENVIROLAB
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Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/GW/07			Report No.: VEL/GW/2208260007			
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
20.	Chloride as Cl	APHA 4500 Cl B Argentometric Method	34.33	mg/L	250	1000
21.	Reactive Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	23.95	mg/L	--	--
22.	Colloidal Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	1.18	mg/L	--	--
23.	Total Organic Carbon	IS 3025 (P-69) 2018	0.34	mg/L	--	--
24.	Boron	APHA 4500 C Carmine Method	BLQ(LOQ-0.01)	mg/L	0.5	2.4
25.	Iron as Fe	APHA 3500 Fe B 1,10 Phenanthroline Method	BLQ(LOQ-0.01)	mg/L	1.0	No relaxation
26.	Copper as Cu	APHA 3111 B, Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	1.5
27.	Zinc as Zn	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.01)	mg/L	5	15
28.	Manganese as Mn	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.01)	mg/L	0.1	0.3
29.	Nickel as Ni	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.02	No Relaxation
30.	Arsenic as As	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.005)	mg/L	0.01	No Relaxation
31.	Vanadium as V	IS 3025 (P-65)	BLQ(LOQ-0.002)	mg/L	--	--
32.	Lead as Pb	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.01	No Relaxation
33.	Chromium as Cr ³⁺	APHA 3500 Cr Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
34.	Chromium as Cr ⁶⁺	APHA 3500 Cr B Colorimetric Method	BLQ(LOQ-0.05)	mg/L	--	--
35.	Selenium as Se	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.001)	mg/L	0.01	No Relaxation
36.	Cadmium as Cd	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L	0.003	No Relaxation
37.	Mercury as Hg	APHA 3112 B Cold Vapor AAS Method	BLQ(LOQ-0.0005)	mg/L	0.001	No Relaxation
38.	Total Chromium as Cr	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L	0.05	No Relaxation
39.	Total coliform	IS 1622:1981	110	MPN/100ml	--	--
40.	E. coli	IS 15185:2016	Absent	Per 100ml	Shall not be detectable in any 100 ml sample	

Note-*BLQ-Below Limit of Quantification, LOQ-Limit of Quantification

End of Report

(Checked By)
ANJALI
Sr. Analyst

Khushbu
KHUSHBU SHARMA
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EMTRC CONSULTANTS PRIVATE LIMITED

EMTRC Lab: Recognized by Ministry of Environment, Forests & Climate Change, Govt. of India Gazette Notification SO: 3744 (E), 17-10-2019 Accredited by NABL - ISO/IEC 17025:2017 (TC-7376) Registered Office Tower 5 / 102 (FF), CWG village, NH24, Near Akshardham Temple, Delhi 110092 Phone: 9810032481. 011 21211228. email: emtrcikm@gmail.com . website: www.emtrc.in

TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 175/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 2
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Surface Water
Date of Sampling : 14-06-2022
Location of Sampling : Raw Water Reservoir
Sampling Procedure : Grab Sampling
Sample Collected & Brought to Lab by : EMTRC Staff

TEST RESULTS

	Parameters	Unit	Test Methods	RESULT	IS:2296:1992
1	Temperature	°C	APHA, 23 rd Ed.2017-2550B	26	-
2	pH	-	APHA, 23 rd Ed.2017-4500B	7.89	6.0 to 9.0
3	Turbidity	NTU	APHA, 23 rd Ed.2017-2030B	<0.5	-
4	Conductivity	µmhos/cm	APHA, 23 rd Ed.2017-2510	280	-
5	Total Dissolved Solids	mg/l	APHA, 23 rd Ed.2017-2540B	190	1500
6	Total Suspended Solids	mg/l	APHA, 23 rd Ed.2017-2540B	Nil	-
7	Dissolved Oxygen	mg/l	APHA, 23 rd Ed.2017-4500C	4.2	4.0
8	BOD (3 Days 27°C)	mg/l	IS 3025 (Part 44) 1993	2.8	3.0
9	COD	mg/l	APHA, 23 rd Ed.2017-5220C	20	-
10	P-Alkalinity	mg/l	APHA, 23 rd Ed.2017-2320B	BDL	-
11	M-Alkalinity	mg/l	APHA, 23 rd Ed.2017-2320B	80	-
12	Total Hardness as CaCO ₃	mg/l	APHA, 23 rd Ed.2017-2340C	50	-
13	Calcium as Ca	mg/l	APHA, 23 rd Ed.2017-4500B	16	-
14	Magnesium as Mg	mg/l	APHA, 23 rd Ed.2017-4500B	2.4	-
15	Sodium	mg/l	APHA, 23 rd Ed.2017-3500B	18	-
16	Potassium	mg/l	APHA, 23 rd Ed.2017-3500B	0.6	-
17	Chlorides as Cl	mg/l	APHA, 23 rd Ed.2017-4500B	14	600
18	Sulphate as SO ₄	mg/l	APHA, 23 rd Ed.2017-4500E	5.8	400
19	Nitrates as NO ₃	mg/l	APHA, 23 rd Ed.2017-4500	4.5	50
20	Fluoride as F	mg/l	APHA, 23 rd Ed.2017-4500D	0.38	1.5
21	Reactive silica as SiO ₃	mg/l	APHA, 23 rd Ed.2017-4500A+C	5.2	-
22	Colloidal silica as SiO ₃	mg/l	APHA, 23 rd Ed.2017-4500A+B	<0.1	-
23	Total Organic Carbon as TOC	mg/l	APHA, 23 rd Ed.2017-5310A+B	<0.02	-
24	Boron as B	mg/l	APHA, 23 rd Ed.2017-4500B	<0.2	-
25	Iron as Fe	mg/l	APHA, 23 rd Ed.2017-3111B	0.12	0.5
26	Copper as Cu	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	-
27	Zinc as Zn	mg/l	APHA, 23 rd Ed.2017-3111B	0.28	15
28	Nickel as Ni	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	-
29	Manganese as Mn	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	-
30	Vanadium as V	mg/l	APHA, 23 rd Ed.2017-3111B	<0.002	-
31	Arsenic as As	mg/l	APHA, 23 rd Ed.2017-3114	<0.001	0.2
32	Lead as Pb	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	0.1
33	Chromium as Cr ⁺³	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	-
34	Chromium as Cr ⁺⁶	mg/l	APHA, 23 rd Ed.2017-3500B	<0.05	0.05
35	Total Chromium as Cr	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	-
36	Selenium as Se	mg/l	IS3025(Part 56)	<0.01	0.05

ENVIRONMENT MONITORING TRAINING & RESEARCH CENTRE

EMTRC Lab: F-66, Road-2, UPSIDC Industrial Area, Masuri Gulawthi Road, Ghaziabad (UP) 201009

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Phone: 9810032481. 011 21211228. email: emtrcikm@gmail.com . website: www.emtrc.in

37	Cadmium as Cd	mg/l	APHA, 23 rd Ed.2017-3111B	<0.001	0.01
38	Mercury as Hg	mg/l	APHA, 23 rd Ed.2017-3112	<0.001	-
39	Total coliform	MPN/100ml	APHA, 23 rd Ed.2017-9230B	Nil	5000
40	E.coli	MPN/100ml	APHA, 23 rd Ed.2017-9230F	Nil	-

BDL= Below Detection Limits



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TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 176/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 2
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Surface Water
Date of Sampling : 14-06-2022
Location of Sampling : GSF Outlet
Sampling Procedure : Grab Sampling
Sample Collected & Brought to Lab by : EMTRC Staff

TEST RESULTS

	Parameters	Unit	Test Methods	RESULT	IS:2296:1992
1	Temperature	°C	APHA, 23 rd Ed.2017-2550B	26	-
2	pH	-	APHA, 23 rd Ed.2017-4500B	7.92	6.0 to 9.0
3	Turbidity	NTU	APHA, 23 rd Ed.2017-2030B	<0.5	-
4	Conductivity	µmhos/cm	APHA, 23 rd Ed.2017-2510	260	-
5	Total Dissolved Solids	mg/l	APHA, 23 rd Ed.2017-2540B	170	1500
6	Total Suspended Solids	mg/l	APHA, 23 rd Ed.2017-2540B	10	-
7	Dissolved Oxygen	mg/l	APHA, 23 rd Ed.2017-4500C	3.2	4.0
8	BOD (3 Days 27°C)	mg/l	IS 3025 (Part 44) 1993	<1.0	3.0
9	COD	mg/l	APHA, 23 rd Ed.2017-5220C	<5.0	-
10	P-Alkalinity	mg/l	APHA, 23 rd Ed.2017-2320B	BDL	-
11	M-Alkalinity	mg/l	APHA, 23 rd Ed.2017-2320B	60	-
12	Total Hardness as CaCO ₃	mg/l	APHA, 23 rd Ed.2017-2340C	52	-
13	Calcium as Ca	mg/l	APHA, 23 rd Ed.2017-4500B	16	-
14	Magnesium as Mg	mg/l	APHA, 23 rd Ed.2017-4500B	2.9	-
15	Sodium	mg/l	APHA, 23 rd Ed.2017-3500B	15	-
16	Potassium	mg/l	APHA, 23 rd Ed.2017-3500B	1.2	-
17	Chlorides as Cl	mg/l	APHA, 23 rd Ed.2017-4500B	10	600
18	Sulphate as SO ₄	mg/l	APHA, 23 rd Ed.2017-4500E	9.5	400
19	Nitrates as NO ₃	mg/l	APHA, 23 rd Ed.2017-4500	4.2	50
20	Fluoride as F	mg/l	APHA, 23 rd Ed.2017-4500D	0.35	1.5
21	Reactive silica as SiO ₃	mg/l	APHA, 23 rd Ed.2017-4500A+C	3.8	-
22	Colloidal silica as SiO ₃	mg/l	APHA, 23 rd Ed.2017-4500A+B	<0.1	-
23	Total Organic Carbon as TOC	mg/l	APHA, 23 rd Ed.2017-5310A+B	<0.02	-
24	Boron as B	mg/l	APHA, 23 rd Ed.2017-4500B	<0.2	-
25	Iron as Fe	mg/l	APHA, 23 rd Ed.2017-3111B	0.14	0.5
26	Copper as Cu	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	-
27	Zinc as Zn	mg/l	APHA, 23 rd Ed.2017-3111B	0.28	15
28	Nickel as Ni	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	-
29	Manganese as Mn	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	-
30	Vanadium as V	mg/l	APHA, 23 rd Ed.2017-3111B	<0.002	-
31	Arsenic as As	mg/l	APHA, 23 rd Ed.2017-3114	<0.001	0.2
32	Lead as Pb	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	0.1
33	Chromium as Cr ⁺³	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	-
34	Chromium as Cr ⁺⁶	mg/l	APHA, 23 rd Ed.2017-3500B	<0.05	0.05
35	Total Chromium as Cr	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	-
36	Selenium as Se	mg/l	IS3025(Part 56)	<0.01	0.05
37	Cadmium as Cd	mg/l	APHA, 23 rd Ed.2017-3111B	<0.001	0.01

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Phone: 9810032481. 011 21211228. email: emtrcikm@gmail.com . website: www.emtrc.in

38	Mercury as Hg	mg/l	APHA, 23 rd Ed.2017-3112	<0.001	-
39	Total coliform	MPN/100ml	APHA, 23 rd Ed.2017-9230B	Nil	5000
40	E.coli	MPN/100ml	APHA, 23 rd Ed.2017-9230F	Nil	-

BDL= Below Detection Limits



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TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 177/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 1
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : STP Outlet
Date of Sampling : 14-06-2022
Sampling Procedure : Grab Sampling
Sample Collected & Brought to Lab by : EMTRC Staff

TEST RESULTS

	Parameters	Unit	Test Methods	RESULT	General Discharge Standard Inland Surface Water
1	Temperature	°C	APHA, 23 ¹⁰ Ed.2017-2550B	26	-
2	pH	-	APHA, 23 ¹⁰ Ed.2017-4500B	7.69	5.5 – 9.0
3	Turbidity	NTU	APHA, 23 ¹⁰ Ed.2017-2030B	4	-
4	Conductivity	µmhos/cm	APHA, 23 ¹⁰ Ed.2017-2510	710	-
5	Odour	-	APHA, 23 ¹⁰ Ed.2017-2150B	UO	-
6	Colour	Hazen Unit	APHA, 23 ¹⁰ Ed.2017-2120B	<5	-
7	Total Dissolved Solids	mg/l	APHA, 23 ¹⁰ Ed.2017-2540B	490	2100
8	Total Suspended Solids	mg/l	APHA, 23 ¹⁰ Ed.2017-2540B	35	100
9	Dissolved Oxygen	mg/l	APHA, 23 ¹⁰ Ed.2017-4500C	4.5	-
10	BOD (3 Days 27°C)	mg/l	IS 3025 (Part 44) 1993	10.8	30
11	COD	mg/l	APHA, 23 ¹⁰ Ed.2017-5220C	52	250
12	Total Hardness as CaCO ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-2340C	220	-
13	Calcium as Ca	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	68	-
14	Magnesium as Mg	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	12.2	-
15	Total Residual Chlorine	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	0.2	1.0
16	Ammonical N as N	mg/l	APHA, 23 ¹⁰ Ed.2017-5220D	4.2	50
17	Total Kjeldahl Nitrogen as N	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	9.5	100
18	Free Ammonia as NH ₃	mg/l	APHA, 23 ¹⁰ Ed.2017-4500	0.8	5.0
19	Phenolic Compound	mg/l	APHA, 23 ¹⁰ Ed.2017-5230D	0.018	1.0
20	Phosphate as PO ₄	mg/l	APHA, 23 ¹⁰ Ed.2017-4500C	0.45	5.0
21	Sulphate as SO ₄	mg/l	APHA, 23 ¹⁰ Ed.2017-4500E	40	1000
22	Sulphide as S	mg/l	APHA, 23 ¹⁰ Ed.2017-4500D	0.2	2.0
23	Fluoride as F	mg/l	APHA, 23 ¹⁰ Ed.2017-4500D	0.88	2.0
24	Cyanide as CN	mg/l	APHA, 23 ¹⁰ Ed.2017-4500E	<0.1	0.2
27	Chlorides as Cl	mg/l	APHA, 23 ¹⁰ Ed.2017-4500B	48	1000
28	Nitrate Nitrogen	mg/l	APHA, 23 ¹⁰ Ed.2017-4500	9.5	10
29	Oil and Grease	mg/l	APHA, 23 ¹⁰ Ed.2017-4500D	1.8	10
30	Iron as Fe	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	0.22	3.0
31	Copper as Cu	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	3.0
32	Zinc as Zn	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	1.35	5.0
33	Nickel as Ni	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.01	3.0
34	Manganese as Mn	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.05	2.0
35	Vanadium as V	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.002	0.2
36	Arsenic as As	mg/l	APHA, 23 ¹⁰ Ed.2017-3114	<0.001	0.2
37	Lead as Pb	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	0.08	0.1
38	Chromium as Cr ⁺³	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.05	-
39	Chromium as Cr ⁺⁶	mg/l	APHA, 23 ¹⁰ Ed.2017-3500B	<0.05	0.1
40	Total Chromium as Cr	mg/l	APHA, 23 ¹⁰ Ed.2017-3111B	<0.05	2.0

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41	Selenium as Se	mg/l	IS3025(Part 56)	<0.01	0.05
42	Cadmium as Cd	mg/l	APHA, 23 rd Ed.2017-3111B	<0.001	2.0
43	Mercury as Hg	mg/l	APHA, 23 rd Ed.2017-3112	<0.001	0.01
44	Total coliform	MPN/100ml	APHA, 23 rd Ed.2017-9230B	410	-
45	Faecal Coliform	MPN/100ml	APHA, 23 rd Ed.2017-9230F	280	-
46	E.coli	MPN/100ml	APHA, 23 rd Ed.2017-9230F	110	-
47	Salmonella	MPN/100ml	APHA, 23 rd Ed.2017-9260E	Absent	-
48	Shigella	MPN/100ml	APHA, 23 rd Ed.2017-9230E	Absent	-

UO= Unobjectionable



MUKESH KUMAR
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TEST REPORT

Date: 05-07-2022

Report No. : EMTRC/NPGCL- 178/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 1
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Plant Effluent
Date of Sampling : 14-06-2022
Sampling Procedure : Grab Sampling
Sample Collected & Brought to Lab by : EMTRC Staff

TEST RESULTS

	Parameters	Unit	Test Methods	RESULT	General Discharge Standard Inland Surface Water
1	Temperature	°C	APHA, 23 rd Ed.2017-2550B	26	-
2	pH	-	APHA, 23 rd Ed.2017-4500B	7.74	5.5 – 9.0
3	Turbidity	NTU	APHA, 23 rd Ed.2017-2030B	4	-
4	Conductivity	µmhos/cm	APHA, 23 rd Ed.2017-2510	680	-
5	Odour	-	APHA, 23 rd Ed.2017-2150B	UO	-
6	Colour	Hazen Unit	APHA, 23 rd Ed.2017-2120B	<5	-
7	Total Dissolved Solids	mg/l	APHA, 23 rd Ed.2017-2540B	480	2100
8	Total Suspended Solids	mg/l	APHA, 23 rd Ed.2017-2540B	38	100
9	Dissolved Oxygen	mg/l	APHA, 23 rd Ed.2017-4500C	4.2	-
10	BOD (3 Days 27°C)	mg/l	IS 3025 (Part 44) 1993	9.8	30
11	COD	mg/l	APHA, 23 rd Ed.2017-5220C	52	250
12	Total Hardness as CaCO ₃	mg/l	APHA, 23 rd Ed.2017-2340C	190	-
13	Calcium as Ca	mg/l	APHA, 23 rd Ed.2017-4500B	48	-
14	Magnesium as Mg	mg/l	APHA, 23 rd Ed.2017-4500B	19.4	-
15	Total Residual Chlorine	mg/l	APHA, 23 rd Ed.2017-4500B	0.2	1.0
16	Ammonical N as N	mg/l	APHA, 23 rd Ed.2017-5220D	2.5	50
17	Total Kjeldahl Nitrogen as N	mg/l	APHA, 23 rd Ed.2017-4500B	6.8	100
18	Free Ammonia as NH ₃	mg/l	APHA, 23 rd Ed.2017-4500	0.6	5.0
19	Phenolic Compound	mg/l	APHA, 23 rd Ed.2017-5230D	0.015	1.0
20	Phosphate as PO ₄	mg/l	APHA, 23 rd Ed.2017-4500C	0.45	5.0
21	Sulphate as SO ₄	mg/l	APHA, 23 rd Ed.2017-4500E	15.8	1000
22	Sulphide as S	mg/l	APHA, 23 rd Ed.2017-4500D	0.12	2.0
23	Fluoride as F	mg/l	APHA, 23 rd Ed.2017-4500D	0.82	2.0
24	Cyanide as CN	mg/l	APHA, 23 rd Ed.2017-4500E	<0.1	0.2
27	Chlorides as Cl	mg/l	APHA, 23 rd Ed.2017-4500B	32	1000
28	Nitrate Nitrogen	mg/l	APHA, 23 rd Ed.2017-4500	9.0	10
29	Oil and Grease	mg/l	APHA, 23 rd Ed.2017-4500D	1.6	10
30	Iron as Fe	mg/l	APHA, 23 rd Ed.2017-3111B	0.22	3.0
31	Copper as Cu	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	3.0
32	Zinc as Zn	mg/l	APHA, 23 rd Ed.2017-3111B	1.24	5.0
33	Nickel as Ni	mg/l	APHA, 23 rd Ed.2017-3111B	<0.01	3.0
34	Manganese as Mn	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	2.0
35	Vanadium as V	mg/l	APHA, 23 rd Ed.2017-3111B	<0.002	0.2
36	Arsenic as As	mg/l	APHA, 23 rd Ed.2017-3114	<0.001	0.2
37	Lead as Pb	mg/l	APHA, 23 rd Ed.2017-3111B	0.08	0.1
38	Chromium as Cr ⁺³	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	-

ENVIRONMENT MONITORING TRAINING & RESEARCH CENTRE

EMTRC Lab: F-66, Road-2, UPSIDC Industrial Area, Masuri Gulawthi Road, Ghaziabad (UP) 201009

EMTRC CONSULTANTS PRIVATE LIMITED

EMTRC Lab: Recognized by Ministry of Environment, Forests & Climate Change, Govt. of India Gazette
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Phone: 9810032481, 011 21211228. email: emtrcikm@gmail.com . website: www.emtrc.in

39	Chromium as Cr ⁺⁶	mg/l	APHA, 23 rd Ed.2017-3500B	<0.05	0.1
40	Total Chromium as Cr	mg/l	APHA, 23 rd Ed.2017-3111B	<0.05	2.0
41	Selenium as Se	mg/l	IS3025(Part 56)	<0.01	0.05
42	Cadmium as Cd	mg/l	APHA, 23 rd Ed.2017-3111B	<0.001	2.0
43	Mercury as Hg	mg/l	APHA, 23 rd Ed.2017-3112	<0.001	0.01

UO= Unobjectionable



MUKESH KUMAR
Authorized Signatory



Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/SW/08
Name & Address of the Project: M/s Nabinagar Power Generating Company (NPGC)
Shivanpur, P.O.-Ankhora Railway Station, Bihar
Aurangabad, Bihar-824303, India
Report No.: VEL/SW/2208260008
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 01/09/2022
Period of Analysis: 26/08/2022 to 01/09/2022
Receipt Date: 26/08/2022
Sampling Date: 24/08/2022
Sampling Quantity: 2.0 Ltr.
Sampling Type: Grab
Parameter Required: As per work order

Sample Description: Surface Water
Sample Location: GSF Outlet
Sample Collected by: Vardan EnviroLab Representative
Preservation: Refrigerated
Sampling and Analysis Protocol: APHA 23rd Edition 2017 & IS 3025

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA 4500H+ B Electrometric Method	7.87	--
2.	Temperature	APHA 2550 B Thermometer Method	26.1	°C
3.	Electrical Conductivity	APHA 2510 B Conductivity Meter Method	158	µS/cm
4.	Turbidity	APHA 2130 B Nephelometric Method	BLQ(LOQ-1.0)	NTU
5.	Total Dissolved Solids	APHA 2540 C Gravimetric Method	95.00	mg/L
6.	Total Suspended Solids	APHA 2540 D Gravimetric Method	8.00	mg/L
7.	Dissolved Oxygen	APHA 4500 OB	5.9	mg/L
8.	BOD (5 Days at 20°C)	APHA 5210 C Ultimate BOD Test	4.28	mg/L
9.	Chemical Oxygen Demand	APHA, 5220 B Open Reflux Method	16.39	mg/L
10.	P-Alkalinity	APHA 2320 B Titration Method	Nil	mg/L
11.	M-Alkalinity	APHA 2320 B Titration Method	54.32	mg/L
12.	Calcium Hardness	APHA 3500 Ca B EDTA Titrimetric Method	55.69	mg/L
13.	Magnesium Hardness	APHA 3500 Mg B Calculation Method	8.48	mg/L
14.	Total Hardness	APHA 2340 C EDTA Titrimetric Method	64.26	mg/L
15.	Sodium	APHA 3500 K Flame Photometric Method	18.7	mg/L
16.	Potassium	APHA 3500 Na B Flame Photometric Method	BLQ(LOQ-1.0)	mg/L
17.	Sulphate as SO ₄	APHA 4500 E Turbidimetric Method	14.58	mg/L
18.	Nitrate as NO ₃	IS 3025 (Part -34), Chromotropic Method	5.81	mg/L
19.	Fluoride as F	APHA 4500 F D SPADNS Method	0.21	mg/L

(Checked By)
ANJALI KUMAR
Sr. Analyst





Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/SW/08			Report No.: VEL/SW/2208260008	
S. No.	Parameter	Test-Method	Result	Unit
20.	Chloride as Cl	APHA 4500 Cl B Argentometric Method	15.85	mg/L
21.	Reactive Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	16.47	mg/L
22.	Colloidal Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	2.59	mg/L
23.	Total Organic Carbon	IS 3025 (P-69) 2018	0.19	mg/L
24.	Boron	APHA 4500 C Carmine Method	BLQ(LOQ-0.01)	mg/L
25.	Iron as Fe	APHA 3500 Fe B 1,10 Phenanthroline Method	BLQ(LOQ-0.01)	mg/L
26.	Copper as Cu	APHA 3111 B, Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L
27.	Zinc as Zn	APHA 3111 B Air Acetylene Method	BLQ(LOQ-0.01)	mg/L
28.	Manganese as Mn	APHA 3111 B Direct Air Acetylene Flame Method	BLQ(LOQ-0.01)	mg/L
29.	Nickel as Ni	APHA 3111 B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L
30.	Arsenic as As	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.005)	mg/L
31.	Vanadium as V	IS 3025 (P-65)	BLQ(LOQ-0.002)	mg/L
32.	Lead as Pb	APHA 3111 B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L
33.	Chromium as Cr ³⁺	APHA 3500 Cr Colorimetric Method	BLQ(LOQ-0.05)	mg/L
34.	Chromium as Cr ⁶⁺	APHA 3500 Cr B Colorimetric Method	BLQ(LOQ-0.05)	mg/L
35.	Selenium as Se	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.001)	mg/L
36.	Cadmium as Cd	APHA 3111 B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L
37.	Mercury as Hg	APHA 3112 B Cold Vapor AAS Method	BLQ(LOQ-0.0005)	mg/L
38.	Total Chromium as Cr	APHA 3111 B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L
39.	Total coliform	IS 1622:1981	80	MPN/100ml
40.	E. coli	IS 15185:2016	Absent	Per 100ml

Note-*BLQ-Below Limit of Quantification, LOQ-Limit of Quantification

End of Report

(Checked By)
ANJANA SHARMA
Sr. Analyst



(Signature)
6/11/2022
KHUSHBU SHARMA
Senior Microbiologist



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Test Report

Sample Number: VEL/NPGCS/SW/09
Name & Address of the Project: M/s Nabinagar Power Generating Company (NPGC) Shivanpur, P.O.-Ankhora Railway Station, Bihar Aurangabad, Bihar-824303, India
Sample Description: Surface Water
Sample Location: Plant Effluent
Sample Collected by: Vardan EnviroLab Representative
Preservation: Refrigerated
Sampling and Analysis Protocol: APHA 23rd Edition 2017 & IS 3025

Report No.: VEL/SW/2208260009
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 01/09/2022
Period of Analysis: 26/08/2022 to 01/09/2022
Receipt Date: 26/08/2022
Sampling Date: 24/08/2022
Sampling Quantity: 2.0 Ltr.
Sampling Type: Grab
Parameter Required: As per work order

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA 4500H+ B Electrometric Method	7.46	--
2.	Temperature	APHA 2550 B Thermometer Method	24.9	°C
3.	Electrical Conductivity	APHA 2510 B Conductivity Meter Method	312	µS/cm
4.	Turbidity	APHA 2130 B Nephelometric Method	BLQ(LOQ-1.0)	NTU
5.	Total Dissolved Solids	APHA 2540 C Gravimetric Method	188.00	mg/L
6.	Total Suspended Solids	APHA 2540 D Gravimetric Method	22.00	mg/L
7.	Dissolved Oxygen	APHA 4500 OB	5.6	mg/L
8.	BOD (5 Days at 20°C)	APHA 5210 C Ultimate BOD Test	5.64	mg/L
9.	Chemical Oxygen Demand	APHA, 5220 B Open Reflux Method	22.58	mg/L
10.	P-Alkalinity	APHA 2320 B Titration Method	Nil	mg/L
11.	M-Alkalinity	APHA 2320 B Titration Method	140.65	mg/L
12.	Calcium Hardness	APHA 3500 Ca B EDTA Titrimetric Method	123.15	mg/L
13.	Magnesium Hardness	APHA 3500 Mg B Calculation Method	26.54	mg/L
14.	Total Hardness	APHA 2340 C EDTA Titrimetric Method	107.14	mg/L
15.	Sodium	APHA 3500 K Flame Photometric Method	38.1	mg/L
16.	Potassium	APHA 3500 Na B Flame Photometric Method	2.5	mg/L
17.	Sulphate as SO ₄	APHA 4500 E Turbidimetric Method	22.47	mg/L
18.	Nitrate as NO ₃	IS 3025 (Part -34), Chromotropic Method	7.95	mg/L
19.	Fluoride as F	APHA 4500 F D SPADNS Method	0.35	mg/L

(Checked By)
ANUJ KUMAR
Sr. Analyst

(Approved By)
Prakash Singh
Authorised Signatory





Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/SW/09			Report No.: VEL/SW/2208260009	
S. No.	Parameter	Test-Method	Result	Unit
20.	Chloride as Cl	APHA 4500 Cl B Argentometric Method	15.85	mg/L
21.	Reactive Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	10.84	mg/L
22.	Colloidal Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	1.08	mg/L
23.	Total Organic Carbon	IS 3025 (P-69) 2018	0.17	mg/L
24.	Boron	APHA 4500 C Carmine Method	BLQ(LOQ-0.01)	mg/L
25.	Iron as Fe	APHA 3500 Fe B 1,10 Phenanthroline Method	BLQ(LOQ-0.01)	mg/L
26.	Copper as Cu	APHA 3111 B, Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L
27.	Zinc as Zn	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.01)	mg/L
28.	Manganese as Mn	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.01)	mg/L
29.	Nickel as Ni	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L
30.	Arsenic as As	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.005)	mg/L
31.	Vanadium as V	IS 3025 (P-65)	BLQ(LOQ-0.002)	mg/L
32.	Lead as Pb	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L
33.	Chromium as Cr ³⁺	APHA 3500 Cr Colorimetric Method	BLQ(LOQ-0.05)	mg/L
34.	Chromium as Cr ⁶⁺	APHA 3500 Cr B Colorimetric Method	BLQ(LOQ-0.05)	mg/L
35.	Selenium as Se	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.001)	mg/L
36.	Cadmium as Cd	APHA 3111B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L
37.	Mercury as Hg	APHA 3112 B Cold Vapor AAS Method	BLQ(LOQ-0.0005)	mg/L
38.	Total Chromium as Cr	APHA 3111B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L
39.	Total coliform	IS 1622:1981	90	MPN/100ml
40.	E. coli	IS 15185:2016	Absent	Per 100ml

Note-*BLQ-Below Limit of Quantification, LOQ-Limit of Quantification

End of Report

(Checked By)
ANJALI
Sr. Analyst

(Approved By)
Dr Shiv
Prakash
Singh
Authorised Signatory

KHUSHBU SHARMA
Senior Microbiologist



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Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/SW/10
Name & Address of the Project: M/s Nabinagar Power Generating Company (NPGC) Shivanpur, P.O.-Ankhora Railway Station, Bihar Aurangabad, Bihar-824303, India
Sample Description: Surface Water
Sample Location: Raw Water Reservoir
Sample Collected by: Vardan EnviroLab Representative
Preservation: Refrigerated
Sampling and Analysis Protocol: APHA 23rd Edition 2017 & IS 3025

Report No.: VEL/SW/2208260010
Format No.: 7.8 F-01
Party Reference No.: NIL
Reporting Date: 01/09/2022
Period of Analysis: 26/08/2022 to 01/09/2022
Receipt Date: 26/08/2022
Sampling Date: 24/08/2022
Sampling Quantity: 2.0 Ltr.
Sampling Type: Grab
Parameter Required: As per work order

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA 4500H+ B Electrometric Method	7.10	--
2.	Temperature	APHA 2550 B Thermometer Method	25.8	°C
3.	Electrical Conductivity	APHA 2510 B Conductivity Meter Method	169	µS/cm
4.	Turbidity	APHA 2130 B Nephelometric Method	BLQ(LOQ-1.0)	NTU
5.	Total Dissolved Solids	APHA 2540 C Gravimetric Method	102.00	mg/L
6.	Total Suspended Solids	APHA 2540 D Gravimetric Method	16.00	mg/L
7.	Dissolved Oxygen	APHA 4500 OB	6.6	mg/L
8.	BOD (5 Days at 20°C)	APHA 5210 C Ultimate BOD Test	2.58	mg/L
9.	Chemical Oxygen Demand	APHA, 5220 B Open Reflux Method	8.74	mg/L
10.	P-Alkalinity	APHA 2320 B Titration Method	Nil	mg/L
11.	M-Alkalinity	APHA 2320 B Titration Method	101.85	mg/L
12.	Calcium Hardness	APHA 3500 Ca B EDTA Titrimetric Method	80.31	mg/L
13.	Magnesium Hardness	APHA 3500 Mg B Calculation Method	26.67	mg/L
14.	Total Hardness	APHA 2340 C EDTA Titrimetric Method	107.14	mg/L
15.	Sodium	APHA 3500 K Flame Photometric Method	30.5	mg/L
16.	Potassium	APHA 3500 Na B Flame Photometric Method	1.2	mg/L
17.	Sulphate as SO ₄	APHA 4500 E Turbidimetric Method	28.1	mg/L
18.	Nitrate as NO ₃	IS 3025 (Part -34), Chromotropic Method	9.4	mg/L
19.	Fluoride as F	APHA 4500 F D SPADNS Method	0.32	mg/L

(Checked By)
ANJANA SIA
Sr. Analyst

(Approved By)
Prakash Singh
Authorised Signatory



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Vardan EnviroLab

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

Test Report

Sample Number: VEL/NPGCS/SW/10			Report No.: VEL/SW/2208260010	
S. No.	Parameter	Test-Method	Result	Unit
20.	Chloride as Cl	APHA 4500 Cl B Argentometric Method	13.21	mg/L
21.	Reactive Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	12.36	mg/L
22.	Colloidal Silica	APHA 4500 SiO ₂ C Molybdosilicate Method	1.57	mg/L
23.	Total Organic Carbon	IS 3025 (P-69) 2018	0.16	mg/L
24.	Boron	APHA 4500 C Carmine Method	BLQ(LOQ-0.01)	mg/L
25.	Iron as Fe	APHA 3500 Fe B 1,10 Phenanthroline Method	BLQ(LOQ-0.01)	mg/L
26.	Copper as Cu	APHA 3111 B, Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L
27.	Zinc as Zn	APHA 3111 B Air Acetylene Method	BLQ(LOQ-0.01)	mg/L
28.	Manganese as Mn	APHA 3111 B Direct Air Acetylene Flame Method	BLQ(LOQ-0.01)	mg/L
29.	Nickel as Ni	APHA 3111 B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L
30.	Arsenic as As	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.005)	mg/L
31.	Vanadium as V	IS 3025 (P-65)	BLQ(LOQ-0.002)	mg/L
32.	Lead as Pb	APHA 3111 B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L
33.	Chromium as Cr ³⁺	APHA 3500 Cr Colorimetric Method	BLQ(LOQ-0.05)	mg/L
34.	Chromium as Cr ⁶⁺	APHA 3500 Cr B Colorimetric Method	BLQ(LOQ-0.05)	mg/L
35.	Selenium as Se	APHA 3114 B Manual Hydride Generation	BLQ(LOQ-0.001)	mg/L
36.	Cadmium as Cd	APHA 3111 B Air Acetylene Method	BLQ(LOQ-0.002)	mg/L
37.	Mercury as Hg	APHA 3112 B Cold Vapor AAS Method	BLQ(LOQ-0.0005)	mg/L
38.	Total Chromium as Cr	APHA 3111 B Direct Air Acetylene Flame Method	BLQ(LOQ-0.002)	mg/L
39.	Total coliform	IS 1622:1981	70	MPN/100ml
40.	E. coli	IS 15185:2016	Absent	Per 100ml

Note-*BLQ-Below Limit of Quantification, LOQ-Limit of Quantification

End of Report

(Checked By)
ANJU K. SHARMA
Sr. Analyst


KHUSHBU SHARMA
Senior Microbiologist



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EMTRC CONSULTANTS PRIVATE LIMITED

EMTRC Lab: Recognized by Ministry of Environment, Forests & Climate Change, Govt. of India

Gazette Notification SO: 3744 (E), 17-10-2019 Accredited by NABL - ISO/IEC 17025:2017 (TC-7376)

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TEST REPORT

Date: 04-06-2022

Report No. : EMTRC/NPGCL-160/2022
Issued To : Nabinagar Power Generating Company
NPGC-Shivanpur, PO-Ankhora Railway Station
Aurangabad Bihar-824303
Name of Project : Nabinagar Super Thermal Power Project
No. of Pages : 1 of 1
WO / PO No : 4000249231-057-2035 Date: 13.11.2020
(version:1, Date: 07.12.2020)
Type of Sample : Ambient Noise Quality
Date of Sampling : 02-05-2022 to 04-05-2022
Sampling Procedure : SOP
Sample Collected & Brought to Lab by : EMTRC Staff

NOISE QUALITY TEST RESULTS

	Location	Unit	Result (Day Time)	Result (Night Time)	Prescribed Standards
1	Near DG Room	dB(A)	64.2	56.8	Permissible Exposure Limit Factories Act (1-1-1997) 85 dBA – 8 hours 88 dBA – 4 hours 91 dBA – 2 hours 94 dBA – 1 hours 97 dBA – 30 minutes 100 dBA – 15 minutes
2	Plant Material Gate	dB(A)	60.8	56.4	
3	Near Compressor Area	dB(A)	82.4	78.8	
4	Near Turbine Area	dB(A)	76.6	72.8	
5	Near H-Type Office	dB(A)	59.2	52.6	



MUKESH KUMAR
Authorized Signatory



Test Report

Sample Number: VEL/NPGCS/AN/01
Name & Address of the Project: M/s Nabinagar Power Generating Company (NPGC) Shivanpur, P.O.-Ankhora Railway Station, Bihar Aurangabad, Bihar-824303, India
Report No.: VEL/AN/2208290001
Format No.: 7.8 F-03
Party Reference No.: 4000280838-057-2035 Dated 14.06.2022
Reporting Date: 01/09/2022
Receipt Date: 29/08/2022

Sample Description: AMBIENT NOISE LEVEL MONITORING

General Information:-

Sample collected by : Vardan EnviroLab Representative
Instrument Used : Sound Level Meter
Instrument Calibration Status : Calibrated
Meteorological condition during monitoring : Clear Sky
Time of Monitoring : 06:00 AM to 06:00 AM
Surrounding Activity : Human , Vehicular & Other Plant Activities
Scope of Monitoring : Regulatory Requirement
Control measure If Any : No any
Sampling & Analysis Protocol : IS-9989 & CPCB Guidelines
Sampling Duration : 24 Hours
Parameter Required : As per Work Order

TEST RESULTS

S. No.	Locations	Date of Sampling	Test Result dB (A)					
			Day Time			Night Time		
			(L _{Max})	(L _{Min})	(L _{eq})	(L _{Max})	(L _{Min})	(L _{eq})
1.	Turbine Area	23/08/2022-24/08/2022	71.7	50.4	63.10	61.2	42.9	53.50
2.	Compressor Area	23/08/2022-24/08/2022	73.6	54.1	64.20	60.6	41.9	50.70
3.	DG Area	23/08/2022-24/08/2022	69.8	55.9	61.40	58.7	43.8	51.90
4.	Plant Area	25/08/2022-26/08/2022	67.4	51.3	59.30	56.3	40.2	54.30
5.	Outside Plant Area	25/08/2022-26/08/2022	72.6	53.5	60.10	62.9	44.6	52.40
CPCB Limits in dB(A*) Leq (Industrial Area)			75.0			70.0		

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

End of Report

(Checked By)
ANJU ANILIA
Sr. Analyst



AAQM Data (April 2022 to Sept. 2022)

Parameters →		PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO	O ₃	NH ₃
UOM →		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³
Month	Location	(24-Hours. Average)	(24-Hours. Average)	(24-Hours. Average)	(24-Hours. Average)	(1-Hour. Average)	(8-Hours. Average)	(24-Hours. Average)
Applicable Norms** →		100	60	80	80	4	100	400
April-22	H-Blocck	71.87	34.87	7.31	12.83	0.31	25	12.93
	Admn. Building	77.5	38.5	8.09	14	0.4	26.75	14.63
	RWPH	76.5	38.37	7.95	14.41	0.38	27	15.71
	Shivanpur Gate	65.25	32.25	6.19	10.94	BDL*	24.75	≤ 5.0
May-22	H-Blocck	72.21	36.47	8.11	13.12	0.35	25.78	11.37
	Admn. Building	76.28	35.4	8.31	12.49	0.52	26.31	14.52
	RWPH	79.38	41.08	8.26	14.73	0.49	26.3	13.28
	Shivanpur Gate	69.28	33.19	9.16	15.07	BDL*	25.37	≤ 5.0
Jun-22	H-Blocck	70.62	34	7.47	11.75	0.39	22.87	11.63
	Admn. Building	77.25	39.5	9.04	13.66	0.48	25	13.91
	RWPH	78.75	40.37	9.12	13.79	0.46	24.5	12.66
	Shivanpur Gate	66.62	32.25	6.25	10.42	BDL	22.5	≤ 5.0
Jul-22	H-Blocck	56.33	35.45	10.53	22.67	1.04	16.81	12.15
	Admn. Building	56.07	37.23	8.88	22.86	0.95	19.88	12.38
	RWPH	56	36.23	9.57	25.93	1.17	21.64	13.64
	Shivanpur Gate	46.92	28.07	8.84	23.05	1	23.16	14.23
Aug-22	H-Blocck	53.08	35.78	8.15	20.63	0.78	18.44	BDL*
	Admn. Building	53.41	34.86	8.08	19.86	0.72	18.22	BDL*
	RWPH	56.23	35.41	7.61	19.66	0.72	20.74	BDL*
	Shivanpur Gate	54.93	35.84	7.61	20.52	0.83	20.77	BDL*
Sep-22	H-Blocck	56.04	37.88	9.24	23.42	0.8	21.12	BDL*
	Admn. Building	55.91	36.6	9.57	22.24	0.74	20.41	BDL*
	RWPH	59.07	37.01	9.22	22.2	0.75	23.03	BDL*
	Shivanpur Gate	57.21	38.45	9.76	22.98	0.84	23.09	BDL*

* BELOW DETECTION LIMIT

** (MoEF&CC NOTIFICATION DATED 16th NOVEMBER 2009)

NABINAGAR SUPER THERMAL POWER STATION
UNIT OF NTPC LTD.

Annexure F

S.N.	Description	Present Status	Action Required
1	Progress on FGD Package	<p>Package is already delayed by 21 Months</p> <p>Piling Works: 2340/2340nos (100%) completed</p> <p>Civil Works:</p> <ul style="list-style-type: none"> • RCC Scope: 31,420cum; Completed: 13,200cum (42%) Present RCC progress of 560cum/month against requirement of 2000cum/month • Poor Manpower deployment (Avg. mobilized: 125, Required: 300) <p>Chimney Works:</p> <p>RCC Shell Concrete:</p> <ul style="list-style-type: none"> • Chimney#1: 143/143m (100%) completed. • Chimney#2: 94.5/143m (66%) completed. • Chimney#3: 25.7/143m (18%) completed. <p>Mech. Erection Works: 600/40,000MT completed</p>	<p>Immediate action needed for mitigating delays</p> <p>Performance of Starcon is poor. Additional Civil Agency need to be deployed by BHEL to improve work progress.</p>
2	Engineering	555/927 (60%) completed	To be expedited and ensured completion of engineering at the earliest
3	Ordering of FGD Package BOIs and SMIs	<p>BOIs: 14/17 major group of items are ordered. Limestone Handling (LHS) and Gypsum Handling System (GHS) ordered in Feb'20, BBU yet to be submitted</p> <p>SMIs: Only 14 % (Rs 63 Cr/ 430 Cr) supply done. Supply distributed among 18 BHEL units. Only Ranipet supply started.</p> <p>Ranipet- 9453/17000 MT supplied. Trichy- 3598/7400 MT</p> <p>No details of other units are submitted yet.</p>	<p>Balance 13 group of BOIs are yet to be ordered.</p> <p>Supply from other BHEL units need to be expedited.</p>



STACK EMISSION (UNIT WISE)

UNIT_NO	Installed Capacity (MW)	PM (mg/Nm ³)			SO ₂ (mg/Nm ³)			NO _x (mg/Nm ³)			Mercury (Hg) Emission (mg/Nm ³)		
		Applicable Norm *	Actual Value		Applicable Norm *	Actual Value		Applicable Norm *	Actual Value		Applicable Norm *	Actual Value	
			Min. Value for the month	Max. Value for the month		Min. Value for the month	Max. Value for the month		Min. Value for the month	Max. Value for the month		Min. Value for the month	Max. Value for the month
Apr-22													
1	660	30	23	24	100	1639	1973	100	292	406	0.03	BDL	BDL
2	660	30	25	27	100	1579	2036	100	288	415	0.03	BDL	BDL
May-22													
1	660	30	23	27	100	1152	1179	100	290	410	0.03	BDL	BDL
2	660	30	25	26	100	1205	1546	100	302	418	0.03	BDL	BDL
Jun-22													
1	660	30	22	24	100	1020	1121	100	220	427	0.03	BDL	BDL
2	660	30	23	27	100	1085	1153	100	250	410	0.03	BDL	BDL
Jul-22													
1	660	30	22	23.5	100	1088	1598	100	210	432	0.03	BDL	BDL
2	660	30	22	22.4	100	1433	1713	100	212	415	0.03	BDL	BDL
Aug-22													
1	660	30	22	22.7	100	1288	1655	100	242	412	0.03	BDL	BDL
2	660	30	21.5	23.8	100	1293	1677	100	212	418	0.03	BDL	BDL
Sep-22													
1	660	30	22	23.5	100	1250	1598	100	232	422	0.03	BDL	BDL
2	660	30	21	22.4	100	1330	1713	100	246	411	0.03	BDL	BDL

BDL - Below Detection Limit

* (MoEF&CC Notification Dated 7th December, 2015 AND AMENDMENT DATED 28TH JUNE, 2018)

Annexure - H

Monthly Water Consumption (April 2022 to Sept. 2022)								
Sr No	Month	Monthly Water Withdrawal from Natural Source River /lake (m3)	Monthly Actual Industrial Water Consumption (m3)	Monthly Actual Township Water Consumption (m3)	Monthly Actual Gross Generation (MU)	PLF (%)	SWC Withdrawal (m3/MWh)	SWC (Consumption-Industrial) (m3/MWh)
1	Apr'22	3115249	2655423	-	915.49	96.33	3.40	2.90
2	May'22	3104680	2704680	-	900.28	83.97	3.45	3.00
3	June'22	2874509	2874509	-	1046.50	73.41	2.75	2.75
4	July'22	3763844	3763844	-	1094.04	74.27	3.44	3.44
5	Aug'22	3275179	3275179	-	1161.32	78.83	2.82	2.82
6	Sept'22	2797503	2797503		1169.25	82.02	2.39	2.39
Total		1,89,30,964.00	1,80,71,138.00		6,286.89		3.01	2.87