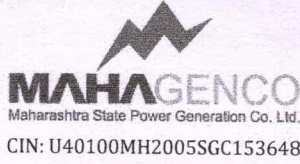


MAHARASHTRA STATE POWER GENERATION CO. LTD.



Office of **Executive Director**
ENVIRONMENT & SAFETY UNIT.
HDIL Towers, 4th Floor, A-Wing, Prof. A. K. Marg,
Bandra (E) Mumbai 400 051.
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CE/E&S/EE-1/Bhusawal Project/1x660MW/EC condition status/ 101

Date: 26 FEB 2024

To,
Integrated Regional Officer,
Ministry of Environment & Forest and Climate Change,
Regional Office (West-Central Zone)
Ground Floor, Eastern Wing,
New Secretariat Building- Opposite Old V.C.A. Stadium,
Civil Lines, Nagpur- 440001.

Sub: 1x660 MW (Unit-VI) Supercritical Technology Bhusawal Coal based Thermal Power Project at Village Pimpri-Sekam, Bhusawal Talula, in Jalgaon District, Maharashtra.

Reg.: Updated status of Compliance of Environmental Clearance conditions to furnish six monthly report to MoEF. (July- 2023 to December 2023)

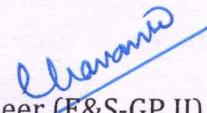
- Ref.:1. Environment Clearance letter no.: J13012/75/2010-IA.II.(T), Dt. 27.11.2012.
2. EC Extension letter no.:J13012/75/2010-IA.II.(T), Dt.14.01.2020
3. EC Amendment letter no.:J13012/75/2010-IA.II.(T), Dt.11.09.2020
4. EC Extension letter no. J13012/75/2010-IA.II.(T), Dt. 14.12.2023.

Dear Sir,

As per the Environmental Clearance condition no., B-General Condition (xi) of the Environmental Clearances for said project, MAHAGENCO has to submit report on the status of Implementation of stipulated environmental clearance conditions to MoEF.

Ministry vide its letter under Ref. (2 & 4), (3), has granted extensions and required amendment of EC respectively along with additional conditions to be comply. Accordingly, this office is now submitting compliance status of EC conditions along with additional conditions sought for period of July- 2023 to December 2023. The issue of online submission of Environment Clearance Compliance on MoEFCC portal is taken up with Parivesh Portal team which yet to be resolved. The related documents in this regards are enclosed herewith.

Submitted for your kind consideration please.


Chief Engineer (E&S-GP II)

Copy to (By E-mail):

- Central Pollution Control Board through its R.O,
- Maharashtra Pollution Control Board through its R.O

Compliance Status of Environmental Clearance Conditions for 1x660 MW Bhusawal Thermal Power Project for the Period of July 2023 to December 2023.

A. Specific Conditions: -

- i) It shall be ensured that old units of Unit 2x210 MW viz. Unit-II and Unit-III are retrofitted to ensure that ESPs for these units complies with 50 mg/Nm³. Old ESP shall be accordingly replaced.

Compliance: -

a) Unit no. 2 is decommissioned w.e.f.01.04.2017.

b) Unit No. 3 (210MW): ESP system provided with 20 Nos. of ESP fields & in order to keep Electrostatic Precipitators in healthily conditions, regular monitoring of ESP fields is carried out & preventive measures are taken as per the schedules. Permanent AFGC (Ammonia Flue Gas Conditioning System) is already installed and is in service since 2005. By dosing Ammonia gas continuously to improve the efficiency of ESP so as to reduce SPM level as per MPCB specified norms.

ESP internal repair / replacement & computed flow modulation for equal distribution' as been planned, work order for the same has been placed. The said work will be carried out in upcoming overhaul of Unit 3 (210 MW), BTPS.

Desired SPM limit for Unit No.3 (210MW) of Bhusawal TPS is 100 mg/Nm³ As per MoEF/MPCB/CPCB norms. Currently Bhusawal TPS has maintained SPM level below 100 mg/Nm³ of Unit- 3 (210MW). Regular Stack Emission Monitoring is carried out from MoEF & CC recognized laboratory and the results are within limit.

- ii) Additional coal requirement of about 1.99 MTPA will be obtained from other power plants of Mahagenco which are being shut down, only as an interim period until Machhakatta Coal mines becomes operational.

Compliance: – Ministry vide letter dt. 11.09.2020 has permitted to use existing linkages of old units of MAHAGENCO, sourced from WCL, SECL & MCL mines in view of cancellation of Machhakatta coal mine.

- iii) Scheme for implementation for harnessing solar power within the premises of the plant particularly at available rooftops shall be formulated and status of implementation shall be submitted to the Regional Office of the Ministry from time to time.

Compliance: – In order to implement for harnessing solar power within the premises of Bhusawal 1x660 MW Project, provisions are already made for roof top solar photo voltaic (PV) system.

- iv) Space provision for installation of FGD shall be provided for future use.

Compliance:– FGD system incorporated in BHEL's contract & the erection work is in progress and anticipated date of completion is 30.06.2024.

- v) 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 the Ministry for suitable amendments to environment clearance condition wherever necessary.

Compliance:- Shall be observed and any variation will be intimated. MoEF&CC notification dtd. 21/05/2020 has issued guidelines regarding use of coal without stipulations as regards to ash content or distance, shall be followed.

- vi) A long term study on radio activity and heavy metals contents in coal to be used shall be carried out through a reputed institute. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.

Compliance:-

- a. The study on radioactive substance in coal, fly ash and bottom ash was done from M/s. Board of Radiation & Isotope Technology (BRIT), Mumbai. Samples were collected on dtd.15.03.2020 & analysis carried out on dtd. 29.05.2020. Test reports are enclosed herewith. (Annexure-A)
- b. For long term study on heavy metals content in coal, fly ash and bottom ash is done from M/s. Central Institute of Mining & fuel Research, Dhanbad. Samples were collected on dtd. 15.03.2020 & analysis carried out on dtd. 02.07.2020. Test reports are enclosed herewith. (Annexure-B)
- c. There are no instruments available for inbuilt continuous monitoring. So, periodic sampling and study of heavy metals & Radioactivity shall be carried out.
- vii) Fugitive emissions shall be controlled to prevent impact on agricultural or non-agricultural land is affected, damage to any land.
- Compliance:** - Dust Extraction & water sprinkling system is proposed in EPC contract to control of fugitive emissions from plant area.
- viii) Fly ash shall not be used for mine void filling or agricultural purpose.
- Compliance:** Shall be complied.
- ix) A stack of 275 m height with flue gas velocity not less than 22 m/s shall be installed and provided with continuous online monitoring equipment's for SO_x, NO_x and PM_{2.5}& PM₁₀. Mercury emissions from stack may also be monitored on periodic basis.
- Compliance:** - Ministry vide letter dtd 11.09.2020 has amended the said condition and compliance of the same is mentioned at Sr No D (i).
- x) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm³.
- Compliance:** - shall be complied as per revised emission standards for Thermal Power Plant vide ministries notification date 07.12.2015.
- xi) 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.
- Compliance:** - shall be complied.
- xii) Utilization of 100% fly ash generated shall be made from day one of operation of Unit-VI (660 MW). Status of 100% ash utilization of other units shall be submitted to the R.O. of the Ministry and the State Pollution Control Board from time to time.
- Compliance:** - For 100% utilization of fly ash generated from Unit -VI, and as per the provision laid down in new notification for fly ash utilization dtd.31.12.2021, necessary measures will be taken for the compliance of this condition. Tender regarding the same is floated.
- xiii) 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.

Compliance: -

Remote fly ash silo & HSCD silo is provided for collection of fly ash in dry form and unutilized fly ash will be disposed off in the existing ash pond of 2x500MW Project in slurry form.

Mercury and other heavy metals (As,Hg,Cr,Pb etc.) content monitoring in bottom ash, in water percolated from Ash Bund & Ground water around the 20 KMs periphery of BTPS is carried out regularly from MoEF&CC recognized agency. It is observed that the Mercury and other heavy metals content is not detected in water percolated from Ash Bund as well as in ground water around the 20 KMs periphery of BTPS. The recent analysis reports of the same are attached herewith.

- xiv) Rehabilitation of abandoned ash pond shall ensure that ecological restoration is physically manifested within a period of three years and accordingly action plan formulated and details submitted to the regional office of the Ministry and the State Pollution Control Board.

Compliance: - Natural growth of plantation of local species already developed on abandoned ash bund.

- xv) Three tier green belts shall be developed all around Ash Pond-II over and over Green Belt around the plant boundary.

Compliance: - Shall be complied.

- xvi) Ash pond shall be lined with HDPE / LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.

Compliance: - No new ash pond required for proposed 1x660MW unit. Old ash pond will be utilized by raising of ash bund up to RL 270 meter in phased manner.

- xvii) Hydrogeology of the area shall be reviewed annually from an institute / organization of repute to assess impact of surface water and ground regime (especially around ash dyke). In case any deterioration is observed specific mitigation measures shall be undertaken and reports / data of water quality monitored regularly and maintained shall be submitted to the Regional Office of the Ministry.

Compliance: - Regular analysis of surface water and ground water is being carried out from MoEFCC approved & NABL accredited laboratory. Report enclosed as Annexure –III.

- xviii) No ground water shall be extracted for use in operation of the power plant even in lean season.

Compliance: - No ground water will be extracted for use.

- xix) 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.

Compliance: - No water bodies (including natural drainage system) in this area will be disturbed.

- xx) COC of 5.0 shall be adopted.

Compliance: - shall be observed.

xxi) 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.

Compliance: - Regular ground water monitoring around ash pond area is being carried out from NABL accredited agency.

xxii) Monitoring surface water quality and quantity in the area 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.

Compliance: - Regular surface water monitoring around is being carried out from NABL accredited agency.

xxiii) Waste water generated from the plant shall be treated before discharge to comply limits prescribed by the SPCB.

Compliance: - For the treatment of wastewater generated at 1x660 MW Project work of erection of ETP is in progress and anticipated date of completion is 31.03.2024.

xxiv) The project proponent shall undertake rain water harvesting measures and shall develop water storage for use in operation of the plant. Rain water harvesting system shall be put in place which shall comprise of rain water collection from the built up and open area in the plant premises. Action plan for implementation shall be submitted to the Regional Office of the Ministry.

Compliance: - Rainwater harvesting system for this project is included in EPC contract. Implementation is under process. Total 5 nos. of rainwater harvesting ponds are proposed of which 3 are completed.

xxv) It shall be ensured that the area drainage is not disturbed due to the proposed project.

Compliance: - It is ensured that the area drainage is not disturbed due to this project.

xxvi) The leveling in plant area should be minimum with no or minimal disturbance to the natural drainage of the area. If the minor canals (if any) have to be diverted the design for diversion should be such that the diverted canals not only drain the plant area but also collect the volume of flood water from the surrounding areas and discharge into marshy areas / major canals that enter into creek / nallah etc. Major canals should not be altered but their bunds should be strengthened and desilted.

Compliance: - No natural drainage or minor canal is passing through the proposed plant area.

xxvii) The project proponent shall also adequately contribute in the development of the neighboring villages. Special package with implementation schedule for providing free potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.

Compliance: -

1. Phase-I CSR works of Rs. 3.56 Cr is completed.
2. For Fulgaon & Pimpri Sekam village provision of potable drinking water pipeline of Rs. 5.75 Cr tender is published under CSR Phase II.

3. Water ATMs to other villages will be provided as per demand from Gram Panchayat under CSR phase III. Annexure I and II attached herewith.

xxviii) As part of CSR, regular health check-up of villagers in the nearby villages shall to be carried out and records maintained.

Compliance: - Shall be complied.

xxix) A time bound implementation of the CSR shall be formulated within six months and submitted to the Ministry. It shall be ensured that an in-built monitoring mechanism for the CSR schemes identified and R&R are in place and annual social audit shall be got done from the nearest government institute repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time. The achievements should be put on company's website.

Compliance: -

1. Phase-I CSR works completed as per Grampanchayat Demands (As per Annex.)
2. Phase-II CSR various civil works proposal are under process of approval.
Annexure I and II attached herewith

xxx) CSR scheme shall be undertaken based on need based assessment in and around the villages within 5 km of the site and in constant consultation with the Village Panchayat and the District Administration. As part of CSR employment of local youth after imparting relevant training as may be necessary shall be undertaken as committed.

Compliance: - All villages covered under 5 km distance are considered in CSR phase- I & II works. Works shall be carried as per demands from Grampanchayat.

xxxi) An amount of Rs. 18.20 Crores shall be earmarked as onetime capital cost for CSR program as committed by the project proponent. Subsequently a recurring expenditure of Rs. 3.64 Crores per annum till the life of the plant shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within six months along with road map for implementation.

Compliance: -

1. CSR Phase-I works of Rs.3.56Cr are completed.
2. CSR Phase-II works of (Rs.4.77 + 5.75 = 10.52 Cr) tender published.
3. Balance works of Rs.6.85Cr. will be taken up in Phase-III after receipt of Grampanchayat Resolutions from Villages.

xxxii) Green Belt consisting of 3 tiers of plantations of native species around plant and 100 m width shall be raised. The density of trees shall not less than 2500 per ha with survival rate not less than 80%.

Compliance: - Tender for development of green belt is invited by EPC contractor M/s BHEL, said work will started shortly.

xxxiii) An Environmental Cell comprising of at least one expert in environmental science / engineering occupational health and social scientist, shall be created at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the head of the organization who would be accountable for implementation of environmental regulations and social impact improvement / mitigation measures.

Compliance: - Shall be complied.

B) General Conditions:-

- i) The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. Arrangements shall be made that effluents and storm water do not get mixed.
Compliance: -Trade effluents are connected to CMB of ETP. All effluents will be treated at ETP & shall be reused within the plant premises. Storm water drains will be connected to rain water harvesting pond separately.
- ii) A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt plantation.
Compliance: -Provision of sewage treatment plant is included in scope of EPC contract and the treated sewage shall be used for raising greenbelt plantation.
- iii) 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 alongwith location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.
Compliance: - Shall be observed as per the provisions of EPC Contract.
- iv) Storage facilities for auxiliary liquid fuel such as LDO / HFO / LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. 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.
Compliance: - Shall be complied.
- v) First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.
Compliance: -First Aid and sanitation arrangements are made for the drivers and other contract workers during construction phase.
- vi) Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 85dB (A) from source. For people working in the high noise area, requisite personal protective equipment like earplugs / ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non-noisy / less noisy areas.
Compliance: -Acoustic enclosures, silencers and mufflers, wherever required shall be provided for reducing the noise levels. Personal protective equipment shall be provided.
- vii) Regular monitoring of ambient air ground level concentration of SO₂, NO_x, PM_{2.5} & PM₁₀ 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.
Compliance: -Shall be complied. Provision of four CAAQMS stations has already made for monitor ambient air quality for project area. A guidance regarding finalizing the three more locations for Ambient Air Quality Monitoring System (AAQMS) is requested from SRO, MPCB, Jalgaon vide dated 17/06/2020.

- viii) 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.
Compliance: -Provision is made for the housing of construction labour (as applicable) near site with all necessary infrastructures and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing is in form of temporary structures which will be removed after the completion of the project.
- ix) 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 his 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>.
Compliance: -Advertised in newspapers.
 a) Lokmat Times, Aurangabad on or before dtd.15/12/2012
 b) DainikSakal, Jalgaon on or before dtd.15/12/2012
- x) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, ZilhaParishad / Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions, if any, received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.
Compliance: -Sent vide letter no. Dy.CE(C)/CCC/BSL/3116, dated 15/12/2012.
- xi) 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} & PM₁₀), SO₂, 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.
Compliance: -Shall be complied.
- xii) 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 alongwith the status of compliance of environmental clearance conditions and shall also be put on the website of the company alongwith the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.
Compliance: -Shall be complied by O&M after commissioning of unit.
- xiii) 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.
Compliance: -Submitted regularly.

- xiv) 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 alongwith the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will upload the compliance status in their website and update 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 gate of the power plant.

Compliance: -Shall be complied.

- xv) Separate funds shall be allocated for implementation of environmental protection measures alongwith item wise breakup. These costs 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.

Compliance: -Separate funds shall be allocated for implementation of Environment protection measures.

- xvi) 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.

Compliance: -The date of financial closure of the project shall be informed. The land development work was started on 24/06/2019.

- xvii) Full cooperation shall be extended to the Scientists / Officers from the Ministry / Regional Office of the Ministry / CPCB / SPCB who would be monitoring the compliance of environmental status.

Compliance: - Shall be complied.

6. The environmental clearance accorded shall be valid for a period of 5 years to start operations by the power plant.

Compliance: -The Ministry has extended the validity of Environmental Clearance upto 26/11/2022 vide its letter J-13012/75/2010-IA.II (T), dated 14/01/2020. Also as per MoEF & CC Notification No S.O. 221 (E) dtd 18.01.2021 the validity of Environmental Clearance is further extended by one year i.e till 26/11/2023. Further, the ministry vide letter J-13012/75/2010-IA.II (T), dated 14/12/2023 has extended the validity up to 26.11.2024.

7. Concealing factual data or submission of false / fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

Compliance: -Noted.

8. In case of any deviation or alternation in the project proposed including coal transportation system from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the conditions imposed and to add additional environmental protection measures required, if any.

Compliance: - Shall be observed and informed in case of any deviation.

Additional conditions vide The Ministry of Environment, Forests and Climate Change letter dated 14.01.2020.

- i. Progress (both physical and financial) of construction of power plant including provisions installation of FGD and SCR shall be submitted as a part of six monthly compliance report.

Compliance: -Progress report attached herewith (Annexure-IV).

- ii. Emission norms and specific water consumption as per the Ministry's norms dated 07.12.2015 and 28.06.2018 shall be complied with. As committed, Flue-Gas Desulphurization Unit and Selective Catalytic Reactor to control SO₂ and NO_x respectively shall be installed.

Compliance: - Shall be complied.

- iii. Technology selection for adoption of FGD for control of SO_x. In case of wet FGD, source of limestone, impact of transportation, handling, storage and disposal of Gypsum including land requirement.

Compliance: -

- a) FGD Technology: Wet type Lime stone FGD technology is selected for control of SO_x. Wet Limestone FGD is the most suitable technology for the units of capacity > 500 MW. Wet Limestone FGD can handle large flue gas volumes and it can absorb variation in sulphur fluctuations. The sulphur removal efficiency of Wet Limestone FGD is high @99%. The operating cost of Wet Limestone FGD is less in comparison with other FGD technologies.
 - b) Source of Limestone: Balaji Limestones Mines. Gadchandur, Near Chandrapur.
 - c) Impact of Transportation: Transportation cost for transportation of Lime shall be @ INR 2500 to 3000 per MT.
 - d) Handling, Storage and Disposal of Gypsum including land requirement: The bi-product Gypsum shall be stored in Gypsum Storage Shed. From the storage Shed the Gypsum will be given to nearby Cement Manufacturers or the concerned requestors. The remaining Gypsum shall be used as landfill in the Power Plant Area. Approximate Land Requirement for dumping the Gypsum from 1x660MW Unit shall be @ 2 Hectares for the span of 10 years.
- iv. Alternate technology analysis and justification of Technology Selection for NO_x reduction.
- Compliance:** - Two types of technologies are available for NO_x reduction.
- a) Selective Catalytic Reduction Technology (SCR): It is an advanced active emissions control technology system that injects Ammonia vapors into the flue gas stream where the NO_x is reduced to Nitrogen (N₂) and Water (H₂O) abetted by passing over a metal catalyst bed typically containing Titanium oxide, Vanadium oxides, Molybdenum or Tungsten.
 - b) Selective Non-Catalytic Reduction Technology (SNCR): Nitrogenous reducing agent viz., Ammonia or Urea is injected into hot flue gas where it reacts with NO_x in gas stream and reducing it to Nitrogen (N₂) gas and Water (H₂O) vapor.

SCR technology is typically much more efficient at reducing NO_x emissions upto 90%. SCR allows a reaction to take place at a lower temperature because the catalyst lowers the energy needed to begin the reaction (This is called the activation energy). Since SCR systems utilize metal catalysts, the reaction activation energy is much lower in SCR.

- v. The stack emissions (minimum, maximum, 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 and power generation and to be submitted in the compliance report.

Compliance: - Shall be complied after commissioning.

- vi. The commitment letter in the form of undertaking for shutting/ closing down the existing unit of 210 MW capacity which was commissioned in 1982 and more than 25 years shall be submitted with the date of closure.

Compliance: - Shall be submitted.

- vii. Further, Specific Condition No. i of EC dated 27.11.2012 states that existing units (Unit-II & III: 2x210 MW) shall be retrofitted with ESP's to ensure that PM emissions will be below 50 mg/Nm³. Status of this conditions shall be submitted.

Compliance: -Same as per Point A specific condition (i).

Additional condition sought by the Ministry of Environment, Forests and Climate Change vide letter no. J-13012/75/2010-IA.II(T),dt. 11.09.2020

- i) As proposed, a stack of 275 m height with flue gas velocity not less than 18.30 m/s shall be installed along with Flue gas desulphurization system and provided with continuous online monitoring equipment for SOX, NOX, PM. Mercury emission from stack may also be monitored on periodic basis.

Compliance: - Shall be complied.

- ii) An interlocking arrangement shall be set up to shut down power plant when Flue-gas Desulphurization(FGD) is not functional.

Compliance: -Shall be complied.

- iii) The transportation of coal shall be done by rail subject to ministry notification dated 21.05.2020.

Compliance: -Shall be complied.

- iv) The ash content in the coal shall be in accordance with ministry's notification dated 21.05.2020 and subsequent amendment.

Compliance: -Shall be complied.

- v) Water consumption in the FGD, in case of wet lime dosing and management of gypsum including its land requirement shall be provided.

Compliance: -Shall be complied.

Additional condition sought by the Ministry of Environment, Forests and Climate Change vide letter no. J-13012/75/2010-IA.II(T),dt. 14.12.2023

- i) Action plan for green plantation shall be prepared. A dedicated team under supervision of project head shall work for developing green belt as CPCB guidelines or as recommended in the EC letter. Green plantation shall be carried out before the month of October, 2023 around the plant boundary. Action plan and its implementation shall be certified by IRO, Nagpur in Month of October.

Compliance: - M/s.BHEL has completed the tenderization for Green Belt Development work. L1 bidder is also selected. However, placement of LOA/LOI is in progress.

- ii) All the conditions in the EC dated read with amendment dated 11.09.2020 shall remain unchanged.

Compliance: -Shall be complied.



कार्य/SL NO. 485 A 48458

विआप्रो/वापरसी वाशी कॉम्प्लेक्स

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भारत सरकार / GOVERNMENT OF INDIA

परमाणु ऊर्जा विभाग / DEPARTMENT OF ATOMIC ENERGY

विकिरण एवं आइसोटोप प्रौद्योगिकी बोर्ड / BOARD OF RADIATION & ISOTOPE TECHNOLOGY

रेडियोसक्रियता परीक्षण प्रमाण-पत्र / RADIOACTIVITY TEST CERTIFICATE

PAGE 1 OF 1

RADIOANALYTICAL LABORATORY

Ref: BRIT/RAL/D/1205-16/MISC/1122-33/19-20

JUNE 04, 2020

TO

M/S. MAHARASHTRA STATE POWER GENERATION COMPANY LTD,
BHUSAWAL THERMAL POWER STATION
DEEPNAGAR, TAL – BHUSAWAL
DIST. JALGAON (M.S.) PIN – 425307

This is regarding the COAL, FLY ASH & BOTTOM ASH samples sent by you on vide letter ref. no. BTPS/CE/ENV/0454 dated 13.03.2020 for radioactivity analysis with the following details:

SAMPLE DESCRIPTION	:	1. COAL SAMPLE 2. FLY ASH SAMPLE 3. BOTTOM ASH SAMPLE
QUANTITY	:	500 GMS EACH IN DRY POWDER
SOURCE OF SAMPLING	:	PREMISES OF MAHARASHTRA STATE POWER GENERATION CO. LTD., JALGAON

The samples were analysed for U-238, Th-232, Ra-226 & K-40 radioactivity content and the values obtained are as follows:

SR. NO.	SAMPLE	U-238 (Bq/Kg)	Th-232 (Bq/Kg)	Ra-226 (Bq/Kg)	K-40 (Bq/Kg)
1	COAL SAMPLE	104.4 ± 10.3	70.4 ± 9.8	81.3 ± 9.1	222 ± 14.3
2	FLY ASH SAMPLE	172 ± 13.3	128.6 ± 12.0	181.6 ± 13.9	355.5 ± 6.7
3	BOTTOM ASH SAMPLE	95.7 ± 9.8	101.5 ± 13.9	90.7 ± 9.9	295.7 ± 15.5

Date of receipt of sample : 20.03.2020

Date of completion of test : 29.05.2020

The measurement values are below the clearance level for radionuclides of natural origin in bulk solid materials, as per AERB directive 01/2010 (table-3) dated 26/11/2010.

Note: (i)The report pertains to the given sample only. (ii)The sample will be retained in this laboratory for a period of one month from certificate date and thereafter it will be disposed off. (iii)This report shall not be reproduced except in full, without written approval of the laboratory. (iv) The sampling is not done by this laboratory.

Checked by:

Authorised Signatory:

****End of Report****

एन. जयचंद्रन / N. Jayachandran
ब्रह्मरी अधिकारी / Officer-in-Charge
रेडियोइसोटोप प्रयोगशाला / Radioanalytical Laboratory
विकिरण एवं आइसोटोप प्रौद्योगिकी बोर्ड
Board of Radiation & Isotope Technology,
सेक्टर / Sector-20, वाशी संकुन / Vashi Complex
Navi Mumbai - 400 703

सीएसआईआर-केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान

(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
बरवा रोड, धनबाद - 826 015, झारखण्ड, भारत
एक आई एस ओ 9001 प्रमाणित संस्थान

CSIR-Central Institute of Mining and Fuel Research

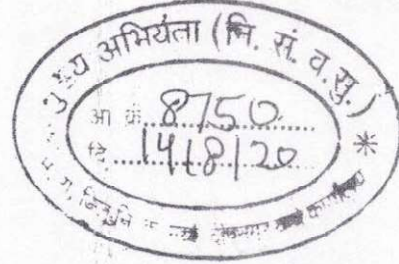
(Council of Scientific and Industrial Research)
Barwa Road, Dhanbad - 826 015, Jharkhand, India
An ISO 9001 Certified InstituteII/TR/20-21/UT/011

Letter No. : II/TR/20-21/LTR-17

Date : 30.07.2020

To,

Chief Engineer (Gen. O&M)
BTPS, Deepnagar
Bhusawal Thermal Power Station
Maharashtra State Power Generation Co. Ltd.
Dist.- Jalgaon (M.S.)
Pin- 425307



Subject- Test Report of Heavy Metals

Dear Sir,

With reference to your letter no. BTPS/CE/Env./No. 0453, Dated: 13.03.2020, we are sending the test report for the heavy metal test as requested by you.

You are requested to kindly find the Test Report attached with this letter.

Thanks & Regards

Your's Faithfully

Dr. Rajesh Kumar

प्रधान/HEAD

इन्डस्ट्री इन्टरफेस/INDUSTRY INTERFACE
सीएसआईआर-सीआईएमएफआर/CSIR-CIMFR

Chief Engineer	Dv. C E
SE (MM)	SE (AHP)
SE (OP)	SE (EM)
SE (Co-ord)	SE (Civil)
SE (CHP)	Steno
EE (M.S. 'A')	EE (Safety)
CM (HR)	Sr. M. (F&A)
W. O. / S. O. / M. O.	

Environment Section E



Central Institute of Mining and Fuel Research
This is not a certificate and not valid for
purpose of contracts and can not be produced
in a court of law.

II/TR/20-21/UT/011

REPORT ON ANALYSIS



To
Chief Engineer (Gen. O&M)
BTPS, Deepnagar
Bhusawal Thermal Power Station
Maharashtra State Power Generation Co. Ltd.
Deepnagar, Tal.-Bhusawal
Dist- Jalgaon (M.S.)
Pin- 425307

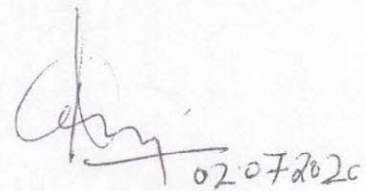
Dated: 02.07.2020

Ref. No: BTPS/CE/Env. /No. 0453 Dated: - 13.03.2020

Sampling not done by CIMFR

CIMFR Sample No	Details of Sample (As Stated)	Hg (µg/kg)	As (µg/g)	Cr (µg/g)	Pb (µg/g)
Inor114/2020	Coal Sample	121	0.72	202	7.82
Inor115/2020	BottomAsh	38	0.6	ND	ND
Inor116/2020	Fly Ash	106	0.42	ND	ND

ND = Not Detected


02.07.2020

प्रधान / HEAD

इन्डस्ट्री इन्टरफेस / INDUSTRY INTERFACE
सीएसआईआर-सीआईएमएफआर / CSIR-CIMFR

ANNEXUR-I

Total CSR Works Till Date Under 1X 660 MW Project at Bhusawal

Total CSR Works In Phase- I

Sr. No.	F.Y.	Name of Work and Village	Amount Sanction In Lakhs excluding GST.	PO Date and Amount In Lakhs excluding GST	Total Work Executed Amt. in Lakhs with GST	Hand Over date to Name of Grampanchyat
1	2022-23	Work for Concrete approach/internal roads & road side drain under CSR at Duskheda Tal.Raver at BTPS, Deepnagar.	21.46	27.07.2022 / 21.02	20.96	Work completion Dtd. 05/09/2022 & Handed Over To Grampanchyat
2		Work for Concrete approach/internal roads & road side drain under CSR at Fekari Tal.Bhusawal at BTPS,Deepnagar.	21.44	04.08.2022 / 22.52	22.44	Work completion Dtd. 30/11/2022 & Handed Over To Grampanchyat
3		Work for Concrete approach/internal roads & road side drain under CSR at Gahukheda, Tal. Raver at BTPS, Deepnagar.	19.17	29.03.2022 / 18.21	18.18	Work completion Dtd. 26/05/2023 & Handed Over To Grampanchyat
4		Work for Concrete approach/internal roads & road side drain under CSR at Jaadgaon Tal. Bhusawal.	22.22	22.07.2022 / 21.69	21.57	Work completion Dtd. 24/01/2022 & Handed Over To Grampanchyat
5		Work for Concrete approach/internal roads & road side drain under CSR at Kaapil Nagar Tal.Bhusawal at BTPS,Deepnagar.	25.4	26.07.2022 / 24.20	23.97	Work completion Dtd. 15/09/2022 & Handed Over To Grampanchyat
6		Work for Concrete approach/internal roads & road side drain Under CSR at Kaswa Tal.Bhusawal at BTPS,Deepnagar.	23.65	20.09.2022 / 23.53	23.45	Work completion Dtd. 04/02/2023 & Handed Over To Grampanchyat
7		Work for Concrete approach/internal roads & road side drain under CSR at Kathora BK., Tal. Bhusawal.	19.5	21.07.2022 / 19.72	19.62	Work completion Dtd. 01/03/2023 & Handed Over To Grampanchyat
8		Work for Concrete approach/internal roads & road side drain under CSR at Kathora Kh., Tal. Bhusawal at BTPS, Deepnagar	23.49	21.07.2022 / 23.76	23.68	Work completion Dtd. 12/02/2023 & Handed Over To Grampanchyat
9		Work for Concrete approach/internal roads & road side drain Under CSR at Manyarkhede Tal.Bhusawal at BTPS,Deepnagar.	22.81	26.07.2022 / 22.00	21.9	Work completion Dtd. 24/12/2022 & Handed Over To Grampanchyat
10		Work for Concrete approach/internal roads & road side drain under CSR at Nimbhora Bk. Tal.Bhusawal at BTPS,Deepnagar.	25.42	19.09.2022 / 25.14	19.87	Work completion Dtd. 10/01/2023 & Handed Over To Grampanchyat
11		Work for Concrete approach/internal roads & road side drain under CSR at Phulgaon Tal.Bhusawal at BTPS,Deepnagar.	22.49	26.07.2022 / 21.45	21.32	Work completion Dtd. 26/02/2023 & Handed Over To Grampanchyat
12		Work for Concrete approach/internal roads & road side drain under CSR at Raipur Tal.Raver at BTPS,Deepnagar.	26.53	05.03.2022 / 26.26	26.2	Work completion Dtd. 27/02/2023 & Handed Over To Grampanchyat
13		Work for Concrete approach/internal roads & road side drain under CSR at Rangaon., Tal. Raver.	19.2	10.08.2022 / 18.58	18.43	Work completion Dtd. 10/01/2023 & Handed Over To Grampanchyat
14		Work for Concrete approach/internal roads & road side drain under CSR at Sakari.	22.15	22.11.2022 / 21.38	21.29	Work completion Dtd. 05/09/2022 & Handed Over To Grampanchyat
15		Work for Concrete approach/internal roads & road side drain under CSR at Sudgaon. Tal. Raver.	22.49	27.07.2022 / 22.02	21.98	Work completion Dtd. 17/02/2023 & Handed Over To Grampanchyat
16		Work for Concrete approach/internal roads & road side drain under CSR at Velhala Tal. Bhusawal.	23.03	22.07.2022 / 21.91	21.81	Work completion Dtd. 10/08/2022 & Handed Over To Grampanchyat
17		Work for Concrete approach/internal roads & road side drain under CSR at Pimprisekam.	11.88	25.07.2022 / 11.67	11.65	Work completion Dtd. 21/03/2023 & Handed Over To Grampanchyat
		Total Rs.	372.40	365.06	355.96	
		Rs. Say	3.72 Crs.	3.65 Crs.	3.56 Crs.	

Total CSR Works Till Date Under 1X 660 MW Project at Bhusawal

CSR Works In In Phase-II

ANNEXURE-II

Sr. No.	F.Y.	Name of Work and Village	Amount Sanction In Lakhs.	PO Date and Amt. In Lakhs	Total Work Executed Amt. In Lakhs.	Hand Over date to Name of Grampanchayat	Remark
1	2023-24	Work for Concrete approach/internal roads & road side drain under CSR at Velhala Tal. Bhusawal.	27.64				Tender publish on Dtd. 14/08/2023
2		Work for Construction of ESR capacity 100000 Liters under CSR at Velhala, Tal. Bhusawal.	23.73				Tender publish on Dtd. 14/08/2023
3		Construction of hall & toilet block for primary health center at Velhala, Tal. Bhusawal.	11.36				Tender publish on Dtd. 14/08/2023
4		Providing of interlocking paving blocks be a side main road at Velhala.	12.77				Hold Due To Budget constraint
5		Providing drinking water ATM at Manyarkheda.	13.11				Hold Due To Budget constraint
6		Providing of interlocking paving blocks be a side main road at Manyarkheda under CSR activity.	9.92				Tender publish on Dtd. 14/08/2023
7		Construction of hall & toilet block for primary health center at Manyarkheda, Tal. Bhusawal.	11.36				Tender publish on Dtd. 14/08/2023
8		Work for Chain link fencing under CSR at Manyarkheda Tal. Bhusawal.	13.76				Tender publish on Dtd. 14/08/2023
9		Work for Concrete approach/internal roads & road side drain under CSR at Jaadgaon Tal. Bhusawal.	14.49				Tender publish on Dtd. 14/08/2023
10		Work for Construction of ESR capacity 100000 Liters under CSR at Jadgaon, Tal. Bhusawal.	23.73				Tender publish on Dtd. 14/08/2023
11		Providing drinking water ATM at Jadgaon.	13.11				Hold Due To Budget constraint
12		Work for Concrete approach/internal roads & road side drain under CSR at Kathora BK., Tal. Bhusawal.	34.23				Tender publish on Dtd. 14/08/2023
13		Providing of interlocking paving blocks be a side main road at Kathora Bk.	8.25				Tender publish on Dtd. 14/08/2023
14		Work for Chain link fencing under CSR at Kathora Bk. Tal. Bhusawal at BTPS, Deepnagar.	5.77				Tender publish on Dtd. 14/08/2023
15		Providing drinking water ATM at Kathora Bk.	13.11				Hold Due To Budget constraint
16		BTPS 1x660 MW Repl. Unit - Providing of interlocking paving blocks to village Kathora Kh., Tal. Bhusawal.	9.37				Tender publish on Dtd. 14/08/2023
17		Work for Concrete approach/internal roads & road side drain under CSR at Kathora Kh., Tal. Bhusawal at BTPS, Deepnagar	41.34				Tender publish on Dtd. 14/08/2023
18		Providing drinking water ATM at Kathora Kh.	13.11				Hold Due To Budget constraint
19		Work for Concrete approach/internal roads & road side drain under CSR at Rangaon., Tal. Bhusawal.	26.77				Tender publish on Dtd. 14/08/2023
20		BTPS 1x660 MW Repl. Unit - Providing of interlocking paving blocks at village Rangaon Tal. Raver.	2.69				Tender publish on Dtd. 14/08/2023
22		Providing drinking water ATM at Rangaon.	13.11				Hold Due To Budget constraint
23		Work for Concrete approach/internal roads & road side drain under CSR at Udali Kh., Tal. Bhusawal.	34.32				Hold Due To Budget constraint
24		Work for Concrete approach/internal roads & road side drain under CSR at Taaskheda Tal. Raver	38.71				Hold Due To Budget constraint
25		Providing drinking water ATM at Tasskheda	13.11				Hold Due To Budget constraint
26		Work for Concrete approach/internal roads & road side drain under CSR at Gahukheda, Tal. Raver at BTPS, Deepnagar.	29.1				Hold Due To Budget constraint
27		Providing drinking water ATM at Gahukheda	13.11				Tender publish on Dtd. 14/08/2023

Sr. No.	F.Y.	Name of Work and Village	Amount Sanction In Lakhs.	PO Date and Amt. In Lakhs	Total Work Executed Amt. In Lakhs.	Hand Over date to Name of Grampanchayat	Remark
28		Work for Concrete approach/internal roads & road side drain under CSR at Sudgaon, Tal. Raver.	51.98				Tender publish on Dtd. 14/08/2023
29		Providing drinking water ATM at Sudgaon	13.11				Hold Due To Budget constraint
30		Providing Ambulance for Group Grampanchayat Nimbhora Bk., Pimprisekam.	17.53				Hold Due To Budget constraint
31		Providing services of driver for Ambulance.	9.28				Hold Due To Budget constraint
32		Work for Concrete approach/internal roads & road side drain under CSR at Sakari.	58.65				Tender publish on Dtd. 14/08/2023
33		Providing drinking water ATM at Sakari	14.27				Hold Due To Budget constraint
34		Work of raising height of existing hume pipe culvert over Bhogawati river crossing on road from NH-6 to village Pimprisekam.	41.19				Hold Due To Budget constraint
35		Providing of interlocking paving blocks be a side main road at Pimprisekam.	12.79				Hold Due To Budget constraint
36		(A) Providing approaches over ADP Line for farmers at Pedistal No. P327 to P329 under CSR activity Tal. Bhusawal.	2.95				Hold Due To Budget constraint
37		(B) Providing approaches over ADP Line for farmers at Pedistal No. P361 to P363 under CSR activity Tal. Bhusawal.	2.95				Hold Due To Budget constraint
38		(C) Providing approaches over ADP Line for farmers at Pedistal No. P405 to P407 under CSR activity Tal. Bhusawal.	2.95				Hold Due To Budget constraint
39		(D) Providing approaches over ADP Line for farmers at Pedistal No. P891 to P893 under CSR activity Tal. Bhusawal.	2.95				Hold Due To Budget constraint
40		(E) Providing approaches over ADP Line for farmers at Pedistal No. P901 to P913 under CSR activity Tal. Bhusawal.	2.95				Hold Due To Budget constraint
41		(F) Providing approaches over ADP Line for farmers at Pedistal No. P922 to P924 under CSR activity Tal. Bhusawal.	2.95				Hold Due To Budget constraint
42		(G) Providing approaches over ADP Line for farmers at Pedistal No. P505 to P507 under CSR activity Tal. Bhusawal.	2.95				Hold Due To Budget constraint
43		(A) Providing approaches over ADP Line for farmers at Pedistal No. P847 to P854 under CSR activity Tal. Bhusawal.	6.59				Hold Due To Budget constraint
44		(B) Providing approaches over ADP Line for farmers at Pedistal No. P885 to P886 under CSR activity Tal. Bhusawal.	6.59				Hold Due To Budget constraint
45		(C) Providing approaches over ADP Line for farmers at Pedistal No. P745 to P747 under CSR activity Tal. Bhusawal.	6.59				Hold Due To Budget constraint
46		(D) Providing approaches over ADP Line for farmers at Pedistal No. P801 to P803 under CSR activity Tal. Bhusawal.	6.59				Hold Due To Budget constraint
47		Providing drinking water ATM at Kaswe.	13.11				Hold Due To Budget constraint
48		Providing drinking water ATM at Raipur.	13.11				Hold due to budget constraint
		Total Amount Excluding GST in Rs.	763.37				
		Total Amount Excluding GST in Rs.	900.77				

Total CSR Works Till Date Under 1X 660 MW Project at Bhusawal

C.Total CSR Works Proposed

Sr. No.	F.Y.	Name of Work and Village	Amount Proposed In Lakhs.	Date of Proposal	Status of Proposal	Remark
1		Phase-III - Work of providing drinking water facility through pipeline from WTP of 210 MW to ESR at Fulgaon & Pimprisekam village under CSR scheme.	575.48	11/10/2023	Proposal sent to H.O. on date 11/10/2023 which is under approval with H.O.	
		Including GST in Rs.	575.48			

CSR Ph-III

ANNEXURE-III

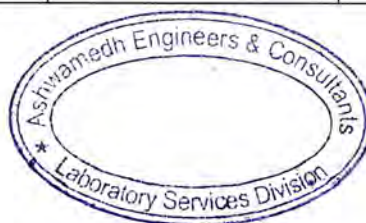
ULR-TC550923000022560F

TEST REPORT

Sample ID : W/12/23/0269	Report No. W/12/23/0269	Report Date	21/12/2023
Name and address of Customer	Maharashtra State Power Generation Company Ltd. 2 x 500 MW, Bhusawal Thermal Power Station, Deepnagar, Tal. Bhusawal, Dist. Jalgaon - 425307 Maharashtra		
Sampling done by	Laboratory	Sample Description / Type	Ground Water
Sampling Location	Borewell- Sakari Village	Date - Sampling	15/12/2023
Sample Quantity / Packing	5 L x 1 no. plastic can 250 ml x 1 no. sterile bottle	Date - Receipt of Sample	16/12/2023
Sampling Procedure	IS 1622:1981 & IS 3025(Part I):1987 & APHA 23rd Ed.2017, 1060 B,1-40, 9060 A,9-36 & 9060 B,9-39 & ISO 19458:2006	Date - Start of Analysis	16/12/2023
Order Reference	P.O. No. BTPS/4500124232 No. 0394 dated 25.03.2023	Date - Completion of Analysis	20/12/2023

Sr.No.	Parameter	Result	Acceptable Limit as per IS 10500:2012	Unit	Method
Chemical Testing; Group: Water, Residues in Water					
Organoleptic and Physical Parameters					
1	Colour	1	Max.5	Hazen units	IS 3025 (Part 4):1983
2	pH value (at 25°C)	8.38	6.5-8.5	-	IS 3025 (Part II):1983
3	Turbidity	0.70	Max. 1.0	NTU	IS 3025 (Part 10):1984
4	Total Dissolved Solids	310	Max.500	mg/L	IS 3025 (Part 16): 1984
General Parameters concerning substances undesirable in excessive amounts					
5	Calcium (as Ca)	44.9	Max.75	mg/L	IS 3025 (Part 40): 1991
6	Chloride (as Cl)	39.5	Max. 250	mg/L	IS 3025 (Part 32):1988
7	Fluoride (as F)	0.5	Max.1.0	mg/L	IS 3025 (Part 60):2008
8	Iron (as Fe)	BLQ (LOQ:0.06)	Max. 1.0	mg/L	IS 3025 (Part 2): 2019 / ISO 11885: 2007
9	Magnesium (as Mg)	24.3	Max.30	mg/L	IS 3025 (Part 46): 1994
10	Manganese (as Mn)	BLQ (LOQ:0.02)	Max. 0.1	mg/L	IS 3025 (Part 2): 2019 / ISO 11885:2007
11	Nitrate (as NO ₃)	2.01	Max.45	mg/L	APHA,23rd Ed.,4500-NO3,B-4-127
12	Phenolic compounds(as C ₆ H ₅ OH)	BLQ (LOQ:0.001)	Max. 0.001	mg/L	Clause 6 of IS 3025(Part 43):1992
13	Selenium (as Se)	BLQ (LOQ:0.005)	Max. 0.01	mg/L	IS 3025 (Part 2): 2019 / ISO 11885: 2007
14	Sulphate (as SO ₄)	27	Max. 200	mg/L	IS 3025 (Part 24)
15	Total Hardness (as CaCO ₃)	212	Max. 200	mg/L	IS 3025 (Part 21):1983
Parameters Concerning Toxic Substances					
16	Cadmium (as Cd)	BLQ (LOQ:0.002)	Max. 0.003	mg/L	IS 3025 (Part 2): 2019 / ISO 11885:2007
17	Cyanide (as CN)	BLQ (LOQ:0.001)	Max. 0.05	mg/L	Clause 2 of IS 3025 (Part 27):1986
18	Lead (as Pb)	BLQ (LOQ:0.008)	Max .0.01	mg/L	IS 3025 (Part 2): 2019 / ISO 11885:2007
19	Mercury (as Hg)	BLQ (LOQ:0.0008)	Max. 0.001	mg/L	IS 3025 (Part 2): 2019 / ISO 11885: 2007

Sonali Kapse
Section In-Charge (Biological)
Reviewed & Authorised by



Saanvi Dalal
Section In-charge (Chemical)
Reviewed & Authorised by
Page 1 of 2



ULR-TC550923000022560F

Sample ID : W/12/23/0269	Report No. W/12/23/0269	Report Date	21/12/2023
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Sr.No.	Parameter	Result	Acceptable Limit as per IS 10500:2012	Unit	Method
20	Arsenic (as As)	BLQ (LOQ:0.005)	Max 0.01	mg/L	IS 3025 (Part 2): 2019 / ISO 11885: 2007

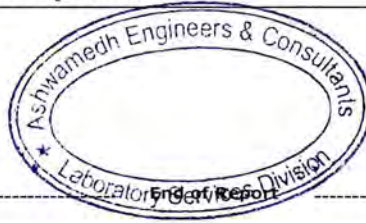
Biological Testing; Group: Water


Bacteriological Parameters

21	<i>Escherichia coli</i>	<1.8	Not Detectable	MPN Index /100 ml	APHA, 23rd Ed., 9221-G, 9-80: 2017
22	Total Coliforms	2	Not specified	MPN Index /100 ml	APHA, 23rd Ed., 9221-B, 9-69: 2017
23	Standard Plate Count (35°C, 48h)	7.8 x 10 ²	Not specified	CFU/ml	APHA, 23rd Ed., 9215-B.9-56: 2017

BLQ:Below Limit of Quantification, LOQ:Limit of Quantification


Sonali Kapse
Section In-charge (Biological)
Reviewed & Authorised by




Saanvi Dalal
Section In-charge (Chemical)
Reviewed & Authorised by



Note:

1. The result listed refer only to the tested sample(s) and applicable parameter(s).
2. This report is not to be reproduced except in full, without written approval of the laboratory.
3. In case sampling is not done by laboratory, the results apply to the sample as received.
4. There are no additions to, deviations or exclusions from the method.





ULR-TC550923000022566F

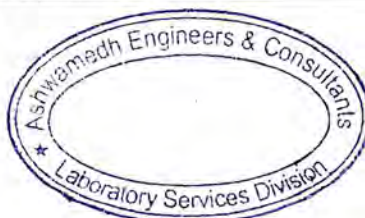
TEST REPORT

Sample ID : W/12/23/0275	Report No. W/12/23/0275	Report Date	21/12/2023
Name and address of Customer	Maharashtra State Power Generation Company Ltd. 2 x 500 MW, Bhusawal Thermal Power Station, Deepnagar, Tal. Bhusawal, Dist. Jalgaon - 425307, Maharashtra		
Sampling done by	Laboratory	Sample Description / Type	Surface Water
Sampling Location	Velhale Village Nallah	Date - Sampling	15/12/2023
Sample Quantity / Packing	5 L x 1 no. plastic can 250 ml x 1 no. sterile bottle	Date - Receipt of Sample	16/12/2023
Sampling Procedure	IS 1622:1981 & IS 3025(Part I):1987 & APHA 23rd Ed.2017, 1060 B,1-40, 9060 A,9-36 & 9060 B,9-39 & ISO 19458:2006	Date - Start of Analysis	16/12/2023
Order Reference	P.O. No. BTPS/4500124232 No. 0394 dated 25.03.2023	Date - Completion of Analysis	20/12/2023

Sr.No.	Parameter	Result	Unit	Method
Chemical Testing; Group: Water, Residues in Water				
Organoleptic and Physical Parameters				
1	Colour	1	Hazen units	IS 3025 (Part 4):1983
2	pH value (at 25°C)	8.34	-	IS 3025 (Part II): 1983
3	Turbidity	1.01	NTU	IS 3025 (Part 10):1984
4	Total Dissolved Solids	670	mg/L	IS 3025 (Part 16): 1984
General Parameters concerning substances undesirable in excessive amounts				
5	Calcium (as Ca)	80.2	mg/L	IS 3025 (Part 40): 1991
6	Chloride (as Cl)	98	mg/L	IS 3025 (Part 32):1988
7	Fluoride (as F)	0.9	mg/L	IS 3025 (Part 60):2008
8	Iron (as Fe)	BLQ (LOQ:0.06)	mg/L	IS 3025 (Part 2): 2019 / ISO 11885: 2007
9	Magnesium (as Mg)	38.9	mg/L	IS 3025 (Part 46): 1994
10	Manganese (as Mn)	BLQ (LOQ:0.02)	mg/L	IS 3025 (Part 2): 2019 / ISO 11885:2007
11	Nitrate (as NO ₃)	3.0	mg/L	APHA 23rd Ed. 4500-NO ₃ -B-4-127
12	Phenolic compounds(as C ₆ H ₅ OH)	BLQ (LOQ:0.001)	mg/L	Clause 6 of IS 3025(Part 43):1992
13	Selenium (as Se)	BLQ (LOQ:0.005)	mg/L	IS 3025 (Part 2): 2019 / ISO 11885: 2007
14	Sulphate (as SO ₄)	80	mg/L	IS 3025 (Part 24)
15	Total Hardness (as CaCO ₃)	360	mg/L	IS 3025 (Part 21):1983
Parameters Concerning Toxic Substances				
16	Cadmium (as Cd)	BLQ (LOQ:0.002)	mg/L	IS 3025 (Part 2): 2019 / ISO 11885:2007
17	Cyanide (as CN)	BLQ (LOQ:0.001)	mg/L	Clause 2 of IS 3025 (Part 27):1986
18	Lead (as Pb)	BLQ (LOQ:0.008)	mg/L	IS 3025 (Part 2): 2019 / ISO 11885:2007
19	Mercury (as Hg)	BLQ (LOQ:0.0008)	mg/L	IS 3025 (Part 2): 2019 / ISO 11885: 2007
20	Arsenic (as As)	BLQ (LOQ:0.005)	mg/L	IS 3025 (Part 2): 2019 / ISO 11885: 2007
Biological Testing; Group: Water				
Bacteriological Parameters				
21	<i>Escherichia coli</i>	<1.8	MPN Index /100 ml	APHA, 23rd Ed., 9221-G, 9-80: 2017
22	Total Coliforms	<1.8	MPN Index /100 ml	APHA, 23rd Ed., 9221-B, 9-69: 2017
23	Standard Plate Count (35°C, 48h)	1.1 x 10 ³	CFU/ml	APHA, 23rd Ed., 9215-B.9-56: 2017

BLQ:Below Limit of Quantification, LOQ:Limit of Quantification


Sonali Kapse
Section In-Charge (Biological)
Reviewed & Authorised by




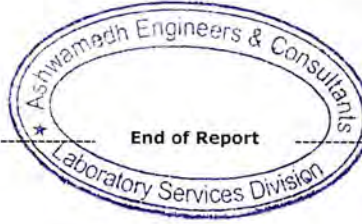

Saanvi Dalal
Section In-charge (Chemical)
Reviewed & Authorised by




ULR-TC550923000022566F

Sample ID : W/12/23/0275	Report No. W/12/23/0275	Report Date	21/12/2023
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Sonali Kapse
Section In-charge (Biological)
Reviewed & Authorised by




Saanvi Dalal
Section In-charge (Chemical)
Reviewed & Authorised by



Note:

1. The result listed refer only to the tested sample(s) and applicable parameter(s).
2. This report is not to be reproduced except in full, without written approval of the laboratory.
3. In case sampling is not done by laboratory, the results apply to the sample as received.
4. There are no additions to, deviations or exclusions from the method.



**PHYSICAL PROGRESS REPORT - PROFORMA
FOR UNDER CONSTRUCTION UNITS SECTOR: STATE**

NAME OF THE THERMAL POWER PROJECT WITH NO OF UNITS & RESPECTIVE CAPACITY: 1x660 MW Bhusawal Thermal Power Project, Unit no 06.									
DEVELOPER NAME/ IMPEMETING AGENCY: Maharashtra State Power Generation Company Ltd, Mumbai.									
COMPLETE ADDRESS OF TPP: At Village PimpariSekam, Tal Bhusawal, Dist Jalgaon, Maharashtra, 425307.									
CONTACT DETAILS OF NODAL OFFICER, NAME, EMAIL, MOBILE NO: Mr. S.M. Dhamange, Suptd. Engineer (P&P), email: cgmgpp@mahagenco.in, 8828502488.						E-GEN PORTAL REGISTRATION STATUS- YES/NO, If Yes Registration No (Unit wise):-Yes Reg no. 1200002450			
MAIN PLANT PACKAGE (BTG VENDOR/EPC CONTRACTOR): MAIN VENDOR (ORDER DATE)									
Main EPC Contractor (BTG+BOP) for 1x660MW Bhusawal Project is M/s BHEL, LOA dated 17/01/2018.									
Sl.	Packages		Vendor/Contracting Agency	No of UNIT	Date of Award/ Start date	Present Status	% Completion	Original (Scheduled) Date of Completion	Actual/*Anticipated Date of Completion
1	BOILER	CIVIL WORKS	BHEL/ Powermech	1x660MW	30/05/2019	Completed	96%	25/11/2019	Act: 15/11/2019
		STRUCTURAL WORKS	BHEL/Indwell		25/10/2019	Work in progress: 15539/17324MT		26/01/2022	Ant: February -2024
		PRESSURE PARTS COMPLETION	BHEL/Indwell		25/10/2019	Work in progress: 6968/7169MT.		22/05/2021	Ant: February -2024
BRIEF WRITEUP ABOUT CURRENT STATUS OF BOILER WORKS:									
<ul style="list-style-type: none"> • DHT completed on 04/11/2023 • NDHT completed on 28/03/2023 • Unit boiler light up successfully completed on 30/03/2023 • Boiler chemical cleaning done on 15/06/2023 • Steam blowing of pressures parts & critical piping started on 13/09/2023 & completed on 20/10/2023. • P-91 All 359 joints out of 359 joints are completed. • Total boiler structural erection (PG35) weight is 7845 MT out of 7947.51MT. • Total Pressure part erection weight is 6968MT out of 7169.00 MT • MS safety valve hydro plug removal work is in progress. • SADC & burner tilt work in progress. • First pass inside refractory building work is in progress. • TPT plate erection & separator work in progress. • CRH, HRH safety valve exhaust piping work is in progress. • Blower and LRSB piping work is in progress. 									
SCR									
<ul style="list-style-type: none"> • Erection 2150/4116.81 MT completed for SCR structure & ducting erection work for LHS & RSH completed. 									

- SCR LHS all inlet outlet ducts, reactor modules including cap hopper including placement completed expect top plant. Alignment and welding balance.
- SCR RHS -All outlet ducts, SCR reactor modules L1, L2, L3 erected.
- SCR RHS – Rectifier cap pre-assembly InProgress.
- SCR duct erection work is completed along with reactor.
- Structural welding work in progress.

2	TG	CIVIL WORKS	BHEL / Powermech	1x660MW	30/05/2019	Completed	99%	13/03/2022	Act: 11/01/2021
		STRUCTURAL WORKS	BHEL / Powermech		30/05/2019	8860/9000MT		13/03/2022	Ant: January- 2024
		PRESSURE PARTS COMPLETION (Boiler feed line piping)	BHEL/Indwell		25/10/2019	TOTAL570/570 Joints		02/01/2022	Act: August - 2023

BRIEF WRITEUP ABOUT CURRENT STATUS OF TG WORKS:

0.0mtr –

- DMCW piping erection work completed.
- ACW piping branching work is in progress.
- Condensate piping erection work in progress.
- AC- Air chiller piping & pump erection work is in progress.
- Cabling to auxiliaries' work is in progress.
- CW butterfly valve, RE joint & debris filter erection and work in progress.
- COLTCS Ball collector erection work is in progress.
- TG building passenger lift electrically ready.
- Extraction, vents, drains piping erection work in progress.
- CPU RIA, RIB, RIC – rims transfer completed mall vessel.

3.5mtr –

- Cable laying work is in progress.
- All LT switchboards except air washer MCC are charged.

8.5mtr –

- Boiler feed suction, discharge & recirculation line erection work in progress.
- Condensate piping erection in progress.
- Cable spreader room: Firefighting Spray line erectio in progress
- A-B Bay 12-14 grid slab under progress.
- TDBFP A&B oil dump well piping work is in progress.
- TDBFP LOP motor cabling work is in progress.
- HT/LT power cable laying is in progress.
- Illumination work is in progress.
- HPLP bypass skid LPBs & cable tray erection is in progress.
- Cable tray erection for turning motor is in progress.
- IPBD welding completed.
- IPBD for ET(HV/LV) erection progress.

- Above ground earthing work completed.
- Excitation transformer placed, IPBD connection is in progress.

12mtr –

- Cable laying is in progress.
- Only one LT boards pending for charging. Remaining are charged. (i.e. service building MCC)
- LT SWGR modification work in progress by pyrotech.
- Earthing flat laid on finish floor, modification work pending.
- Finish flooring work below DTT is balance.

12.5mtr –

- Illumination work is in progress.
- Cable laying work is in progress.

17mtr–

- Boiler feed discharge line erection completed.
- A- Row side ventilation duct erection work is in progress.
- HPH-7 & 8 piping work is in progress.
- Cabling to auxiliaries work in progress.

17mtr PCR

- C&I-

A) BTG-

- Turbine TSI (turbine supervisory instruments) calibrated, erected up to M/s. Meggitt & Max DNA DCS panels (for turbine baring gear).
- Boiler AB, CD, EF elevation corner valve commissioned, and GH elevation commissioned from DCS for Synchronization.
- CW-motor A&B - C&I commissioning completed.
- UCP- Alarm annunciation work is in progress for Boiler, Turbine.
- LVS installed & commissioned at CCR.
- Protection and interlock trials for mills E & F taken.
- Coal feeder panel for E & F commissioned.
- SWAS chiller commissioned DO transmitter and cation conductivity sensors checked.
- Turbine HP, LP control valves & stop valves, LP bypass valves (3nos) stroking works completed.
- Turbine, Generator temp DCS hook work is completed.
- ID – 6B, FD-6B signal hookup with DCS is in progress.
- DM & condensate live control valves commissioning in progress.
- TG MAL valves commissioning work is in progress.
- SWAS commissioning work is in progress.
- C&I readiness for unit synchronization work is in progress.

B) BoP –

- CPU vessel DCS panel charged, commissioning is in progress.
- CPU (Vessel area & regeneration area) DCS system commissioning works is in progress.
- HVAC DCS system commissioning works is in progress.
- CHP: cony 8, 4A, 4B, 5A, 5B, and 7A/B DCS trials is in progress.

TG House Erection: 8860 MT out of 9000MT.

3	ESP	**PASS STATUS	BHEL/Indwell	1x660MW	25/10/2019	9874/10034 MT	98%	25/03/2022	Ant: March- 2024
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****BRIEF WRITEUP ABOUT CURRENT STATUS OF ESP WORKS:**

- ESP A, B & C, D pass all internal erection checking work completed, ESP Pass E & F is in progress.
- ESP A, B, C, D, E & F pass ERM & CRM trials completed.
- ESP A pass hopper outside stich welding completed & B pass is in progress.
- ESP A pass hopper heaters erection work completed.
- ESP B pass hopper heaters erection work is in progress.

3A	FGD Plant (M/s Indwell)	CIVIL WORK	BHEL / Powermech/BJCL	1x660MW	30/05/2019	2880/3096 M3	62%	10/06/2021	Ant: February -2024	
		MATERIAL SUPPLY	BHEL		24/08/2019			3520/4800 MT	24/03/2021	Ant: : January- 2024
		ERECTION WORK	BHEL/Indwell		31/12/2018			937/5922MT	15/04/2022	Ant: June-2024

BRIEF WRITEUP ABOUT CURRENT STATUS OF FGD WORK:

1) Limestone Hopper, Silo & wet ball mill:

- Excavation: In Progress at hopper area.
- RCC: 1000 cum out of 1300 cum completed.
- Silo columns & sump casting completed up to 1st slab.
- Wet ball mill footing casting completed.

2) Limestone Crusher House:

- Concreting: 146 cum out of 400 cum completed.

3) FGD -Tanks, absorber:

- Absorber shell plate erection work is in progress.
- FGD inlet duct preassembly work is in progress.
- Absorber structure tie beam & column erection work is in progress.
- FGD miscellaneous tanks erection & welding work is in progress.

4) FGD CR Building:

- RCC: 2325 cum out of 2800 cum completed.
- 3rd floor slab work is in progress.
- Grade slab in progress.
- Column above 3rd floor is in progress.
- Roof slab work in progress.

5) Gypsum Dewatering Building:

- Civil Work is in progress.
- Grade slab Work in progress.

6) FGD RC Pump House & Blower room:

- Civil work Completed.

FGD Erection: 1167 MT out of 5863.80 MT completed.

STATUS OF BOPs

Sl.	Packages/ Linked Project Milestones	Vendor/Contracting Agency	Date of Award/Start date	Present Status	% Completion	Original (Scheduled) Date of Completion	Actual/*Anticipated Date of Completion
1	Chimney	BHEL / Powermech/Shreevijaya	30/05/2019	Work in Progress	99%	28/02/2022	Act: November – 2023 except Liquid collector
2	Coal Handling Plant	BHEL / PMPL/BJCL / Place Maker (Conveyor Package-Civil & Structure)	30/05/2019 24/08/2019 23/12/2021	Work in Progress	75%	30/04/2022	Ant: February -2024
		BHEL / Macawber Beekay Pvt Ltd. (Conveyor Package-Mechanical)	27/05/2019	Work in Progress			
		BHEL / BJCL/ Place Maker (Wagon Tripler-Civil & Structure)	24/08/2019 23/12/2021	Work in Progress	58%	30/04/2022	Ant: January-2024
		BHEL / Promac (Wagon Tripler-mechanical)	28/05/2019	Work in Progress			
		BHEL / BJCL/ (Stacker Reclaimer-Civil)	24/08/2019	Work in Progress	86%	30/04/2022	Ant: January-2024
		BHEL / Promac (Stacker Reclaimer)	28/05/2019	Work in Progress			
3	Ash Handling Plant	BHEL / BJCL/ Place Maker (Civil)	24/08/2019 23/12/2021	Work in Progress	77%	31/03/2022	Ant: February -2024
		BHEL / Macawber Beekay Pvt Ltd. (Mechanical)	27/05/2019	Work in Progress			
4	Fuel Oil System	BHEL / PMPL (Civil)	30/05/2019	Work in Progress	96%	21/11/2021	Ant: February -2024
		BHEL / New Fire Engineers Pvt Ltd.	19/09/2019			21/11/2021	Ant: February -2024
5	Cooling Towers	BHEL/Hayagrev civil engineering Pvt Ltd/ PCTL	01/11/2019 05/03/2022	Work in Progress	92%	31/03/2022	Ant: February -2024
6	CW Pump house	BHEL/Alphapower engineering services Pvt Ltd	29/01/2021	Work in Progress	91%	28/02/2022	Ant: January-2024
7	CW Piping	BHEL/G&J Pvt Ltd.	03/08/2020	Completed		18/02/2022	Act: 08 January 2024
8	PT Plant	BHEL/Clear Water company	17/02/2020	Work in Progress	82%	12/12/2021	Ant: February -2024
9	DM Plant	BHEL/Wipro Enterprises Pvt Ltd	14/01/2020	Work in Progress	99%	30/11/2021	Act: September -2023
10	Air Compressor	BHEL/Elgi equipment Ltd.	24/08/2020	Work in Progress	99%	04/11/2021	Act.: March - 2023
11	Fire Protection pump house	BHEL / Alpha power engineering services Pvt Ltd	29/01/2021	Work in Progress	98%	20/05/2021	Act:- 06 January 2024

12	Fire Protection piping	BHEL/ G&J Pvt Ltd.	03/08/2020	Work in Progress	62%	28/08/2021	Ant:March-2024
13	Switch Yard	MSETCL/BNC Power Projects Ltd	15/02/2021	Completed	100%	28/02/2022	Act: 25/01/2023
14	Station Transformers	BHEL	17/01/2018	Work in Progress	85%	08/07/2021	Act: 25/01/2023
15	Unit Transformers	BHEL	17/01/2018	Work in Progress	85%	20/01/2022	Ant: January -2024
16	Railway siding	BHEL/ISC Projects	02/01/2021	Work in Progress	86%	31/03/2022	Ant: March-2024
17	Power Evacuation	MSETCL/BNC Power Projects Ltd	15/02/2021	Completed	100%	28/02/2022	Act: February 2023

BRIEF WRITEUP ABOUT CURRENT STATUS OF BOPs WORK:

1) Chimney:

- Chimney main beam erection is in progress.
- Alignment/resting erection will be done after flue duct erection by M/s. Indwell.
- Outside painting work is stand still from April-2023.
- Staircase fabrication is in progress.
- Borosilicate lining application completed on 28.10.2023.
- Liquid collector received at site and will be erected by March 2024.

2) CHP:

(a) Conveyor package

TPs & Trestles:

- RCC- 2934 cum out of 3000 cum completed.
- **TP-2 (Total height- 34 mtr):**
95% of bracing work completed. Side runner erection in progress. Illumination work is in progress.
- **TP-3 (Total height- 52mtr):**
Grade slab work is in progress. Monorail fabrication & erection balance. Cable tray erection work in progress.
- **TP-4 (Total height- 83mtr):**
Monorail fabrication & erection in progress. Side runner in progress. Cable tray erection work is in progress.
- **TP-5 (Total height- 78mtr):**
Bracing erection and welding in progress. Staircase erection in progress. Handrail erection in progress.
- **1AB-** Technological structural shifting work is in progress.
- **2AB-** Handrail rectification required. Side runner, walkway, handrail balance in GR-1. Monkey ladder balance. Nut- bolting balance at TR to gallery portal connection. Cable tray support erection work is in progress. Below ground earthing work is in progress. Nut- bolting balance at TR to gallery portal connection. Also, 2AB motor, Gear box high speed coupling, Alignment work completed. VGTU erection work completed. Erection 284MT out of 288 MT completed. Cable tray erection work is in progress.
- **3AB-** Monkey ladder balance. Nut- bolting balance at TR to gallery portal connection. Handrail balance. Cable tray support erection work is in progress. Below ground earthing work is in progress. All galleries erection completed & mechanical erection of technological structure head end like (short post, stringer, idler, frame) is completed & alignment is done. Nut- bolting balance at TR to gallery portal connection. Handrail balance. Erection 383 MT out of 394 MT completed. From TP-2 to crusher (head end) gallery mechanical erection of technological structure is completed. VTGU erection is in progress.
- **4AB-** Nut- bolting balance at TR to gallery portal connection. 20% handrail balance. All galleries erection completed & handed over for technological erection.GP-1 & GP-2 Purlin connections balance. Cable tray support erection work is in progress. Below ground earthing work is in progress. Sheeting work in progress.
- Mechanical erection of technological structures (like stringer post/ stringer idler & frame). Alignments of conv. 4AB discharge chute & head pulley frame is completed. Tail pulley 4AB drive erection & alignment done. 4AB belt laying done, belt joining is completed.

- Erection 469 MT out of 481 MT completed. 4AB belt no load trial completed. Conv. 4AB, 3AB, 5AB, 7AB, 7A 2, 3, 4, 5 conduit for illumination completed.
- 4AB flap gate fitting is completed.
- Roofing & sheeting work is in progress.
- Coal sampling unit erection is in progress.
- Conv 4AB Motor no load trial taken.
- **5AB-** handrail in progress. Nut- bolting balance at TR to gallery portal connection. Cable tray support erection work is in progress. Below ground earthing work is in progress. Erection 1120 MT out of 1140MT completed. Mechanical erection like short post & stringer return idler, frame, carrying idler erection is completed. Tail Pulley & frame erection work completed. TP5 erection of technological structures & mechanical equipment is completed. TP4 technological structure mechanical erection completed. Conv 5AB belt laying & belt jointing completed. Drive placement & alignment is in progress.
- **6AB-** Erection of all galleries completed. Tail end part gallery erection is in progress. 6B drive erection & Alignment completed. Handrail & walkway work is in progress.
- **7AB-** Tripper car erection work, Stringer post/ stringer & rail erection tripper trolley, Discharge chute of 7A/B, flap gate erection done. Drive alignment done.
- **Con 7A-** Mechanical erection like short post stringer, stringer return idler, frame carrying idler erection completed casting is done. Tail end portion erection done. Belt laying and jointing completed.
- **Con 7B-** Mechanical erection like short post stringer, stringer return idler, frame carrying idler erection completed casting is done. Tail end portion erection done. Belt laying and jointing completed.
- **Conv 8-** Mechanical erection of technological structure like short post stringer frame, idler erection up to tail end is completed. Alignment done. HGTV tower erection is completed. Alignment of conv 8 drive is completed. Mechanical erection of technological structure in crusher house & crusher adjacent gallery is completed. Conv. 8 drive erection & alignment done. Belt laying & belt jointing completed. Motor decoupled trial taken. Conv 8 belt trial (reclaiming mode) completed. Sheeting work in progress. Cable tray erection work in progress. Conv 8 load trial completed on 24.12.2023.
- **Conv 9-** Motor, fluid coupling, gear box head end pulley, discharge pulley erection done. Alignment work completed. ERH hopper chute erection is in progress. Short post, stringer assembly work is in progress.

Crusher House (Total Height -53mtr):

- Grade slab & lift pit civil work in progress.
- Lift material supply completed. Civil front not handed over for erection.
- Staircase landing platform work is in progress.
- Bracing & floor beam erection is in progress.
- Crusher and base frame alignment done.
- Erection of bag filter & cyclone is in progress.
- RBF to 4AB, Conv 8 chute erection is done.
- Crusher-I & II drive alignment done.
- RBF erection of technological structure completed; VGTU & drive erection is pending.

Wagon Tippler

- WT-1 Hydraulic pipe laying is in progress.
- WT-1 steel ballast fixing completed, balance ballast will be done after electrical supply.
- SAC-I- arm in progress. Work completed. Electrical supply pending.

- Electrical panel erection is done.
- AF-II drive alignment work completed.
- SAC-II trolley frame erection done; guide plate & pinion rack alignment is in progress.
- SAC-II drive alignment done. Hydraulic pipe laying is in progress.
- Control room brick work in progress.
- Backfilling, water proofing & bituminous painting in progress.
- WT 1 & 2 conduiting illumination work is in progress.
- WT complex shed Column erection completed.
- WT-2 Handed over for mechanical erection till EL -17.00M stair case from EL-17.00m to TP1 balance.
- WT-2 Tunnel 1AB completed. Powerpack room in progress.
- WT-2 Control room brick work in progress.
- WT-1 & tunnel 1AB handed over for mechanical erection.

(b) Stacker Reclaimer& Coal Stock Pile:

- Stock piles grade slab in progress.
- Stock pile pavement casting is in progress.
- Below ground earthing work is in progress.
- Electrical and cable laying Work completed.
- SCR transformer and SCR LT MCC testing completed. LT MCC charged.
- SCR all belt jointing trial completed.
- DS system erection work is in progress.
- SCR PLC commissioning works 70% completed with UPS & battery commissioned.
- Below ground earthing connection to grid balance.
- PCRD to JB copper cable termination pending.
- 05 Nos of high mast tower erection completed.

Emergency Reclaimer:

- Pent house brick work in progress.
- Ducting work is in progress.
- Hopper chute erection work is started.
- Shed erection in progress.

3) Ash Handling Plant

(a) Ash slurry pump house:

- Excavation: 2000 cum out of 2000 cum completed.
- PCC: 74 cum out of 150 cum completed.
- RCC: 1184 cum out of 1200 cum completed.
- Brick work & plaster completed.
- Colouring work in progress.
- Water sump is completed.
- ESP to silo ash piping erection work is completed.
- Slurry pump discharged piping erection work is completed.
- BA-LP, HCSD silo, RCW & seal pump suction line work completed.

(b) AHP MCC & Compressor:

- Excavation: 6604 cum out of 6800 cum completed.
- PCC: 86 cum out of 106 cum completed
- RCC: 2270 cum out of 2271 cum completed.
- Compressor & air dryer piping erection fit-up /welding work is in progress.
- Internal pipe work is in progress.
- Illumination conduiting work is in progress.
- Cable tray erection is in progress.
- DCS Panel erection completed. Cabling work is in progress.
- DM tank Painting work is in progress, water fill test is pending compressor water. Air compressor water pumps erection completed cooling water plate cooler erection completed.
- LT Panel erection completed & DTT erection is in progress.
- Plastering work is completed.
- Ironite flooring is completed.
- Primer Colour coat is in progress.
- SPBD erection for oil filled transformer work in progress, additional support required for SPBD erection.
- Internal painting is in progress.
- Compressor to air receiver tank piping work completed.
- OBE board is ready charging. Cable laying pending.
- AHP MCC-2 LT panel erection is in progress.
- AHP MCC-1, electrical room finish flooring balance.
- Air compressor to ESP air line work is in progress.
- (11/3.3Kv)(OCBT01) 7500 KVA oil filled transformer charged on 04.01.2023.
- Cable laying for compressor is in progress. CAC-1 nos trial completed.

(c) Bottom Ash Hopper:

- BAH-1, 2 & 3 to slurry pump house water piping erection/ fit-up & welding work in progress.
- Air/oil converter tank 5 nos. erection completed. 1 no. is pending.
- Clinker grinder discharge pipeline work is in progress.
- BAH overflow tank liner fixing work is completed.
- BAH over flow tank liner & hand railing erection is completed & pump piping work is in progress.
- Air /Oil converter tank all 6nos. erection done.
- BAH drain sump pumps (02) erection completed.

(d) HCSD Silo:

- Vertical fly ash piping from ESP to silo erection work is completed.
- ESP to HCSD silo -1 & 2 fly ash piping erection on pipe rack work is completed.

(e) HCSD Building:

- PCC: 9 cum out of 50 cum completed.
- RCC: 459 cum out of 459 cum completed.
- Equipment foundations completed.
- Brick work is completed, plaster work is in progress.
- HCSD pumps no.1 & no.2 alignment for gear box to pump and gear box to motor completed.

(f) Ash Disposal Pipeline:

- Excavation: 3000 cum out of 3000 cum completed.
- PCC: 84 cum out of 150 cum completed.
- RCC: 2679 cum out of 2769 cum completed.
- Erection- 5400 meter/48000-meter erection completed.
- MD pumps and Ash vessels, ash conveying line and discharge line erection done. AB discharge line is completed.
- Fluidising line branch header completed. Sub-header tapping is completed.
- Wet ash system completed with water connection up to 'A'-pass (Discharge box, feeder ejector, Knife gate valve) fluidizing pad.
- ADPL erection/ welding work is in progress.

(g) Fly Ash Silo:

- Excavation: 2004 cum out of 3000 cum completed.
- PCC: 14 cum out of 16 cum completed.
- RCC: 779 cum out of 800 cum completed.

4) Fuel Oil Handling System**(a) FOPPH:**

- Firefighting line erection work is in progress.
- OWS water pumps erection work is pending.
- Illumination work is completed.
- Cable dressing, routing pending.
- HFO supply is pending.

(b) FOTPH:

- Plinth protection work is in progress.
- HFO line from 500MW to FOTPH & FOTPH to one day tank glass wool & cladding work is in progress.
- LDO pipeline red oxide primer painting work is in progress. Red oxide completed & now blue painting work is in progress. Blue painting to LDO line completed.
- Cable tray erection balance, cable dressing routing balance.
- Grid connectivity of below ground earthing balance.
- Illumination work is in progress.

(c) HFO/LDO Tanks:

- Excavation: 250cum out of 500cum completed.
- PCC: 8out of 15cum completed.
- RCC: 627cum out of 630cum completed.
- Dyke wall area staircase work is in progress.
- 01/02 staircase completed.

5) Cooling Towers (NDCT)

- Grillage Columns (Total: 593 nos): 578 nos completed. up to 10.3 mtr & 493vc nos. completed up to 13.45 mtr.
- 2nd half Duct work & grillage work is in progress.
- 2nd half Fills erection is in progress.
- 1st half of basin completed & handed over for filling.

6) CW Pump house

- Civil finishing work is in progress.
- ACW pump erection completed. Motor testing, cabling work completed & no-load trial taken on 05.04.2023.
- Brickwork & plastering is in progress.
- CW Pump - A placement completed & allied work is in progress.
- CW Pump - A & B butterfly valve erected.
- Illumination work is in progress.
- CW 6B, CW 6A & ACW 6B trial completed.
- ACW - A – Motor not received at site.

(a) CW channel (NDCT to feed pool):

- Handed over for water filling.

(b) CW electrical Annex. Building:

- Civil finishing work in progress.
- Cooling water MCC#OSB-LT switchboard is charged.

7) CW Pipeline (CW Liner)

- Excavation: 15315 cum out of 16000 cum completed.
- PCC: 99 cum out of 103 cum completed.
- RCC: 2816 cum out of 3070 cum completed.
- Backfilling clearance for 850mtr CW pipeline provided.
- CW Recirculation pipeline erection work completed.
- NDCT Bypass line erection work completed
- CW piping erection-1727 MT out of 1966 MT completed.
- CW piping erection at condenser pit work is in progress.

(a) ACW Pipeline:

- Placement & hydraulic test of ACW pipeline 362/400 mtr completed.

8) PT Plant

- PCC & RCC: 4573 cum out of 4756 cum completed.
- Gravity sand filter to NDM filter water storage tank piping & valve station work is in progress.
- GSF outlet valve erection work is in progress.
- Thickener bridge erection is in progress.
- Backwash pipeline & airline work is in progress.
- DM-GSF-2- filter medial filled.
- Service water O/H tank inlet & outlet piping completed & tank filling is in progress.

- Filter media placing in progress.
- Thickener to BW scrap piping in progress.
- Cable tray erection at gravity filter room completed.
- Backwash & sludge sump pumps erection done & its discharge piping work is in progress.
- External drain work is in progress.
- NDM GSF-8 media filling work is in progress.
- NDM GSF-7 air coring pipes erection done air bubble test balance.
- NDM GSF- 9, 6, airline to inlet header piping fitting work in progress.
- NDM GSF-6- air bubble test in progress.
- NDM GSF-6- media filling completed.
- NDM GSF-5-bubble test preparation in progress.
- Thickener operation pending.
- Air valve/ BW line BEV –fitting pending.
- NDM & DM GSF- air header completed. Welding in progress.
- Main tray route supports & cable tray erection works is completed.
- Gravity filter external painting in progress.
- Proper dressing of cabling pending.
- Below ground earthing electrode & riser not properly erected.
- Cable laying work is in progress.

9) DM Plant

(a) DM Plant Building, DM & CS Tank:

- Bulk acid storage tank (1 no.) foundation erection pending.
- Dual media filter DMP tank- 1nos.
- Layered bed cation LBC tank- 01 nos. + 1 nos. erection completed. Media filling balance.
- Layered bed anion LBA tank- 01 nos. + 1 nos. erection completed. Media filling balance.
- N-Pit pumps (02) erection done & discharge piping work is in progress.
- 2nd BAST erection done on 10.03.2023.
- Commissioning activities started.
- External Painting is in progress.
- Door's fixing is completed.
- Internal painting in progress.

(b) CST/DM Transfer PH

- Boiler fill pipeline erection work is in progress.
- External Painting is in progress.
- Illumination work completed.

10) Air compressor building:

- Compressor internal piping work completed.
- Duct erection is in progress.
- MAR erection is in progress.
- Supply air fan & accessories erection work is in progress.
- False ceiling work is completed.
- Flooring work in control building is in progress.

- HT switchgear room finish flooring balance (Civil).
- Illumination work completed.

11) Fire Water Pump House:

- Cable dressing work balance.
- Firefighting booster pump piping work is in progress.
- Illumination work completed.

12)Transformer Yard:

- RCC: 4450cum out of 4500 cum completed.
- GT-Y, GT-B, GT-R, erection work is in progress.
- On filling completed.
- Mechanical protection completed.
- Cooling fan trial completed.
- Gravel spreading work is in progress @ GT 6Y, 6B.
- Gravel filling completed for GT 6R
- LA, BPI erection work completed.
- Neutral formation work completed.
- IPBD testing work in progress.
- GTR earth pit erection work is in progress.
- Firefighting spray line erection is in progress.
- IPBD erection is completed.
- UAT01 charged.
- UAT02 placement done.
- Both UT placed on foundation it's SPBD erection work is in progress.
- Second UAT received at site on 27.09.2023.
- NIFPS system for GTR's erection completed, commissioning balance.
- **ST6A:**
Charged on dtd. 07.11.2023.

13) Railway Siding:

- Formation cutting: Completed.
- Murum Blanketing: 32900 cum out 35000 cum completed.
- Rail laying- 5.76 km completed out of 10.1 km.

(a)Minor Bridges & Buildings:

- Concreting: 2997 cum out of 3132 cum completed.

(b) ROB:

- Excavation: Approaches excavation is in progress.
- Concreting: 1290 cum out of 1362 cum completed.
- RE Panel: 6100 sqm out of 6235 sqm completed.
- RE panel erection started.
- Work standstill.

UNDER-CONSTRUCTION UNITS WISE MILESTONE DATES (ACTUAL / ANTICIPATED)

SR. No.	MILESTONE	1x660MW		Remarks for Delay (If any)
		Original (Scheduled) Date of Completion	Actual/*Anticipated Date of Completion	
1	COMPLETION OF BOILER FOUNDATION	25/11/2019	Act: 15/11/2019	
2	START OF BOILER ERECTION	30/11/2019	Act: 22/11/2019	
3	BOILER DRUM LIFTING	NA	NA	Supercritical Technology
4	BOILER CEILING GIRDER LIFTING COMPLETION	30/06/2020	Act: 20/01/2021	
5	BOILER HYDRO TEST (DRAINABLE) COMPLETION	31/05/2021	Act: 04/11/2022	
6	BOILER HYDRO TEST (NON-DRAINABLE) COMPLETION	10/11/2021	Act: 28/03/2023	
7	BOILER LIGHT UP	30/11/2021	Act: 30/03/2023	
8	CHEMICAL CLEANING COMPLETION	20/12/2021	Act: 30/06/2023	
9	STEAM BLOWING START	24/01/2022	Act: 13/09/2023	
10	STEAM BLOWING COMPLETION	19/02/2022	Act: 13/10/2023	
11	HP PIPING ERECTION START	11/05/2021	Act: 22/03/2021	
12	HP PIPING ERECTION COMPLETION	25/04/2022	Ant: January- 2024	
13	CONDENSER ERECTION START	31/10/2020	Act: 30/03/2022	
14	TG ERECTION START	30/11/2020	Act: 03/03/2022	
15	TG BOX UP	30/11/2021	Act: 10/04/2023	
16	START OF OIL FLUSHING	04/12/2021	Act: June -2023	
17	ROLLING & SYNC.	31/03/2022	Ant: January- 2024	
18	FULL LOAD	30/04/2022	Ant: March-2024	
19	TRIAL RUN	31/05/2022	Ant: March-2024	
20	COD	30/06/2022	Ant: March-2024	
21	PG TEST START AND COMPLETION	30/06/2022	Ant: April-2024	

Other Details

TOTAL EXPENDITURE UPTO DEC 2023 from inception: Rs. 4047.22 Cr.

EXPENDITURE OF CURRENT MONTH (FOR WHICH PROGRESS DATA IS BEING PROVIDED): Rs. 38.85 Cr.

TOTAL EXPENDITURE TILL DATE (From Inception): Rs. 4047.22 Cr.

Note: Projects to ensure that financial data needs to be in line with other portals such as NIP portal.

LAND POSSESSION DETAILS: (Details about land area still to be acquired): - Nil (Required land area fully occupied)

REASONS OF DELAY (BTG&BOP, mention separately): 1) Due to Covid-19 pandemic, 2) Inability of subcontractors to continue the works due to steel & other consumables rate rise heavily 3) Unresolved issue of demand of price variation to civil & mechanical subcontractors by M/s. BHEL thereby frequent stoppage of works by them. 4) Inadequate deployment of manpower by M/s BHEL & sub-contractors.

CRITICAL AREA/ ASSSISTANCE REQUIRED:

Change (if Any) regarding Clearances, PPA, Fuel Supply or any other matter provided in static data (provided already) or otherwise needs to be intimated immediately in this column here.

NOTE:- The Total expenditure given is excluding contractual retentions to M/s. BHEL

Chief Engineer (Project)
1x660MW Bhusawal Project