



HALF YEARLY COMPLIANCE REPORT

for the period
October 2017 to March 2018

Environment Clearance of 256 MW Power Plant

Letter no.: J-13012/77/2011-I-A.II (T) dated 12th February 2015



BHUSHAN STEEL LIMITED

Narendrapur, Kusupanga, Meramandali, Dhenkanal, Odisha



BHUSHAN

HALF YEARLY COMPLIANCE REPORT

Oct – 2017 to March – 2018

Environment clearance of 256 MW power plant
Letter no.: J-13012/77/2011-I-A.II (T) dated 12th February 2015

SL.	STIPULATED CONDITIONS	COMPLIANCE STATUS
i	Vision document specifying prospective plan for the site shall be formulated and submitted to the RO of the Ministry within six months.	<ul style="list-style-type: none"> Vision, Mission and Environment Policy statements are enclosed as annexure – I.
ii	Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half yearly monitoring report.	<ul style="list-style-type: none"> Power is co-generated utilizing waste heat from DRI units through WHRBs. Additionally, coke oven and blast furnace gases are also used for generating green power through gas fired boilers utilizing renewal energy source.
iii	Sulphur and ash contents in the imported coal to be used in the project shall not exceed 0.3% and 6% 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.	<ul style="list-style-type: none"> Not applicable. Presently only gas fired boilers (60 TPH and 125 TPH capacities) are being operated which do not consume coal and generate no ash. However, a fresh reference shall be made to the Ministry for suitable amendments in environment clearance in case of change in coal quality in future.
iv	A long term study of radioactivity and heavy metals contents in coal to be used shall be carried out through a reputed institute and results thereof analyzed every two years and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radioactivity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	<ul style="list-style-type: none"> Not applicable. Presently only gas fired boilers (60 TPH and 125 TPH capacities) are being operated which do not consume coal and generate no ash. However, radioactivity and heavy metals contents in coal will be analyzed when coal is used in boilers.
v	A stack of 220 meter height shall be provided with continuous online monitoring equipments for SO _x , NO _x , PM ₁₀ and PM _{2.5} . Exit velocity of flue	<ul style="list-style-type: none"> Online monitoring system installed in the 70 meter high common stack for SO_x and NO_x. Online data is transmitted to SPCB and CPCB servers through RT-DAS.

HALF YEARLY COMPLIANCE REPORT

Oct – 2017 to March – 2018

	gases shall not be less than 22 m / sec. Mercury emissions from stack shall also be monitored on periodic basis.	
vi	High efficiency 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 spraying system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	<ul style="list-style-type: none"> • Not applicable. • Presently only gas fired boilers (60 TPH and 125 TPH capacities) are being operated which do not consume coal and generate no particulate emission and ash. • However, high efficiency ESPs will be installed in future to ensure that particulate emission does not exceed 50 mg / Nm³.
vii	Adequate dust extraction system such as cyclones / bag filters and water spraying system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	<ul style="list-style-type: none"> • Not applicable. • Presently only gas fired boilers (60 TPH and 125 TPH capacities) are being operated which generate no particulate emission and ash.
viii	COC of at least 5.0 shall be adopted	<ul style="list-style-type: none"> • >5.0 COC is maintained
ix	Monitoring of surface water quantity and quality shall also be regularly conducted and records maintained. The monitoring data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of the flow of ground water and records maintained. Monitoring for heavy metals in ground water shall also be undertaken and results/findings submitted along with half yearly monitoring report.	<ul style="list-style-type: none"> • Monitoring of surface water and ground water is carried out regularly. Monthly monitoring reports are being submitted to the SPCB, Odisha. • The summarized data is enclosed as annexure - II.
x	A well designed rainwater harvesting system shall be put in place within six months, which shall comprise of rain water collection from the built up and open area in the plant premises and detailed records kept of the quantity of water harvested every year and its use.	<ul style="list-style-type: none"> • To estimate the rain water harvesting potential, a detail study has been completed covering entire plant area and township. • The finding of the study is being evaluated and same will be implemented in phase manner.
xi	No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up / operation of the	<ul style="list-style-type: none"> • No water body or natural drainage system is disturbed

HALF YEARLY COMPLIANCE REPORT

Oct – 2017 to March – 2018

	power plant.	
xii	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 report / data of water quality monitored regularly and maintained shall be submitted to the Regional Office of the Ministry.	<ul style="list-style-type: none"> Hydrology report is enclosed as annexure –III.
xiii	Waste water generated from the plant shall be treated before discharge to comply limits prescribed by the SPCB / CPCB.	<ul style="list-style-type: none"> Waste water generated from plant is treated in Effluent Treatment Plant (ETP # 3). Treated water is used in slag granulation, green areas, etc. A Sewage treatment plant of capacity 1000 KLD has been installed for treating domestic sewage from township. The water quality parameters are well within the limit as per the prescribed standard and the summarized data is enclosed as annexure - IV.
xiv	Additional soil for leveling of the proposed site shall be generated within the site (to the extent possible) so that natural drainage system of the area is protected and improved.	<ul style="list-style-type: none"> No additional soil required for leveling the site.
xv	Prior approval of the Ministry shall be obtained for Mine Void and abandoned stone quarry filling of fly ash based on the outcome of the pilot study for which permission was accorded to the existing units by the Ministry on 05.09.2013 subject to Hon'ble NGT's Order.	<ul style="list-style-type: none"> Approval has been obtained from the MoEF&CC for ash filling in Jagannath OCP of MCL vide letter no. Z-11013/43/2011-IA.II (M) dated 19.04.2016. Copy of environment clearance and MoM of EAC are enclosed as annexure-V. NEERI, Nagpur has been assigned to study the impact assessment of fly ash filling in Jagannath mine void no. 4 of MCL. <i>In the final study report NEERI concluded that:</i> TCLP tests for fly ash and bottom ash reveal that ash is non hazardous substance in nature.

HALF YEARLY COMPLIANCE REPORT

Oct – 2017 to March – 2018

		<ul style="list-style-type: none"> • Water extraction test indicate that leaching of trace metal from fly ash and bottom ash is very less (less than 1%). • Water elution test indicate that trace metal leaching decreases with time. • Radio nuclides indicate that activity is below the limits set by the AERB guidelines. • Flow and solute transport model reveal that plumes (for conservative elements) will travel considerably less, about 700 meters in 30 years time. • The movement will be considerably less for trace elements which undergo retardation. • Trace element concentration in various plant species found to be within limits. • Bioassay tests indicate no mortality in test samples. • Backfilling of mine void through fly ash has no adverse impact on environment. • The Radioactive tracer study has been carried out by the Board of Radiation and Isotope Technology, BARC, Mumbai. • Report concludes very low permeability of the soil underground in the mine void region of the quarry and hence no leachate is reaching the groundwater aquifer.
xvi	<p>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. Mercury and other heavy metals (As, 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 areas.</p>	<ul style="list-style-type: none"> • Not applicable. • Presently only gas fired boilers (60 TPH and 125 TPH capacities) are being operated which do not consume coal and ash is not generated. • However, adequate storage facility (silo) will be developed and ash analysis will be carried out in future.
xvii	<p>Fugitive emission of fly ash (dry or wet) shall be controlled such that no agricultural or non-agricultural land is affected. Damage to any land shall be mitigated and suitable compensation provided in consultation with the local</p>	<ul style="list-style-type: none"> • Not applicable. • Presently only gas fired boilers (60 TPH and 125 TPH capacities) are being operated which do not consume coal and generate no particulate emission and ash.

HALF YEARLY COMPLIANCE REPORT

Oct – 2017 to March – 2018

	panchayat.	
xviii	Ash pond shall be lined up with HDPE/LDPE lining or any other suitable material 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.	<ul style="list-style-type: none"> • Not applicable. • Presently only gas fired boilers (60 TPH and 125 TPH capacities) are being operated which do not consume coal and generate no particulate emission and ash.
xix	Green belt consisting of three tire of plantation of native species around plant and at least 50 m width shall be raised. Wherever 50 m width is not feasible a 20 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not be less than 2500 trees per ha with survival rate not less than 80%. Only native species shall be planted and the green belt development shall be expedited.	<ul style="list-style-type: none"> • Wherever feasible, green areas are being developed in and around the plant premises using mainly native plant species to ensure survival rate of about 90%. • Total green area in and around the entire complex of Bhushan Steel Limited and Bhushan Energy Limited is about 26.33% of the total area. • Green area shall be increased gradually every year and 33% will be achieved in next 3 - 4 years. • Plantation during the year 2017-18 along with photographs are enclosed as annexure - VI.
xx	CSR schemes identified based on Public Hearing issues and need based assessment shall be implemented in consultation with the village panchayat and the District administration starting from the development of the project itself. As part of CSR, prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Company shall provide separate budget for community development activities and income generating program.	<ul style="list-style-type: none"> • The peripheral development is being carried out based on socio economic survey of the core is on need based assessment. Based on this, BEL has provided the facilities of sanitation, drinking water, education, health care, road and communication facilities etc to the surrounding villages. Till now, an amount of Rs. 68.18 crore has been spent on the above activities. • The details are enclosed as annexure - VII.
xxi	As committed, a minimum amount of Rs. 40.00 crore shall be earmarked for CSR activities for next five years. For proper and periodic monitoring of CSR activities, a CSR committee or a social audit committee or a suitable credible external agency shall be appointed.	<ul style="list-style-type: none"> • The peripheral development is being carried out based on socio economic survey of the core is on need based assessment. Based on this, we has provided the facilities of sanitation, drinking water, education, health care, road and communication facilities etc to the surrounding villages. Till now, an

HALF YEARLY COMPLIANCE REPORT

Oct – 2017 to March – 2018

	CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final	amount of Rs. 68.18 crore has been spent on the above activities.
xxii	For proper and periodic monitoring of CSR activities, a CSR committee or a social audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.	<ul style="list-style-type: none"> The peripheral development is being carried out based on socio economic survey of the core is on need based assessment. Based on this, we have provided the facilities of sanitation, drinking water, education, health care, road and communication facilities etc to the surrounding villages. Till now, an amount of Rs. 68.18 crore has been spent on the above activities.
xxiii	An Environmental Cell comprising of at least one expert in environment science/engineering, ecology, occupational health and social science, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the Head of the Plant who would be accountable for implementation of environmental regulations and social impact improvement / mitigation measures.	<ul style="list-style-type: none"> Environment Management Department has been established for implementation of stipulated environmental safeguards and control of pollution. Details of department structure, monitoring and analysis facilities are enclosed as annexure - VIII.
A	General Conditions:	
i	Space for FGD shall be provided for future installation as may be required.	<ul style="list-style-type: none"> Space will be made available for installation of FGD, if required in future. Necessary modification shall be carried out in compliance with the recent notification.
ii	The treated effluents conforming to the prescribed standards only shall be re-circulated and re-used within the plant. Arrangements shall be made that effluents and storm water do not get mixed	<ul style="list-style-type: none"> Waste water is treated in 350 m³/hr capacity ETP-III. The treated effluents, conforming to the prescribed standards, are recycled and reused for slag granulation, dust suppression and green area development. Zero discharge of effluent is be maintained.
iii	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising	<ul style="list-style-type: none"> A Sewage treatment plant of capacity 1000 m³ per day has been provided for treating domestic sewage from common township of

HALF YEARLY COMPLIANCE REPORT

Oct – 2017 to March – 2018

	greenbelt / plantation.	<p>BSL and BEL. Treated domestic waste water is being reused for green area development.</p> <ul style="list-style-type: none"> • Detail of STP is enclosed as annexure - IX. • Another STP of 100 m³ per day has been installed near Blast Furnace-I. • Details are enclosed as annexure – X.
iv	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fire in coal yard especially during summer season. Copy of these measures with full details along with location on plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.	<ul style="list-style-type: none"> • Not applicable. • Presently only gas fired boilers (60 TPH and 125 TPH capacities) are being operated which do not consume coal. • However, 19 numbers of fire hydrants have been provided in the coal yard-1, 2 and coal shed to check / minimize spontaneous fire. • 09 numbers of gun sprinklers have also been installed in the yards to keep the surface moist. • The coal piles are leveled by scraping and compacted by rolling • In coal silos / bins, First in First out (FIFO) principle is applied to avoid spontaneous burning. • Fire tenders will be put into service in case of emergency.
v	Storage facility for auxiliary liquid fuel such as LDO/HFO/LSHS shall be made in the plant area in consultation with the 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.	<ul style="list-style-type: none"> • LDO is stored in the plant area where the risk is minimum. There is a dyke around the storage tanks to contain LDO in case of any leakage. • Detail is enclosed as annexure–XI. • On- site emergency plan has been prepared to meet any eventuality in case of an accident taking place. • Regular mock drills are being conducted to respond to emergency situations. • As per specification of the Supplier, the sulfur content in the fuel varies between 0.25 to 0.50 % by mass. • Details are enclosed as annexure – XII.
vi	First aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	<ul style="list-style-type: none"> • Adequate First aid and sanitation arrangements were made during construction phase of the plant and similar facilities are being maintained during

HALF YEARLY COMPLIANCE REPORT

Oct – 2017 to March – 2018

		operational phase also for the workers and employees.
vii	Noise level emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 85 dB(A) from the source. For people working in the high noised areas, requisite PPEs like ear plugs/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 records and for treatment for any hearing loss including shifting to non-noisy/less noisy areas.	<ul style="list-style-type: none"> Acoustic enclosures have been provided for turbines and air compressors to meet the work zone noise standards. Silencers have been provided at primary air and secondary air fans. Necessary PPEs are being provided to all the workers working in noisy areas and periodic examination is being conducted for the workers engaged in noisy areas. Noise monitoring is carried out regularly in the work zone areas and reports are enclosed as annexure-XIII.
viii	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 levels are found to exceed the prescribe limits, necessary control measures shall be provided immediately. The locations 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 the Ministry. The data shall also be put on the website of the Company.	<ul style="list-style-type: none"> Five ambient air quality monitoring stations have been set up in nearby villages for measuring the monthly ground level concentrations of PM₁₀, SO₂ and NO_x in consultation with SPCB, Odisha. Analysis report is enclosed as annexure - XIV.
ix	Utilization of 100 % fly ash generated shall be made from 4 th year of operation. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.	<ul style="list-style-type: none"> Not applicable. Presently only gas fired boilers (60 TPH and 125 TPH capacities) are being operated which do not consume coal and generate no particulate emission and ash
x	Provision shall be made for the housing of contractor workers (as applicable) within the site with all necessary infrastructure facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc.	<ul style="list-style-type: none"> Adequate arrangements for housing of construction workers were made during construction phase of the plant and same facilities are being maintained during operational phase also for employees and workers.

HALF YEARLY COMPLIANCE REPORT

Oct – 2017 to March – 2018

xi	<p>The project proponent shall advertise in at least two local news papers 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 environment clearance and copies of the clearance letters are available with the SPCB/Committee and may also be seen at website of the Ministry of Environment and Forests at http://envfor.nic.in</p>	<ul style="list-style-type: none"> • Advertisements were circulated in The Telegraph (English daily) dated 15.02.2015 and the Samaya (Oriya daily) dated 15.02.2015. • A copy of the same was submitted to MoEF&CC vide our letter no. BSL/MoEF/BS-02/2015-09 dated 21.02.2015.
xii	<p>A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad / Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the Company by the Proponent.</p>	<ul style="list-style-type: none"> • Copy of the environment clearance was submitted to the concerned panchayat, Zila Parishad, District Industry Centre etc.
xiii	<p>The proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of measured data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF, the respective zonal office of CPCB and the SPCB. The criteria pollutant levels namely SPM, RSPM (PM₁₀ and PM_{2.5}) SO₂, NO_x (ambient as well as stack emission) shall be displayed at a convenient location near the main gate of the Company in the public domain.</p>	<ul style="list-style-type: none"> • Status of compliance of the stipulated environment clearance conditions are being uploaded on website and are being sent to the Ministry, CPCB and SPCB. Results of online air quality monitoring are displayed electronically near the main gate.
xiv	<p>The environment statement for each financial year ending 31st March in Firm-V as is mandated to be submitted by the project proponent to the concerned SPCB as prescribed under the</p>	<ul style="list-style-type: none"> • The environment statement in Firm-V for each financial year ending 31st March is submitted to the Regional Office of the Ministry, CPCB and SPCB.

HALF YEARLY COMPLIANCE REPORT

Oct – 2017 to March – 2018

	Environment (Protection) Rules 1986, as amended subsequently, shall also be put on the website of the Company along with the status of compliance of environment clearance conditions and shall also be sent to the respective Regional Office of the Ministry by e-mail.	
xv	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, CPCB and SPCB. The project proponent shall upload the status of compliance 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 of MoEF.	<ul style="list-style-type: none"> • Six monthly reports on the status of the implementation of the stipulated environmental safeguards are being submitted.
xvi	Regional office of the MoEF will monitor the implementation of the stipulated conditions. A complete set of documents including Environment 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 upload the compliance status in their website and update the same from time to time at least six monthly basis. Criteria pollutants levels including NOx (from stack and ambient air) shall be displayed at the main gate of the power plant.	<ul style="list-style-type: none"> • All the required documents have already submitted to the Regional Office and will be made available during inspection. • Compliance status is uploaded on the website and updated every six month.
xvii	Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These shall be included as part of the project cost. The funds	<ul style="list-style-type: none"> • Funds earmarked for pollution control measures are not diverted for any other activity.



HALF YEARLY COMPLIANCE REPORT

Oct – 2017 to March – 2018

	earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	
xviii	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 project authorities and the dates of land development work and commissioning of plant.	<ul style="list-style-type: none">• We have obtained consent to operate from the SPCB, Odisha for 60 TPH and 125 TPH gas fired boilers and 175 MW TG vide letter no. 19620/Ind-I-Noc-5440 dated 22.03.2016.
xix	Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office / CPCB / SPCB who would be monitoring the compliance on environmental status.	<ul style="list-style-type: none">• Agreed