

**VEDANTA LIMITED, JHARSUGUDA
THERMAL POWER PLANT (2400 MW)**

Compliance Status on Environmental Clearance- MoEF Letter No. J-13011/3/2007-IA-II (T) dated 7th December 2007,
amended Environment Clearance letter No. J- 13011/3/2007-IA. II (T) dated 12th May, 2008 and amended Environment
Clearance letter No. J- 13011/3/2007-IA. II (T) dated 16th October, 2018

Environmental Clearance- Letter No. J-13011/3/2007-IA-II (T) dated 7th December 2007		
Sl. No.	Terms and Conditions	Status
1.	General Comment	-
2.	General Comment	-
3. (i)	The total land requirement shall not exceed 839.50 acres for all the activities/ facilities of the power project.	The facilities of the power project have been set up within 839.50 acres.
(ii)	Ash and sulphur contents in the coal to be used in the project shall not exceed 41.6% and 0.5% respectively.	The average ash in coal used ranges between of 40.34 % to 43.51 % and average sulphur content is 0.33%.
(iii)	Two bi-flue stack of 275 m height each with exit velocity of not less than 25 m/s shall be provided with continuous online monitoring system.	Two bi-flue stacks of 275 m height each with exit velocity of 25 m/s have been provided with continuous online monitoring system.
(iv)	High efficiency Electrostatic Precipitators (ESPs) with efficiency not less than 99.98% shall be installed so as to ensure that particulate emissions do not exceed 50 mg/Nm ³ .	Electrostatic Precipitators (ESPs) of 99.98% efficiency followed with bag filters have been installed and the particulate emissions is within 50 mg/Nm ³ .
(v)	Space provision shall be made for Flue Gas De-sulphurisation (FGD) unit of requisite efficiency of removal of SO ₂ , if required at a later stage.	Space has been provided for Flue Gas De-sulphurisation (FGD) unit of requisite efficiency for removal of SO ₂ .
(vi)	Water requirement shall not exceed 5235 m ³ /hr. No ground water shall be extracted for the project at any stage.	Water requirement is within 5235 m ³ /hr. We are not using ground water for the project.
(vii)	Closed Circuit Cooling system with cooling towers shall be provided.	Closed Circuit Cooling system with cooling towers (NDCT) have been provided and an optimum level of COC being maintained during the plant operation. For each unit one number of cooling tower of 150 meters height has been provided.
(viii)	For controlling fugitive dust, regular sprinkling of water in the coal handling area and other vulnerable areas of the plant shall be ensured.	Water sprinkling system has been provided for regular spraying of water to minimize fugitive dust emission. Necessary dust extraction and dust suppression system in truck tippler, track hopper, sprinkling system in coal-yard (rain guns) and dust suppression system in belt conveyor have been provided.
(ix)	The project authorities should adhere to the provisions stipulated in the fly ash notification of September, 1999 and as amended in August, 2003 in regard to fly ash utilization.	Fly ash is being collected in dry form in two silos of capacity-2000 m ³ . Ash is being utilized in filling up low lying area, cement & brick manufacturing, road and constructional activities and the balance is

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		disposed off to the ash pond in the form of High Concentration Slurry. We are also exploring possibilities of disposing fly ash in mine voids.
(x)	The ash pond shall be lined with impervious lining to avoid any leaching into groundwater. The ash dyke shall be so designed and strengthened to ensure guard against breaching. Adequate safety measures shall also be taken so that pond ash does not become air borne to cause air pollution in the surrounding areas.	With the implementation of High Concentration Slurry Disposal system water in the slurry will be so low that the entire mass becomes a rock like structure thereby no water will be available for leaching into ground and the ash will not get airborne. This method of disposal is such that there will be no pressure on the bunds making it vulnerable for a breach. Further, proper design of the dyke through reputed consulting firm/institution, appropriate remediation for breach management and communication process followed in case of eventuality. The study of the ash pond area indicates that the soil permeability is very low and therefore chance of ground water contamination is remote. However, as a precautionary measure we have lined the pond with impervious clay/ HDPE.
(xi)	Project proponent shall commission a study to be undertaken by Wildlife Institute of India, Dehradun to determine the quantum and scale of mitigation measures to offset the impact, if any, on the safety of the elephants and security of their migration areas. The study would have to be completed before starting work at site and the safeguards so suggested shall be implemented by the project. The requisite allocation of funds for the same shall be built into the project cost.	We had approached Wildlife Institute of India, Dehradun to take up the study but they refused to undertake the study, the same was communicated to the Ministry. Based on the committee's recommendation the condition was amended to undertake the study through Centre for Ecological Sciences, Indian Institute of Science, Bangalore. The same was communicated to us vide letter No.J-13011/3/2007-IA.II (T) dated 12 th May 2008 and the compliance status of the condition is mentioned in the amended condition 3 (xi). The study has been completed and the report has been submitted to Director, Project Elephant, MoEF, CWLW & PCCF, Govt. of Odisha for necessary vetting. The conclusion of the study is detailed in Chapter 5, Pg.27 and reads as "We therefore do not recommend the establishment of any corridor through this virtually nonexistent (or non-viable) habitat in the Sambalpur North Forest Division. We strongly recommend that the overall viability of the Sambalpur Elephant Reserve is strengthened in the Sambalpur South Forest

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		Division.”
(xii)	The District Collector / Revenue Divisional Commissioner shall be informed regarding R&R and all other benefits to be provided by the project proponent and their effective implementation shall have to be overseen by the District Authorities.	The R & R package has been finalised based on the R & R Policy of Odisha incorporating the local additional requirement discussed in the RPDAC meeting chaired by the Revenue Divisional Commissioner and attended by the District Collector and representatives of the affected villagers. The District Collector/District Magistrate and the Administration is overseeing to ensure strict compliance of the commitment.
(xiii)	All the measures suggested by the Wildlife Department, Govt. of Orissa (Chief Wildlife Warden) for this project as contained in their letter no. IWL(c)-FC-370/07/6532 dated 16.10.2007 and any other measure as may be considered necessary for the conservation of wildlife in the area shall be taken up on priority before commissioning the project.	All the proactive measures suggested by the Wildlife Department, Govt. of Orissa (Chief Wildlife Warden) vide their letter no. IWL(c)-FC-370/07/6532 dated 16.10.2007 and other measures are being implemented.
(xiv)	Rainwater harvesting should be adopted. Central Groundwater Authority / Board shall be consulted for finalization of appropriate rain water harvesting technology within a period of three months from the date of clearance	Study conducted by NGRI in the plant area indicates that the water table in the area is high and that any water harvesting measures undertaken will lead to only flooding of the area. However, we further conducted studies through Andhra University and submitted the report to CGWA. As per their advice we conducted study on detailed scheme and submitted the same to CGWA, South Eastern Region, Bhubaneswar, which has been recommended by them. The rainwater harvesting structures as recommended, are being implemented in phased manner. We have placed order and implementing the first structure in our CPP.
(xv)	Wastewater generated shall be recycled and reused in the plant premises. There shall be no discharge of wastewater outside the plant boundary except during monsoon. Treated effluents conforming to the prescribed standards shall be discharged during the monsoon period	The treated effluents conforming to standards is recycled and reused within the plant in normal operating conditions. In case of emergency we shall ensure that the discharge quality does not exceed the prescribed standards.

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(xvi)	Regular monitoring of ground water quality including heavy metals shall be undertaken around ash dyke and the project area to ascertain the change, if any, in the water quality due to leaching of contaminants from ash disposal area.	Apart from the piezometric bore wells around ash ponds, the ground water monitoring has been undertaken in the surrounding villages like Purna, Siriapalli, Badmal, Bhurkamunda and Katikela.
(xvii)	A greenbelt shall be developed all along the plant and ash pond boundary covering a total area of 322 acres.	Green belt all along the plant and ash pond boundary covering a total area of 322 acres is being developed and maintained.
(xviii)	First aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	First aid and sanitation facilities have been provided to all the drivers and contract workers in the construction phase.
(xix)	Leq of Noise level should be limited to 75 dB(A) and regular maintenance of equipment be undertaken. For people working in the high noise areas, personal protection devices should be provided.	Acoustic enclosures have been provided in high noise level areas like Turbine and Generator to ensure the Leq of noise level less than 75 dB(A) with regular maintenance of equipment.
(xx)	Regular monitoring of the ambient air quality shall be carried out in and around the power plant and records maintained. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Quarterly reports shall be submitted to the Regional Office of this Ministry.	AAQ stations have been fixed in consultation with OSPCB in and around the power plant complex. Reports are being regularly submitted.
(xxi)	The project proponent should advertise in at least two local newspapers widely circulated in the region around the project, one of which should be in the vernacular language of the locality concerned within seven days of issue of this letter, informing that the project has been accorded environmental clearance and copies of clearance letters are available with the State Pollution Control Board/Committee and may also be seen in the Website of the Ministry of Environment and Forests in the http://envfor.nic.in	Necessary advertisement with information as advised by the Ministry has been released in two local newspapers one in vernacular 'The Samaja' (Oriya News Paper) dated 17.12.2007 and one in English 'Times of India' (English News Paper) dated 17.12.2007.
(xxii)	A separate environment monitoring cell with suitable qualified staff should be set up for implementation of the stipulated environmental safeguards.	A separate Environment Management Cell with qualified personnel has been set up to monitor compliance of the conditions stipulated.
(xxiii)	Half yearly report on the status of implementation of the conditions and environmental safeguards should be submitted	Half yearly report on the status of implementation of the conditions is periodically being submitted to the Ministry, the Regional Office,

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	to this Ministry, the Regional Office, CPCB and SPCB.	CPCB and SPCB
(xxiv)	Regional Office of the Ministry of Environment & Forests located at Bhubaneswar will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report, Environment Management Plan and the additional information / clarifications submitted subsequently should be forwarded to the Regional Office for their use during monitoring.	Complete set of EIA & EMP along with all relevant information has been submitted to the Regional Office of the Ministry.
(xxv)	Separate funds should be allocated for implementation of environmental protection measures along with item-wise break-up. These cost should be included as part of the project cost. The funds earmarked for the environment protection measures should not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	Separate fund has been allocated for implementation of the Environmental Protection measures and will not be diverted for other purposes.
(xxvi)	Full cooperation should be extended to the Scientists/Officers from the Ministry and its Regional Office at Bhubaneswar/ the CPCB / the SPCB during monitoring of the project.	We shall extend full co-operation to the scientists/ officers from the Ministry/ Regional Office/ CPCB and OSPCCB who would be monitoring the compliance of Environmental status.
4.	The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry.	We will strictly adhere to the stipulations of Ministry.
5.	The environmental clearance accorded shall be valid for a period of 5 years to the start of production operations by the power plant.	Agreed.
6.	In case of any deviation or alteration in the project proposed from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to incorporate additional environmental protection measures required, if any.	No deviation, alteration, expansion or modernization in the project will be undertaken without prior approval of the Ministry.

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7.	The above stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and rules there under, Hazardous Wastes (Management and Handling) Rules, 1989 and its amendments, the Public Liability Insurance Act, 1991 and its amendments.	Agreed.
Amended Environment Clearance Conditions vide letter No. J- 13011/3/2007-IA.II(T) dated 12th May, 2008		
1.	General Comment	-
2.	General Comment	-
3(xi)	Amended Condition: "Project proponent shall commission a study to be undertaken by the Centre for Ecological Sciences, Indian Institute of Science, Bangalore regarding the feasibility of developing viable elephant corridors, which may have minimal impact due to the proposed project. The report shall be get vetted by Chief Wildlife Warden, Govt. of Orissa and Director (Project Elephant), Govt. of India. The necessary mitigation measures as may be suggested based on the proposed study shall be implemented by the project proponent along with the State Wildlife Department. The said study should be completed before commissioning of the plant. The implementation of the EMP shall be periodically monitored by a team comprising of Representatives from (i) Indian Institute of Science, Bangalore, (ii) Regional Office of the Ministry at Bhubaneswar and (iii) State Wildlife Department".	M/s Indian Institute of Science, Bangalore was engaged to undertake the study to determine the quantum and scale of mitigation measures to offset the impact, if any, on the safety of the elephants and security of their migration areas. The report has been submitted to the Ministry vide our letter No VAL/MoEF/SMA-106/2010-002 Dt: 13/11/2010. The report has been submitted to Director, Project Elephant, MoEF and CWLW & PCCF, Govt. of Odisha for necessary vetting. The conclusion of the study is detailed in Chapter 5, Pg. 27 and reads as "We therefore do not recommend the establishment of any corridor through this virtually nonexistent (or non-viable) habitat in the Sambalpur North Forest Division. We strongly recommend that the overall viability of the Sambalpur Elephant Reserve is strengthened in the Sambalpur South Forest Division.
	Additional Conditions	
(i)	The site at Sripura village shall only be used for ash disposal for both the phases. Out of the 790 acres of available land, the proponent should carve out 757.3 acres of land as required for the ash pond such that the land so carved out is far away as	Ash ponds at Katikela and Kurebaga have already been developed and in operation. The ash pond site at Sripura was envisaged along with expansion of power plant which has been forgone for the business decision. The ash ponds will be constructed as per the

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	possible from the river.	amendment of EC No. J- 13011/3/2007-IA.II (T) dated 16 th October, 2018 at the permitted sites. Ash pond construction is under progress at Siraipali, one of the sites as per the aforesaid amendment.
(ii)	The earlier site for the ash pond, which was close to the elephant corridor, shall be abandoned and no activity relating to the power project in any form shall be taken on that site.	The ash ponds will be constructed as per the amendment of EC No. J- 13011/3/2007-IA.II (T) dated 16 th October, 2018 at the permitted sites.
Amended Environment Clearance Conditions vide letter No. J- 13011/3/2007-IA.II(T) dated 16th October, 2018		
1.	General Comment	-
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3.	General Comment	-
4.	General Comment	-
5(i)	Amended Condition: Ash ponds at village Siriapali in an area of 230 acres and at village Gudigaon in an area of 191.92 ha is permitted.	Agreed.
(ii)	Ash pond expansion at Katikela is not permitted and the said area shall be developed as greenbelt.	Agreed.
(iii)	Remediation plan for restoration of Katikela Ash pond near Bhedan river prepared by M/s Tata Consulting Engineers shall be implemented.	Remediation plan prepared by M/s Tata Consulting Engineers for restoration of Katikela ash pond has already been implemented.
6 (i)	The protection of elephants moving in the area to be ensured along with ensuring safe passage/corridor for the movement of elephants from one habitat to other safely.	Being complied.
(ii)	All the protection and conservation activities to be undertaken as per the directions and recommendation of the Chief Wildlife Warden, Odisha and the local officials.	Being complied.
7	General Comment	-