COMPLIANCE TO EC CONDITIONS
[1x 67.5 MW (UNIT # I)]

STATUS AS ON 30th SEPTEMBER, 2015 ON COMPLIANCE OF CONDITIONS AND SAFE GUARDS LAID DOWN BY GOVT. OF INDIA, MINISTRY OF ENVIRONMENT OF FORESTS VIDE MEMORANDUM NO: J -13011/18/88 - IA OF 11 MAY 1989 FOR 1 X 67.5 MW CPP

Condition No: 2. (i)

A single stack having minimum 130 meters height will be provided.

A single stack of height 130 meters has been provided to the unit.

Condition No: 2. (ii)

Electrostatic precipitators [ESP's] having an operational efficiency of not less than 99.5% will be provided to keep the emission levels of the particulates within 150 mg/Nm^3.

ESPs having five electric fields each with operational efficiency of 99.9% have been provided to the unit.

The unit was under shut down during the period April'15 to September'15.

Condition No: 2. (iii)

Dust suppressing/control equipment should be provided in the coal handling areas.

Dust suppression/extraction equipments along with bag filter houses have been provided in the coal handling plant. Fugitive emission during handling of coal in the coal yard area and adjoining road is controlled by water sprinkling through fixed sprinklers and manual sprinkling.

The fugitive emission monitored in Coal Handling Plant area for the last six months (April, 2015 to September, 2015) was 299.58 µg /m^3. The values are enclosed.

Condition No: 2. (iv)

Liquid effluents emanating from the power station are to be treated to comply with the standards prescribed by the Central/State Pollution Control Board or under the Environment Protection Act, 1986, which ever are more stringent.

The liquid effluents quality is treated to meet the prescribed standard of the Environment (Protection) Act, 1986. The values for the last six months (April, 2015 to September, 2015) are enclosed. All the values are well withih the limit.

Condition No: 2. (v)

Cooling towers will be provided

Induced draft cooling tower has been provided to the unit.

Condition No: 2. (vi)

Continuous monitoring of stacks and ambient air quality will be done at least at four different locations. The sites of these stations will be selected in consultation with State Pollution Control Board taking into consideration with the wind direction, human settlements and other local factors. Similarly monitoring facilities for liquid effluents may be provided.

Online realtime continuous monitoring of ambient air inside the premises and stack attached to the unit is being carried out regularly, for which three stations for ambient air monitoring and one stack monitoring unit have been installed. The data is being transmitted to the server of SPCB.

Apart from the above, monitoring of Ambient Air at 8 other locations and stack monitoring is being carried out every month regularly. The values of the monitorings for last six months (April, 2015 to September, 2015) are enlcosed.

Condition No: 2. (vii)

Adequate infrastructural facilities may be created for meeting the emergency situation arising due to fire hazards especially in the coal/oil storage and handling areas.

Necessary fire fighting arrangements have been made in coal handling area, coal yard and oil storage and handling area. Fire hydrants and other fire fighting equipments have been provided to the mentioned areas.

Condition No: 2. (viii)

Adequate scrubbing system having an efficiency of not less than 90% efficiency for control of fluoride before the captive power plant comes on stream.

Complied at our Smelter Plant

Condition No: 2. (ix)

Disposal of fly ash on land should be done after making proper bunds/dykes. There should be no discharge of liquid effluents from ash bund/dyke. The liquid effluents if any should be recycled / reused. Efforts should be made to reuse/utilize the fly ash for constructive purposes such as in making bricks, blocks, cement etc. to the extent possible.

The disposal of Fly ash is being done in the ash mound after making dykes. Garland drains have been provided to the mound to carry the run-off water to the settling pond. The water of the settling pond is used for dust suppression in the ash mound. There is no discharge of effluent from ash disposal area to the outside.

Ash utilisation:

Efforts have been made to utilise ash for constructive purposes such as supply to Brick making units, Cement Manufacturing units, embankment and dyke raising, Low lying area filling etc. About 2, 86, 785 MT of ash (from all the units) was used in different applications during April, 2015 to September, 2015. The detail of ash utilization is enclosed.

Condition No: 2. (x)

A greenbelt of adequate density and width must be created all around the proposed power station and ash pond

During the year 2015-2016 about 10000 saplings were planted covering ash disposal area. Plantation activity is carried out along plant boundary, ash transport road, in and around plant and ash mound area etc. About 6.41 lakh saplings (including replenishment) have been planted since 1993-94 with an average survival rate of more than 60%.

Condition No: 3

Adequate Financial provisions must be provided in project cost and annual budgets for implementation of the conditions as stipulated above.

Provisions have been made to allocate the funds for controlling the Pollution Control Equipment and abating the pollution.

The actual environmental expenditure for the period April, 2014 to March, 2015 was Rs. 2426.66 Lakh for all the units. The detailed break-up expenditure incurred on Environment Protection is enclosed.

Condition No: 4

The above conditions may be modified or the additional ones may be imposed, if required from environmental angle.

Agreed

Condition No: 5

Enforcement of the stipulated conditions will among others be under the provisions of Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) act, 1981 and the Environment (Protection) Act, 1986.

Agreed

COMPLIANCE TO EC CONDITIONS
[1x 100 MW (UNIT # II)]

STATUS AS ON 30TH SEPTEMBER, 2015 ON COMPLIANCE OF CONDITIONS AND SAFE GUARDS LAID DOWN BY GOVT. OF INDIA, MINISTRY OF ENVIRONMENT OF FORESTS VIDE MEMORANDUM NO: J-13011/1/99 - IA.II (T) OF 25 APRIL, 2005 & 04 AUGUST, 1999 FOR 1X100 MW CPP

Condition No: 2. (i)

All the conditions stipulated by Orissa Pollution Control Board vide their letter no. 10039/Ind-II-NOC-906 dated 27th May, 2003 should be strictly implemented.

Being implemented

Condition No: 2. (ii)

A stack of height of not less than 130 m shall be provided with continuous online monitoring equipment.

A single Stack of height 130 mtr has been provided to the unit.

Opacity Monitor (Model No: DCEM-2100) and Continuous Flue gas Analyser of SO_2, NOx and CO_2 (Model No: GCEM 4000), both of Forbes Marshall-Codel make have been installed in the stack with data transmission to SPCB server over GPRS link.

Condition No : 2. (iii)

Electrostatic precipitators of efficiency not less than 99.9% should be installed and it should be ensured that particulate emissions do not exceed the prescribed limit of 100 mg/M^3.

The ESPs provided to the unit are of efficiency 99.9% and are designed to keep the particulate emissions within 100 mg / NM^3. The average SPM value monitored from ESP outlet for the last six months (April, 2015 to September, 2015) was 74.71 mg/NM^3, which is far below the presribed limit.

Condition No: 2 (iv)

Closed Circuit Cooling Device with induced draft should be provided and it should be ensured that only minimum water is drawn for makeup purposes from Hirakud reservoir as permitted by the State Irrigation Department.

Closed circuit cooling tower with induced draft has been provided to the unit. It operates with more than 5.0 Cycle of Concentration (COC) in order to ensure minimum use of fresh water for make-up purposes.

Condition No: 2 (v)

Noise level should be limited to 85 dBA and regular maintenance of equipment be undertaken for people working in the area of generator halls and other high noise areas, ear plug should be provided.

Operator cabins and workstations are provided with noise abatement measures such as glass shields. People working in the high noise area are provided with ear muffs and PPE.

Noise quality is being monitored regularly. The noise quality data monitored at various places for the period April, 2015 to September, 2015 is enclosed.

Condition No: 2 (vi)

For controlling fugitive dust, regular sprinkling of water in coal handling and other vulnerable areas of the plant should be ensured

Water sprinklers have been provided around the coal yard for suppression of fugitive dust. Mobile water sprinkler is used to suppress the fugitive dust on the roads. Network of fixed sprinklers has also been provided around ash silo area to contain fugitive dust emission of the area. Regular moisturisation of ash during its unloading from silos is being done to avoid fugitive dust emission.

Condition No: 2(vii)

Afforestation should be undertaken covering an area of about 10 acres for Unit-II and intensification of the existing green belt should be ensured. As committed, the Company should aim to plant 30.000-40,000 saplings every year in vulnerable areas such as coal handling plant, ash dump areas should be given preference for plantation work

Afforestation is being undertaken in and around the plant and ash disposal area. About 6.41 lakh saplings have been planted since 1993-94. Around 10,000 saplings have been planted in the ash disposal area and inside plant premises during the year 2015 - 16. The details of plantation are enclosed.

Condition No: 2 (viii)

Coal should be used @ 57.59 tonnes/h with GCV of around 3610 KCal/kg and Sulphur content not exceeding 0.49%. The fuel should be transported only in covered tippers/trucks from Ib Valley Coalfieds.

Coal is being used with average GCV of about 3412 kcal/kg and sulphur content of around 0.43%. The coal is being transported from various sources in trucks covered with tarpaulin. The Sulphur content of Coal for the last six months (October, 2014 to March, 2015) is enclosed.

Condition No: 2(ix)

Since movement of about 100-120 Tippers/trucks will be involved for Unit-II in addition to the existing movement of similar number of trips for Unit-I, a proper traffic scheduling should be evolved and each vehicle should be checked for adequacy of cover before despatch. The possibility of rail transport by extending the existing lail line from the present rail at Lapanga head to the mine site and from Sambalpur to the plant should also be examined.

Traffic load of coal transportation has been reduced considerably by using higher capacity vehicles instead of conventional 10T trucks. Each vehicle is checked for adequacy of cover before despatch.

The rail transport is under process of consideration.

Condition No: 2 (x)

As per the proposal submitted for Ash Utilisation, it should be ensured that fly ash is used in cement industry, brick making and in raising the ash dyke etc. Efforts should also be made in the area of mine filling, land development and agriculture etc. Acquisition of additional land to the tune of 50 acres for ash disposal should be avoided as far as possible by ensuring 100% utilization

The ash generated out of the process is utilized in various areas like cement manufacturing, ash brick making, land-filling, road making, embankment/dyke raising etc. To avoid acquisition of more land for ash mound we are maximsing utilization of ash.

About 2, 86, 785 MT of ash (from all the units) was utilized in different applications (Cement industries, Bricks manufacturing industries, road making, dyke raising and low-lying area filling) during the period April, 2015 to September, 2015. The detailed ash utilization is enclosed.

Condition No: 2 (xi)

All effluents generated in various plant activities should be collected in the Central Effluent Treatment plant and treated effluents to the tune of 160m^3/hr from CPP unit-I and unit - II only should be discharged after ensuring adherence to specified standards before its release in Kharjorenallah tributary of Mahanadi river. The concept of zero discharge should be adapted to a maximum possible extent.

Wastewater generated from all the units after treatment is being re-used for the purpose of cooling and in other in-house activities such as ash moisturisation, coal-yard spraying, road cleaning and gardening etc. Concept of zero discharge is nearly adopted except in the rainy days when a part of effluent is discharged to outside meeting prescribed standard.

Condition No: 2 (xii)

The project authorities should interact with the concerned State Government Departments for facilitating implementation of the "Project Turtle'" of the State Government. The proposal drawn in this regard including the proposed financial support by the Company should be submitted to the Ministry within three months.

Interactions was made with the Chief Conservator of Forests-Wild Life and the Principal Secretary, Forests and Environment Department, Government of Odisha for facilitating implementation fo the “Project Turtle” of the State Government by providing financial support. We havenot received any communication on the same.

We had applied to MoEF, New Delhi with a copy to your office requesting for modification/ updation/withdrawal of this condition from our EC.

Condition No : 2. (xiii)

Regular monitoring for SPM, $S0_2$ and NO_X around the power plant may be carried out and records maintained.

The ambient air quality is being monitored at seven locations regularly. The ambient air quality data monitored for the last six months (April, 2015 to September, 2015) is enclosed.

Further, real time monitors for monitoring of ambient air as well as stacks and effluent have been installed, which are sending the rel-time data continuously to the servers of SPCB/CPCB.

Condition No: 2 (xiv)

Full cooperation should be extended to the Scientists/Officers from the Regional Office of the Ministry at Bhubanesliwar/the CPCB/the SPCB who would be monitoring the compliance of environmental status. Complete set of impact assessment report and the Management Plans sliould be forwarded to the Regional Office for their use during monitoring.

Full co-operation is being extended to the visiting officials to the plant. EIA and EMP already submitted to the Regional Office of MoEF.

Condition No: 2 (xv)

Adequate financial provision should be made for implementation of environmental protection measures indicating item-wise break-up and at least 1% of the cost of the project should be spent on improvement of ecology of the area. These costs should be included as a part of project cost. The funds earmarked for environmental protection measures should not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.

Adequate financial provision is being made for controlling and abating the environmental pollution every year.

The actual environmental expenditure for the period April, 2014 to March, 2015 was Rs. 2426.66 Lakh for all the units. The detailed break-up expenditure incurred on Environment Protection is enclosed.

Condition No: 2(xvi)

The Company should strengthen its Environmental Group to ensure continuous study of various environmental issues in the region.

Studies have been carried out for various environmental issues like use of SPL in boilers of CPP, characteristic of ash for use in road making, stability of ash mound etc. Study for heavy metal deposition in the fruits, leaves and bark of the plants, sludge and water in ash mound area is under progress.

Condition No: 3.

The Ministry of Environment & Forests or any other Competent Authority may modify / alter any of the stipulated condition(s) or stipulate any additional condition(s) in the interest of environment, which shall be complied with by the proponent. The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry.

Agreed

Condition No: 4.

The environmental clearance accorded shall be valid for a period of 5 years for commencement of construction / operation of the power plant. In case the project authorities fail to do so within this stipulated period this environmental clearance shall stand lapsed automatically.

This is an existing operating unit.

Condition No: 5.

In case of any deviation or alternation in the project profile / scope of the project a frersh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to add additional environmental protection measures required, if any.

Agreed

COMPLIANCE TO EC CONDITIONS
[1x 100 MW (UNIT # III)]

STATUS AS ON 30TH SEPTEMBER' 2015 ON COMPLIANCE OF CONDITIONS LAID DOWN BY MINISTRY OF ENVIRONMENT OF FORESTS, GOVT. OF INDIA VIDE MEMORANDUM NO : J-13012/ 10/2004 - IA.II (T) OF 21 SEPTEMBER, 2005 FOR 1X100 MW CPP

Condition No: 3. (i)

The conditions stipulated by Orissa Pollution Control Board vide their letters No. 33856/Ind-I-CON-3038 dated 03.12.2004 and no. 19425/IND-I-CON-3038 dated 29.6.2005 shall be strictly implemented.

Being implemented

Condition No: 3. (ii)

Ash content in coal should not exceed 40 % and the Sulphur Content should not exceed 0.50 %

Ash content in the coal was around 39.8% and the sulphur content was 0.43% for the period April, 2015 to September, 2015.

Condition No: 3. (iii)

Two Stacks of 130 mtr height with continuous on-line monitoring equipment and Exit Velocity of 30 m/s to be maintained. CFBC Boiler to be installed with in-built SO_2 reduction measures and low NOx burners.

All the three CFBC boilers of the unit are connected to one stack of height 130 meter. Continuous online monitoring system has been installed in the stack. Each boiler has been provided with in-built SO_2 reduction measures and low NOx burners.

Condition No: 3. (iv)

High efficiency Electrostatic Precipitators (ESPs) having efficiency of not less than 99.9% shall be installed to ensure that SPM emissions do not exceed 100 mg/Nm3. Bag filters shall be installed in the coal handling area.

High efficiency (about 99.9%) ESPs have been provided to the boilers of the unit. The average SPM value for the last six months (April, 2015 to September, 2015) was 56.80 mg/NM^3, which is far below the limt. The values are enclosed.

Further, bag filters have been provided in all the secondary crusher houses of Coal Handling Plant and Ash silos.

Condition No: 3 (v)

Ash utilisation should be carried out as per provisions of the notification on Fly Ash Utilisation issued by the Ministry in September, 1999 and its amendment. Boroughed earth shall not be taken from ash pond area for construction of ash dyke etc.

Ash utilization is being done as per provisions of notification of the ministry in September 2009 and its amendment. After being supplied to brick manufacturers, cement manufacturing units, utilizing in embankment/dyke raising, land filling etc, the balance ash is disposed dry in the ash disposal area.

About 2, 86, 785 MT of ash (from all the units) was utilized in different applications (Cement manufacturing, Bricks manufacturing, road making, embankment/dyke raising and low-lying area filling) during the period April, 2015 to September, 2015. The detailed ash utilization is enclosed.

Condition No: 3. (vi)

Closed Circuit Cooling Towers with induced draft shall be provided and it shall be ensured that only minimum water is drawn for makeup purposes from Hirakud reservoir. The effluent to be discharged into Kharjour nala should meet the prescribed discharge norms.

Closed circuit cooling tower with induced draft has been provided and is being operated with COC more than 5.0 in order to ensure minimum use of water for make-up purposes. The effluent is meeting the prescribed standard before discharge/reuse.

Condition No: 3. (vii)

Rain water harvesting shall be adopted in consultation with Central Groundwater Authority/ Board. The plan for the same shall be submitted within 3 months.

Study carried out by the Deptt. Of Civil Engineering, A.U College of Engineering, Andhra University, Visakhapatnam for carrying out Rain Water Harvesting at both our Plants and Colony concludes that the scope for ground water recharge through rain water harvesting in the Hindalco area is very little for the reasons:

i) Ground water utilization for the industry is very low,

ii) Due to the presence of shallow water table and

iii) Hard rock at shallow depth.

The copy of the report has already been submitted to your office. However every scope of rainwater harvesting will be exploited.

Condition No: 3 (viii)

Regular monitoring of water quality including heavy metals should be undertaken around ash dyke and the project area to ascertain the change in the water quality due to leaching of contaminants, if any, from ash disposal area.

Online continuous monitoring system has been installed to monitor the effluent with realtime data transmission to SPCB server. Monitoring of discharge water quality including heavy metals is being carried out regularly. Quality of water around ash disposal area is also carried out regularly and it meets the prescribed standard.

Condition No: 3 (ix)

Noise level should not exceed 75 dBA (Leq). People working in the high noise area, should be provided with ear protective devices.

Noise quality is being monitored regularly. The noise quality data monitored at various places is enclosed for the period April, 2015 to September, 2015.

Operator cabins and workstations are provided with noise abatement measures such as glass shields. People working in the high noise area are provided with ear- muffs and PPEs.

Condition No: 3 (x)

Greenbelt along the plant boundary and plantation in vacant space in and around Hirakud complex shall be developed. A plan in this regard shall be prepared and submitted with in 3 months.

Plantation activity is carried out along plant boundary, ash transport road, in and around plant premises and ash mound area etc. About 6.41 lakh saplings (including replenishment) have been planted since 1993-94 with an average survival rate of more than 60%. About 10,000 plants have been planted during the year 2015 - 16. The detail of plantation is enclosed.

Condition No: 3 (xi)

Regular monitoring of the air quality shall be carried out in and around the power plant and records shall be maintained. Six monthly reports shall be submitted to this Ministry and its Regional Office at Bhubaneswar.

Regular monitoring of ambient air is carried out in and around the plant premises. Apart from installation of three online ambient air quality monitiong stations and in-situ type stack monitoring system with real-time data transmission to SPCB server, the ambient air quality is also being monitored at eight other locations in and around plant premises, data of which is submitted through six monthly reports to MoEF regularly. The ambient

air quality data monitored for the last six months (April, 2015 to September, 2015) is enclosed.

Condition No: 3 (xii)

For controlling fugitive dust, regular sprinkling of water in vulnerable areas of the plant shall be ensured.

Water sprinklers have been provided around the coal yard for suppression of fugitive dust. Mobile water sprinkler is used to suppress the fugitive dust on the roads. Network of fixed sprinklers has also been provided around ash silo area to contain fugitive dust emission of the area. Regular moisturisation of ash during its unloading from silos is being done to avoid fugitive dust emission.

Condition No: 3 (xiii)

The project proponent shall 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, 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 at Website, of the Ministry of Environment and Forests at http://envfor.nic.in.

Complied

Condition No: 3 (xiv)

A separate environment monitoring cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.

A separate environment cell with qualified staff exists in Smelter & Power complex for implementation of the stipulated environmental safeguards.

Condition No: 3(xv)

Separate funds shall be allocated for implementation of environmental protection measures alongwith item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure shall be reported to the Ministry.

Provisions are being made to allocate the funds for controlling the Pollution Control Equipment and abating the Pollution every year. The actual environmental expenditure for the period April, 2015 to September, 2015 was Rs. 2426.66 Lakh for all the units. The detailed break-up expenditure incurred on Environment Protection is enclosed.

Condition No: 3. (xvi)

Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards shall be submitted to this Ministry/ Regional Office/CPCB/SPCB.

Half yearly report is being submitted to MoEF regularly.

Condition No: 3 (xvii)

Regional Office of the Ministry of Environment & Forests located at Bhubaneswar will monitor the implementation of the stipulated conditions. Complete set of Environmental Impact Assessment Report and Management Plan should be forwarded to the Regional Office for their use during monitoring.

EIA & EMP already submitted.

Condition No: 3 (xviii)

Full cooperation shall be extended to the Scientists/Officers from the Ministry/Regional Office of the Ministry at Bhubaneswar/the CPCB/the SPCB during monitoring of the compliance of environmental status.

Full cooperation is being extended to visiting officials.

Condition No: 4

The Ministry reserves the right to revoke the clearance if stipulated conditions are not implemented to the satisfaction of the Ministry. The stipulated conditions could be modified / altered or new conditions stipulated by the Ministry or any other Competent Authority in the interest of environment protection and the same shall be implemented by the project proponent.

Agreed

Condition No: 5

The environmental clearance accorded shall be valid for a period of 5 years for starting construction / operation of the power plant. In case the project authorities fail to do so within this stipulated period, this environmental clearance shall stand lapsed automatically.

This is an operating unit.

Condition No: 6

In case of any deviation or alternation in the project profile from those submitted to this Ministry for clearance, a frersh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to add additional environmental protection measures required, if any.

Agreed

Condition No: 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, Hazardous Wastes (Management & Handling) Rules, 1989 and its amendments, the Public Liability Insurance Act, 1991 and its amendments, the Environment Impact Assessment Notification of January, 1994 and its amendments.