

Clause No.	Major Environment Clearance Condition	Status as on 31/12/2013
4. (i)	It shall be ensured that natural drainage in the area is not disturbed due to any activity associated with operation or development of the power plant.	Noted
4. (ii)	The height of the existing ash pond shall not be increased to accommodate fresh disposal of ash slurry.	The height of existing ash pond will not be increased to accommodate fresh disposal of ash slurry from the subject project (unit 3 & 4).
4.(iii)	Wildlife conservation plan prepared in consultation with the office of the concerned Chief Wildlife Warden shall be implemented before any expansion activity is undertaken. The status of implementation shall be submitted to the Regional Office of the Ministry within six months and from time to time.	<ul style="list-style-type: none"> <li>• The wild life conservation plan has already been prepared in consultation with the DFO, Sambalpur and submitted to Chief wild life warden on 5<sup>th</sup> November 2009.</li> <li>• The Conservator of Forest (wild life) has requested certain compliance on this report on October-2011 to OPGC and the same has been complied. Few additional compliance were raised by Chief Wild life warden, which is communicated to OPGC by DFO, Sambalpur on May-2012.</li> <li>• The same is complied on September-12. Subsequently few additional plans were asked by PCCF (Wild life) on 15-Oct-12. OPGC submitted the same on 20-March-13 which is under active consideration of Chief wild life Warden, Bhubaneswar.</li> <li>• DFO, Jharsuguda forwarded OPGC proposal to Sambalpur on 14.08.13).</li> <li>• RCCF, Sambalpur returned the proposal to DFO, Jharsuguda for re-submission of the report as per new guidelines 7648 dated 2.11.2012 on 1<sup>st</sup> Nov. 2013.</li> <li>• DFO, Jharsuguda advised to prepare the report as per new guidelines on 7<sup>th</sup> Dec. 2013.</li> </ul>
4. (iv)	Hydro-geological study of the area shall be reviewed annually and results submitted to the Ministry and concerned agency in the State Govt. In case adverse impact on ground water quantity and quality is observed, immediate mitigating steps to contain any adverse impact on ground water shall be undertaken.	At present there is no extraction of ground water. In case of future requirements arise on commissioning of Plant, hydro-geological study will be initiated.
4. (v)	A twin flue stack of 275 m height shall be provided with continuous online monitoring equipments for SO <sub>x</sub> , NO <sub>x</sub> and RSPM (PM <sub>2.5</sub> & PM <sub>10</sub> ). Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack shall also be monitored on periodic basis.	<ol style="list-style-type: none"> <li>1) The design requirements have already been incorporated in the plant design specifications.</li> <li>2) Mercury emission if any will be monitored periodically on commissioning of the Plant.</li> </ol>
4. (vi)	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm <sup>3</sup> .	The design requirements have already been incorporated in the plant design specifications
4. (vii)	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.	The design requirements have already been incorporated in the plant design specifications

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4. (viii)	Utilisation of 100% Fly Ash generated shall be made from 4th year of operation of the plant. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.	Options available for 100% fly ash utilisation are under review.
4. (ix)	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.	<ol style="list-style-type: none"> <li>1) The design requirements have already been incorporated in the plant design specifications.</li> <li>2) Heavy metals, if any, in slurry are being monitored.</li> <li>3) Ash generated from the plant will be disposed only in designated area. .</li> </ol>
4. (x)	Ash pond shall be lined with HDP/LDP 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.	The design requirements will be incorporated in the design specifications of ash pond.
4. (xi)	For disposal of Bottom Ash in abandoned Manohar mines it shall be ensured that the bottom and sides of the mined out areas are adequately lined with clay before Bottom Ash is filled up. The project proponent shall inform the State Pollution Control Board well in advance before undertaking the activity.	<ol style="list-style-type: none"> <li>1) The design requirements will be incorporated in the design specifications.</li> <li>2) State Pollution Control Board will be informed in advance before undertaking filling of mine using ash.</li> </ol>
4. (xii)	Closed cycle cooling system with natural draft cooling towers shall be provided. The Effluents shall be treated as per the prescribed norms.	<ul style="list-style-type: none"> <li>• Considering the ambient conditions, the plant is being designed with induced draft cooling tower. This deviation request has already been submitted to Director(Thermal), MoEF vide letter No.565 dated 8 -March-2010</li> <li>• EAC (Thermal) in its monthly meeting held on 18<sup>th</sup>/19<sup>th</sup> November 2013 has accorded its consent for the use of Induced Draft Cooling System.</li> </ul>
4. (xiii)	COC 5.0 will be adopted.	The design requirements have already been incorporated in the plant design specifications.
4. (xiv)	The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon. Arrangements shall be made that effluents and storm water do not get mixed.	The design requirements have already been incorporated in the plant design specifications.
4. (xv)	A sewage treatment plant shall be provided and the treated sewage shall be used for raising greenbelt/plantation.	Sewage will be treated in existing sewage treatment plant. Treated sewage is being used for raising greenbelt/plantation.
4. (xvi)	Rainwater harvesting should be adopted. Central Groundwater Authority/ Board shall be consulted for finalization of appropriate rainwater harvesting technology within a period of three months from the date of clearance and details shall be furnished.	<ul style="list-style-type: none"> <li>• The detail study on rain water harvesting technology has already been completed in May-2012 and the report is already finalised. The same was submitted to Central Ground Water Board for review and advice vide letter No. 1612/WE dated 28-June 13.</li> <li>• CGWB authority via letter no. 613 dated 06/07/2013 has asked to comply on certain points. The compliance is being submitted.</li> </ul>

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4. (xvii)	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.	The design requirements have already been incorporated in the plant design specifications
4. (xviii)	Storage facilities for auxiliary liquid fuel such as LDO and/ HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	Storage Facilities for auxiliary liquid fuel shall be made in consultation with Dept. of Explosive.  As regards to Sulphur content, EAC (Thermal) in its monthly meeting held on 18 <sup>th</sup> /19 <sup>th</sup> November 2013 has accorded its consent for the use of commercially available fuel oil. Disaster management plan shall be prepared before going for storage and handling of the oil.
4. (xix)	Regular monitoring of ground water (especially around ash pond and plant areas) 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.	Noted.
4. (xx)	Monitoring surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.	Noted
4. (xxi)	Green Belt consisting of 3 tiers of plantations of native species around plant and at least 100 m width shall be raised. Wherever 100 m width is not feasible a 50 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not less than 25QO per ha with survival rate not less than 70 %.	The requirements are addressed in the drawing number D-56 (already submitted on 30 <sup>th</sup> November 2011).The tree plantation will be taken up on completion of the construction of Plant.
4. (xxii)	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Noted
4. (xxiii)	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dBA. For people working in the high noise area, requisite personal protective equipment like 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.	1) The design requirements for control of noise in the work areas have already been incorporated in the plant design specifications. 2) PPE is being provided in OPGC for all personnel exposed to work in noisy area. 3) Periodic health check has already been implemented in OPGC.

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4. (xxiv)	Regular monitoring of ground level concentration of So <sub>2</sub> , NO <sub>x</sub> , RSPM (PM <sub>2.5</sub> & PM <sub>10</sub> ) 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.	<p>1) In OPGC ground level concentrations are being monitored at six locations as agreed with SPCB and monthly periodic reports are submitted to SPCB. If additional monitoring stations are required by SPCB in future, same will be complied.</p> <p>2) Web-hosting will commence on commencement of operation of Plant.</p>
4. (xxv)	A good action plan for R&R (if applicable) with package for the project affected persons be submitted and implemented as per prevalent R&R policy within three months from the date of issue of this letter.	Not applicable as there is no displacement of villages for the Plant.
4. (xxvi)	An amount of Rs 24.36 Crores shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs 4.87 Crore per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.	The financial closure of the project is scheduled in financial year of 2013-14. The CSR plans are under preparation and will be submitted within three months prior to financial closure and 'Notice to Proceed' issued for the project by OPGC Board.
4. (xxvii)	As part of CSR programme the company shall conduct need based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community' development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self employment and jobs.	OPGC, as a part of its CSR, have been carrying out similar activities since its inception and these CSR activities are being augmented year after year.
4. (xxviii)	The project proponent shall also adequately contribute in the development of the neighbouring villages. Special package with implementation schedule for providing fluoride free potable drinking water supply in the near by villages and schools shall be undertaken in a time bound manner.	<p>OPGC, as a part of its CSR, have been carrying out similar activities since its inception and these CSR activities are being augmented year after year.</p> <p>OPGC have been supplying drinking water in the nearby villages since last 5 years.</p>
4. (xxix)	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Adequate space for construction of labour colony has already been earmarked outside the plant boundary. Infrastructure for provision of water supply and electricity has already been made. Other infrastructural requirement is being provided by the construction contractor. .

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4. (xxx)	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> .	Complied. Published in Sambad (Odiya) & New India Express ( English) in March 2010.
4. (xxxii)	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions/representations, if any, received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Complied in March 2010.
4. (xxxiii)	A separate Environment Management Cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	A dedicated Environment Management cell is already functioning in OPGC.
4. (xxxiv)	The proponent shall upload the status of compliance of the stipulated EC 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, RSPM, SO <sub>2</sub> , NO <sub>x</sub> (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,	Web-hosting of compliance of stipulated EC conditions will be done on 'Notice to Proceed' issued for the project by OPGC Board.
4. (xxxv)	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well by e- mail) to the respective Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB.	Reporting already commenced since October 2010.
4. (xxxvi)	The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.	Form V submission and web-hosting will be commenced on commissioning of Plant.

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4. (xxxvi)	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-mail to the Regional Office, Ministry of Environment and Forests.	Reporting already commenced since October 2010. Web-hosting of compliance of stipulated EC conditions will be done on 'Notice to Proceed' issued for the project by OPGC Board.
4. (xxxvii)	Regional Office of the Ministry of Environment & Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and update the same from time to time at least six monthly basis. Criteria pollutants levels including NOx (from stack & ambient air) shall be displayed at the main gate of the power plant.	<ol style="list-style-type: none"> <li>1) Reporting already commenced since October 2010.</li> <li>2) Web-hosting of compliance of stipulated EC conditions will be done on 'Notice to Proceed' issued for the project by OPGC Board.</li> <li>3) Criteria pollutants levels NOx (from stack &amp; ambient air) will be displayed at the main gate of the power plant on commissioning of Plant.</li> </ol>
4. (xxxviii)	Separate funds shall be allocated for implementation of environmental protection measures along with 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 should be reported to the Ministry.	The project cost includes the provision for implementation of environmental protection measures as required.
4. (xxxix)	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.	The Financial Closure and "Notice to Proceed" is scheduled in FY 2013-14.
4. (xxxx)	Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bangalore / CPCB/ SPCB who would be monitoring the compliance of environmental status.	Noted

**Additional Recommendations to OPGCL by EAC (Thermal) in its monthly meeting held on 18<sup>th</sup>-19<sup>th</sup> Nov, 2013.**

S. No	Recommendations	Compliance status
a	A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute. Thereafter, mechanism for an inbuilt continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	Noted and will be complied.
b	Continuous monitoring for heavy metals in and around the existing ash pond area shall be immediately carried out by reputed institutes like IIT Kanpur.	Heavy metal analysis of existing Ash Pond area is planned through IIT, Madras.