

F. No. J-11011/136/2009-IA-I (I)
Government of India
Ministry of Environment and Forests
(I.A. Division)

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Dated 29th November, 2012

To,

The Chief Executive Officer
M/s Aditya Aluminium
(A Division of M/s Hindalco Industries Limited)
J-6, Jaydev Vihar
Bhubaneswar - 751 013
Odisha

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Sub: Expansion of Aluminium Smelter Plant from 0.26 MTPA to 0.72 MTPA and Captive Power Plant from 650 MW to 1650 MW at Village Lapanga, Rengali, C.D. Block, District Sambalpur in Orissa by M/s Aditya Aluminium (A Division of M/s Hindalco Industries Limited) - regarding Environmental Clearance.

Sir,

This has reference to your letter No. IR/AAP/Env/7553 dated 10th June, 2012 along with copies of EIA/EMP and Public Hearing reports seeking environmental clearance under the provisions of EIA Notification, 2006.

2. The Ministry of Environment and Forests has examined your application. It is noted that M/s Aditya Aluminium (A Division of M/s Hindalco Industries Limited) have proposed for expansion of Aluminium Smelter Plant from 0.26 MTPA to 0.72 MTPA and Captive Power Plant from 650 MW to 1650 MW at Village Lapanga, Rengali, C.D. Block, District Sambalpur in Orissa. Total land requirement for the Smelter & CPP project is 1347.35 ha (3,330 acres) and the expansion project will be established in the existing plant premises. About 95% of the land was acquired and registration for the balance land is under process. Forest clearance for the diversion of forest land of 119.264 ha was granted on 10.02.2011. The R&R plan prepared as per the R&R policy of Govt. of Odisha was approved. Greenbelt will be developed in an area of about 403.15 ha out of the total area of 1347.35 hectares. There are no National parks/Wildlife Sanctuaries within 10 km radius of the project site. Seven reserve forests exist within 10 km radius. The total cost of project including existing is about Rs. 22,240 Crores. Environmental clearance for the existing smelter and CPP were accorded by MoEF on 27.01.2006 and 22.11.2005 respectively.

3. Alumina, Calcined petroleum coke, HS pitch, Aluminium Fluoride are the raw materials required for Smelter plant. Coal for the proposed expansion of power plant will be sourced from captive Talabira-II&III coal block of Ib valley at a distance of 12 km and till these become operational, shall be imported from Singapore, for which MoU has been signed with M/s Swiss Singapore Overseas PTE Ltd. The power requirement for smelter will be about 1,500 MW which will be met from the proposed 1,650 MW coal based captive power plant. Electrolytic reduction of alumina will be carried out by State-of-the Art Point fed Prebaked Anode Technology employing Hall-Heroult process of electrolysis.

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4. It is noted that bag filters will be installed to control the particulate emissions from the smelter. Advanced dry scrubbing system to extract the fluoride with online HF analyser for reducing fluoride emissions from the pot lines will be installed. Fluoride gases emitted during electrolysis will be collected in a Gas Treatment Center (GTC), where the main raw material alumina adsorbs all the fluorides and clean air will be exhausted through smelter stacks. Fresh alumina thus fluorinated in GTC is fed continuously into pots through hyper dense phase system; thus recycling the fluorides. Complete hood coverage of cells, highly efficient extraction system and dry scrubbers will be provided to achieve lower emissions of fluoride. The total fluoride emission will be 0.74 kg/t of aluminium as against the industry standard of 0.8 kg/t of aluminium. PM emissions from GTCs and baking furnace will be controlled below 75 and 50 mg/Nm³ respectively by providing efficient bag filters. Fume collection hood will be provided to prevent any fugitive emission from the Multi-flue Chimneys of 275 m height will be installed in CPP. The ESP would have an efficiency of 99.9 % to limit the dust load at the inlet to the chimney to a value of 50 mg/Nm³. Low NOx burners to control NOx emissions from the burner will be installed. The water sprinkling system will be provided at the raw material storage yard and coal handling yard.

5. The make up water requirement after proposed expansion of smelter and CPP will be sourced from Hirakud Reservoir within the existing water allocation of 52.73 cusec. No additional water is required. The total wastewater generation from Smelter & CPP including domestic wastewater will be about 750 m³/hr. This will be partly treated in ETP and STP and treated water will be reused in the process, dust suppression systems and for plantations/greenbelt development. Blow down from smelter cooling towers and from the captive power plant will be connected to the pond the effluent after pH correction and oil removal will be treated in the ETP. The treated water will be used as cooling tower make up for the smelter and captive power plant to minimize the fresh water consumption. During the monsoon season, the run off water meeting the standards will be discharged outside the plant premises. Geo hydrological studies were conducted by NGRI, Hyderabad. The process of smelting is a dry process and does not involve direct use of water. A guard pond will be provided with proper lining to prevent seepage and contamination of ground water.

6. Solid waste from the proposed smelter will be Spent Pot Lining (SPL), which will be initially disposed of in the secured landfill and in due course will explore consumption in cement/steel industries. The collection of bottom ash and HCSD system for ash disposal will be in complete dry form. MoU for fly ash utilization has been signed with M/s Ultratech cement. The dross and anode butts generated in the process will be recycled or will be sold to authorized re-processors. The organic portion of solid waste generated in the STP will be composted and used as manure in greenbelt development. Acoustic enclosures will be provided wherever required to control the noise level below 85 dB(A). Wherever, it is not possible technically to meet required noise level, personal protective equipments will be provided to the workers.

7. The Aluminium Smelter Plants are listed at S. No. 3(a) under Primary Metallurgy Industries under Category A of the Schedule of EIA Notification 2006 and appraised by the Expert Appraisal Committee (Industry-1) of MoEF.

8. The proposal was considered by the Expert Appraisal Committee in its meeting held during 14 - 15 June, 2012. The Committee recommended the project for environmental clearance subject to stipulation of specific safeguard. Public Hearing for the project was held on 2nd March, 2012.

9. Based on the information submitted by you, presentation made by you and your consultant, M/s Vimta Labs Ltd, Hyderabad, the Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA Notification dated 14th September 2006 subject to strict compliance of the following Specific and General conditions:

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A. SPECIFIC CONDITIONS

- i. The streams passing through the project site shall not be disturbed w.r.t their quantity and quality of flow.
- ii. Alumina shall be obtained only from those refineries, which have been accorded environmental clearance by the Ministry of Environment and Forests.
- iii. The gaseous emissions (PM, SO₂, NO_x, PAH, HC, VOCs and Fluoride) from various process units shall conform to the standards prescribed by the concerned authorities from time to time. The SPCB may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time, the emission levels shall go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency. The particulate emissions from the bake oven plant shall not exceed 50 mg/Nm³.
- iv. Particulate fluoride emissions shall not be more than 0.65 mg/Nm³ and fugitive particulate fluoride emissions from pot room shall not be more than 1.85 mg/Nm³.
- v. The poly-aromatic hydrocarbons (PAH) from the carbon plant (anode bake oven) shall not exceed 2 mg/Nm³. The data on PAH shall be monitored quarterly and report submitted regularly to the Ministry/Regional Office at Bhubaneswar and SPCB.
- vi. In-plant control measures like fume extraction and dust extraction system for controlling fugitive emissions from all the material handling/transfer points shall be provided to control dust emissions. Fugitive Fluoride emissions from the pot room and in the forage around the smelter complex shall be monitored and data submitted regularly to the Ministry's Regional Office at Bhubaneswar and SPCB. Further dry scrubbing system to control the emissions from the pot lines shall be provided.
- vii. Electrostatic precipitator (ESP) will be provided to Captive Power Plant (CPP) to control particulate emissions below 50 mg/Nm³. The company shall provide bag-filters, dry scrubbing system and dust suppression system to control the all the emissions including fluoride emissions from all melting and casting units. Tar, dust and fluoride in the fumes shall be controlled in baking furnace by providing dry scrubber. The emissions shall conform to the standards prescribed by the Ministry/CPCB/SPCB whichever is more stringent.
- viii. Provision for installation of FGD shall be provided for future use.
- ix. One tri-flue stack of 275m height with flue gas velocity not less than 22 m/s shall be installed and provided with continuous online monitoring equipments for SO_x, NO_x and PM₁₀.
- x. 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.
- xi. Utilisation of 100% Fly Ash generated shall be made from 4th year of operation. Status of implementation shall be reported to the Regional Office of the Ministry from time to time..
- xii. Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized ash shall be disposed off in the ash pond in the form of slurry. Mercury and other heavy metals

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(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.

- xiii. Fluoride (as F) consumption shall be less than 10 kg/ton of Aluminium produced as specified in the CREP guidelines.
- xiv. Anode butts generated from the pots shall be cleaned and recycled to the Anode Plant. The spent pot lining generated from the smelter shall be properly treated in spent pot lining treatment plant to remove fluoride and cyanide and disposed off in secured landfill. The location and design of the landfill site shall be approved by the SPCB as per Hazardous Wastes (Management, Handling and Trans-boundary Movement) Rules, 2008. Leachate collection facilities shall be provided to the secured landfill facility (SLF). The dross shall be recycled in the cast house. STP sludge shall be utilized as manure for green belt development. All the used oil and batteries shall be sold to the authorized recyclers/ re-processors.
- xv. As proposed, spent pot lining waste shall also be provided to cement and steel industries for further utilization.
- xvi. Ash pond shall be lined with HDP/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached. Ash pond water shall be recirculated and reused.
- xvii. Cycle of Concentration (COC) of 5.0 shall be adopted.
- xviii. Regular monitoring of ground water level shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out particularly for heavy metals (Hg, Cr, As, Pb) and records maintained and submitted to the Regional Office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project.
- xix. Regular ground water monitoring shall be carried out by installing Peizometers all around the secured landfill site in consultation with the SPCB, Central Ground Water Authority and State Ground Water Board and data submitted to the Ministry's Regional Office and SPCB.
- xx. Total water requirement for the expansion from Hirakud Reservoir shall not exceed 5,200 m³/hr and prior permission for the existing and proposed expansion shall be obtained from the concerned department before commissioning of the plant. All the effluent including from cooling tower and de-mineralization plant shall be treated in the effluent treatment plant and treated effluent shall be recycled / reutilized in the process in the smelter and CPP and also for fire protection, dust suppression, green belt development etc. Domestic effluent shall be treated in Sewage Treatment Plant (STP) and treated domestic wastewater will be used for green belt development.
- xxi. No effluent shall be discharged outside the premises moef smelter during the non-monsoon period and shall be discharged during the monsoon period only after proper treatment and meeting the norms of the OSPCB/CPCB.
- xxii. Green belt of adequate width and density around the project site shall be developed in 33 % area in consultation with the DFO as per the CPCB guidelines having density of 2,000 trees/ha.

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- xxiii. Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.
- xxiv. The company shall develop rainwater structures to harvest the runoff water for recharge of ground water in consultation with the Central Ground Water Authority/Board.
- xxv. Rehabilitation and Resettlement (R & R) Plan prepared and submitted to the State Govt. shall be implemented as per the R & R Policy of the State Government. All the recommendations mentioned in the R & R Plan shall be strictly followed including suitable employment and other facilities to all the oustees.
- xxvi. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Aluminium sector shall be strictly implemented.
- xxvii. The company shall adopt well laid down corporate environment policy and identified and designate responsible officers at all levels of its hierarchy for ensuring adherence to the policy and compliance with environmental clearance, environmental laws and regulations.
- xxviii. All the commitments made to the public during the Public Hearing/Public Consultation meeting held on 2nd March, 2012 should be satisfactorily implemented and a separate budget for implementing the same should be allocated and information submitted to the Ministry's Regional Office at Bhubaneswar.
- xxix. At least 5 % of the total cost of the project shall be earmarked towards the Enterprise Social Commitment and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program should be ensured accordingly in a time bound manner.
- xxx. The company shall provide housing for 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, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- xxxi. The Company shall submit within three months their policy towards Corporate Environment Responsibility which should inter-alia address (i) Standard operating process/ procedure to bring into focus any infringement/deviation/violation of environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and (iii) System of reporting of non compliance/violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.

A. GENERAL CONDITIONS:

- i. The project authorities must strictly adhere to the stipulations made by the Orissa State Pollution Control Board and the State Government.
- ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.
- iii. The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to

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time. The State Pollution Control Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location.

- iv. At least four ambient air quality monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of PM₁₀, SO₂ and NO_x are anticipated in consultation with the SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the SPCB/CPCB once in six months.
- v. The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).
- vi. Occupational health surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.
- vii. The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.
- viii. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.
- ix. Requisite fund shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Bhubaneswar. The funds so provided shall not be diverted for any other purpose.
- x. A copy of 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.
- xi. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF at Bhubaneswar. The respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM₁₀, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
- xii. The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Bhubaneswar / CPCB / SPCB shall monitor the stipulated conditions.

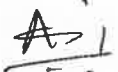
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- xiii. The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company alongwith the status of compliance of environmental conditions and shall also be sent to the respective Regional Office of the MOEF at Bhubaneswar by e-mail.
- xiv. The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at <http://envfor.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office at Bhubaneswar.
- xv. Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.

10. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

11. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

12. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 and the Public (Insurance) Liability Act, 1991 along with their amendments and rules.



(A.N. Singh)
Dy. Director (S)

Copy to:-

1. The Secretary, State Department of Environment, Government of Orissa, Bhubaneswar, Orissa.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi, 110 032.
3. The Chairman, Orissa Pollution Control Board, Parivesh Bhavan, A/118, Neelkanthhanagar, Unit-8, Bhubaneswar - 751 012, Orissa.
4. The Chief Conservator of Forests (Eastern), Regional Office (EZ), A/3, Chandrasekharpur, Bhubaneswar - 751 023, Orissa.
5. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi.
6. Guard File / Record File.



(A.N. Singh)
Dy. Director (S)