**F. No. J-11011/136/2009-IA.II(I)**
**Government of India**
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)

Indira Paryavaran Bhawan
Jor Bagh Road, Aliganj,
New Delhi - 110003
E-mail: sharath.kr@gov.in
Tel: 011-24695319

Dated: 14th August, 2018

To

**President & COO,**
**M/s Aditya Aluminium Ltd.,**
**(A division of M/s Hindalco Industries Ltd.),**
**Village Lapanga, Rengali, C.D.Block**
**P.O. Lapanga – 768212,**
**Dist. Sambalpur, Odisha**

Subject: **Aluminium Smelter plant (0.72 MTPA) and Captive Power Plant (1650 MW) at village Lapanga, Rengali, C.D. Block, Dist. Sambalpur, Odisha by M/s Aditya Aluminium Ltd (A division of M/s Hindalco Industries Ltd) – Amendment of Environmental Clearance under the provisions of EIA Notification, 2006 - Regarding.**

Sir,

This has reference to your online application vide proposal no. IA/OR/IND/2726/2012 dated 23th March 2018 seeking amendment in Environmental Clearance issued vide F.No. J-11011/136/2009-IA-II (I) dated 29.11.2012 and amendment in conditions vide letter dated 14 June, 2013 for process optimization through enhancement of pot line current from 360 to 380 kA and allied activities; Change in Coal Source to CPP as proposed in EC; Sale of baked anodes; sale of bath material; selling of molten metal. The proposed project activity is listed at 1(d) and 3(a) under category "A" of EIA notification 2006 and is appraised at Central Level.

2.0 Latest certified Inspection/monitoring report received vide MoEF&CC, RO, Bhubaneswar Office vide letter dated 19th December, 2017. The regional officer reported non-compliances regarding treatment of SPL for removal of fluoride and cyanide before its disposal; 100% utilization of the fly ash; and conducting forage fluoride analysis in the trees. Reply to the observations submitted to Regional officer. The comments of the regional officer on the compliance was informed vide his letter dated 15.01.2018 and 01.03.2018.

3.0 Aditya Aluminium, a Unit of M/s Hindalco Industries Ltd (HIL) is operating an integrated Smelter with a Captive Power Plant (CPP) at Lapanga in Sambalpur district of Odisha. The Smelter and CPP are operating at capacities of 0.36 MTPA and 900 MW (6x150 MW) respectively in existing Phase-I and will be ultimately upgraded to 0.72 MTPA and 1650 MW (11x150 MW) in proposed Phase-II. Environmental Clearance (EC) has been obtained for both the Phases.

| S. | Product | EC Obtained for 0.72 MTPA Aluminium Smelter & 1650 |
|---|---|---|

| No | | MW CPP | |
|---|---|---|---|
| | | PHASE-I (presently under operation) | PHASE-II (to be implemented) |
| 1 | Aluminium Smelter | 0.36 MTPA (360 KTPA) | 0.72 MTPA (720 KTPA) |
| | Products: Pig ingot, Sow, Al Slab | | |
| | a) Pig ingots | 360 KTPA | 720 KTPA |
| | a) Sow | | |
| | b) Al Slab Production | 0 KTPA | |
| 2 | CPP-Electricity | 900 MW (6x150 MW from Unit-1,2,3,4,5,6) | 1650 MW (11 x 150 MW) |

4.0 Meanwhile, Aditya Aluminium has identified few process optimization options which lead to marginal enhancement (5.5%) in production capacity. Further, change in coal sourcing has been proposed based on the coal availability. Though, minimal environmental impacts have been identified due to the proposals, implementation of the same requires an environmental clearance and thus, amendment in EC has been proposed. Aditya Aluminium is seeking an amendment in EC as follows:

4.1 Enhancement of Pot Amperage from 360 kA to 380 kA: The Enhancement of input amperage will result into marginal increase (5.5%) in Aluminum Production Level, to the tune of 20 KTPA; the enhancement in Pot Production will be implemented by increasing the pot line operating current; optimizing Process Parameters to increase current efficiency; optimizing the average pots in operation; improving pot TAT and improvement in energy efficiency of pots; less consumption in Sp. DC Energy Consumption from 13420±150 kWh/MT to 13060±150 kWh/MT for production of liquid aluminium; and increase in current is to be done as per Technology Supplier recommendations including compliance to applicable safety standards. Resource Requirement & Impact Analysis- Pot rating enhancement is given below:

| S. No | Item | Resource Requirement/Identified Change |
|---|---|---|
| 1 | Additional Cost | No additional requirement |
| 2 | Additional Land | No additional requirement |
| 3 | Manpower/ Equipment | No additional requirement |
| 4 | Change in Product | Increase by 5.5% of Aluminum Production to the tune of 20 KTPA |
| 5 | Water Requirement | No additional requirement. Water consumption will be within the approved limit of 52.73 cusecs |
| 6 | Additional Resources | No changes in Sp. Alumina and Carbon consumption, however, additional alumina and Carbon to meet this enhanced volume<br>• Alumina - Specific Alumina consumption will remain same, however, AA will require 36,394 MTPA of additional alumina to meet this enhanced |

| | | |
|---|---|---|
| | | volume.<br>• Carbon - Additional Carbon requirement of 7,772 MTPA to meet this enhanced volume without any change in Specific Consumption.<br>• Aluminium Fluoride - Plant's Fluoride Consumption will remain within approved limit of 10 kg/MT of Aluminium (CREP Guidelines) |
| 7 | Energy Requirement | Reduction in Sp. energy consumption |
| 8 | Source emissions | No change in specific emission<br>• Fluoride Level – Since the increase in production capacity is very marginal (5.5%), with the existing Gas Treatment Centre, we will be able to maintain Fluoride Emission within approved limit of 0.8 kg/T, mentioned in the EC. |
| 9 | Material Handling System | No significant change |
| 10 | Solid Waste Generation | No change<br>• Spent Pot Lining – No additional generation, as there is no increase in number of Pots |
| 11 | Wastewater | Since there is no additional requirement of water, no change in Water Pollution Load |
| 12 | Noise levels | No significant change |
| 13 | Operating Safety | Well laid EHS practices by the Unit |

4.2 Change in the coal source to CPP:

| Existing Practice/ as per EC | Proposal for EC Amendment | Remarks |
|---|---|---|
| EC: Coal from captive Talabira-II & III coal block of Ib valley and imported coal<br>Existing practice: Coal is being procured from captive Gare Palma mines in Chhattisgarh State, Long term linkages, through e-auctions, from Washeries in the market and import as & when necessary | Coal mix options proposed:<br>• 80-100% Indian domestic coal (from own mines, linkage & e-auction coal, coal from Washery)<br>• 0-20% imported, | • No increase in power generation<br>• Additional expense for transport of coal for around 100 Km<br>Incremental environmental impacts due to usage of proposed coal mix option, specifically transportation impacts have been discussed |

- Talabira-II&III coal block was jointly allocated to MCL, HIL and NLC in 70:15:15 share holding pattern and was cancelled by Hon'ble Supreme Court along with other coal blocks.

- HIL is seeking amendment in EC for change in Coal source and fuel mix for 900 MW (6x150 MW) Captive Power Plant as HIL became successful bidder and Gare Palma IV/4 and IV/5 coal mines were allocated jointly to Aditya Aluminium and Hirakud Power Plant. Allocation for Aditya 11.58 lacs TPA; and HIL has signed long-term FSA for coal linkage from MCL/CCL/SECL for 28 lacs TPA.

- Due to cancellation of coal blocks and unable to lift coal from the allocated coal mines, Aditya Aluminium (Unit of HIL) is proposing to procure 28 lacs TPA from other sources namely Domestic coal, Linkage coal, e-auction coal, from washeries in open market, and imported coal as & when required.

- Coal source plan is as follows:

| Mines | Coal Quantity Planned in LTPA | % |
|---|---|---|
| OWN Gare Palma | 11.58 | 29.4 |
| Linkage By Rail | 17.19 | 43.6 |
| Linkage By Road | 9.76 | 24.8 |
| E-Auction (Road & Rail) | 0.47 | 1.2 |
| Open Market(Rail & Road) | 0.40 | 1.0 |
| Total Coal (in lacs MT) | 39.40 | 100.0 |

- Plan of action for rail and road transport of the planned coal:

| Road to Rail Conversion | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FY 2017 - 2018 | | FY 2018 - 2019 | | FY 2019 - 2020 | | FY 2020 - 2021 | | FY 2021 - 2022 | | FY 2022 - 2023 | | FY 2023 - 2024 | |
| | MT | % | MT | % | MT | % | MT | % | MT | % | MT | % | MT | % |
| by Rail | 1770514 | 44 | 2366000 | 60 | 2514000 | 64 | 2714000 | 69 | 3793000 | 96 | 3793000 | 96 | 3952400 | 100 |
| by Road | 2216016 | 56 | 1586400 | 40 | 1438400 | 36 | 1238400 | 31 | 159400 | 4 | 159400 | 4 | 0 | 0 |
| | 3986530 | | 3952400 | | 3952400 | | 3952400 | | 3952400 | | 3952400 | | 3952400 | |

- Proposed efforts for reduced dependence on Road transport inter alia include Loadability of trucks enhanced 16 mt to 25 mt (Multiaxle); Increased lifting of Coal from 157 to 400 rakes in FY 2017-18; Approx. 21 Kms electrified rail net work inside the plant; Installation and commissioning of Wagon Tippler; Aditya owned siding is within 500 mtrs from railway main line; Capable to accommodate 6 –7 rakes operational at a time within plant, inclusive of BOXN, BTAP and Container rakes; One unit of Bucket Wheel Stacker Reclaimer commissioned for safe high stacking of coal; Two units of dedicated locomotive engine for daily rail operations having a capacity of 800 HP each; Rs 150 Cr CAPEX taken to install Track hopper for handling BOBRN rakes and to be installed soon. Summary of existing traffic is as follows:

| S. No | Monitoring | Road | Vehicle Count (to & fro) | IRC (IRC-64-1990) | Existing V/C | *Level of |
|---|---|---|---|---|---|---|

| | Location | | | | | | | Recommendations (PCUs / day) | Ratio | Service (LoS) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2/3-Wheeler | 4-Wheeler (LMV) | HMV Single Axial | HMV Multi Axial | Total PCUs/ day | | | |
| 1 | Kirei | SH10 | 1782.5 | 2175 | 1971 | 10122 | 16061 | 35,000 | 0.5 | C |
| 2 | Badmal | SH10 | 1905.5 | 2411 | 2832 | 9645 | 16803 | 35,000 | 0.5 | C |
| 3 | Raigarh | NH-49 | 876 | 1450 | 1858.5 | 4089 | 8286 | 15,000 | 0.6 | C |
| 4 | Kadamdih | NH-49 | 622.5 | 1003 | 1447.5 | 4098 | 7183 | 15,000 | 0.5 | C |
| 5 | Sambalpur | SH10 | 1297.5 | 2307 | 3178.5 | 4749 | 11547 | 35,000 | 0.3 | B |
| 6 | Hukra Deepa Chowk (near Garepalma mines) | Road from GP Mines to Raigarh | 741.5 | 885 | 408 | 2901 | 4948 | 15,000 | 0.3 | B |

4.3 Sale of Baked Anodes: Existing Practice/as per EC: As per the EC letter, Baked Anode will be manufactured in the Carbon Plant and Anode butts generated from the pots shall be cleaned and recycled to the Carbon Plant. Proposal for EC Amendment: Anode is generated due to less rejection after plant stabilization and optimization; No additional capital investment; Propose to sell approx. 5,000 nos. of the baked anode per annum to private parties.

4.4 Sale of Bath material: Existing Practice/as per EC: In-house consumption and excess bath material to bestored and for selling outside Parties. Proposal for EC Amendment: Propose to sell 1,500 TPA of the generated bath material to private parties. These are generated during Pot operation as per original design and no capital investment

4.5 Sale of Molten Metal: Existing Practice/as per EC: In-house use in Cast house for manufacturing Pigs and Sow Ingots/Slab. Proposal for EC Amendment: As per Aditya Aluminium Project planning, it is proposed to sell about 75 KTPA Molten metal to M/s APAR Industries who has proposed to set up their factory for manufacturing downstream products, close to the plant boundary. Proposed facilities involve dedicated RCC road construction (road & lighting) & Crucibles inside the Plant premise. Capital investment – Rs 3.9 Crores (Rs 3.1 Crores for road laying/civil and infrastructure facilities and remaining Rs 0.8 for other facilities)

- CPP Emissions: The incremental load due to the proposed change in coal mix will result in reduction of $SO_2$ emissions by 20.8 g/s (0.9%). Hence, there will be reduction in AAQ impacts due to stationary $SO_2$ load generation due to the proposed proposal.

- Fluoride Level: Since the increase in production capacity is very marginal (5.5%), with the existing Gas Treatment Centre, we will be able to maintain Fluoride emission within approved limit of 0.8 kg/T, mentioned in the EC.

- PAH Level : No change. It will remain within the approved limit with existing Fume Treatment Centre.

- Due to additional road traffic: Increase in vehicular emissions and fugitive dust due to vehicular load on approach roads. The maximum impact of road traffic is limited to 300 m from the centre of the road only, which is generally away from sensitive receptors (settlements, etc.). The resultant air quality will confirm to the stipulated standards.

- Road Adequacy: The estimated peak traffic in terms of PCUs are compared with the stipulated standards by IRC for traffic capacity of the existing road network. The existing road network is found adequate for the present traffic scenario. However, the roads may not be adequate with increase in population over the coming years (20-25 years). Thus, Aditya Aluminium proposes coal transport for the operating CPP capacity to be 100% by rail within next 6 years. The same arrangement will be extended further, for future expansion for 1600 MW, for which EC has already been obtained.

- Solid Waste Generation: Spent Pot Lining: No additional generation, as there is no increase in number of Pots. Ash Generation:Aditya Aluminium is committed to comply the Fly Ash Utilization Notification. Ash utilization is being achieved through supplying to Cement Plants, road making, low lying area filling and ash bricks manufacturing units.

- Wastewater Generation: Since there is no additional requirement of water for this enhanced production capacity, no change in Water Pollution Load.

- Energy consumption: Enhanced production capacity will result in slight reduction in specific energy consumption. Energy conservation measures have been proposed.

Hence, from the above points, it is evident that Aditya Aluminium can implement all proposed amendment without any negative impact to environmental systems.

5.0 The project proponent informed that project area does not come within any National Park / Wildlife Sanctuary. It was informed that Hirakund Reservoir is about 35 Km and Badrama Wildlife Sanctuary is 22 Km for the plant. Further informed that the PP has deposited Rs. 6.27 Crores for wildlife management.

6.0 The proposal was considered in the 30th meeting of Expert Appraisal Committee held during **9th to 10thApril 2018.** The proposal was further considered in the 32nd meeting of Expert Appraisal Committee held during 11th to 13th June, 2018 and request for amendment in the recommendation was deliberated in the 33rd meeting of Expert Appraisal Committee held during 9th to 11th July, 2018. The committee deliberated in detail on the closure certificate of non-compliances of earlier EC and opined that the project proponent shall develop in-house facilities for treatment of SPL in 2 to 3 years.

7.0 After detailed deliberations, the committees recommended for amendment in Environmental Clearance issued vide F. No. J-11011/136/2009-IA-II (I) dated 29.11.2012 for enhancement of pot line current from 360 to 380 kA and allied activities through process optimization; Change in Coal Source to CPP (44% by rail and 56% by road in 2017-18; 60% by

rail and 40% by road in 2018-19; 64% by rail and 36% by road in 2020-21; 96% by rail and 4% by road in 2022-23; 100% by rail from 2023-24 onwards); sale of baked anodes; sale of bath material; sale of molten metal under the provisions of EIA Notification, 2006 subject to following additional conditions:

i. The project proponent shall develop in-house facilities for treatment of Spent Pot Lining (SPL) generated in the Aluminium Smelter. Meanwhile, Refractory part may be sent to CHWTSDF as per the provisions of Hazardous and Other Waste Amendment Rules, 2016.

ii. The PP shall ensure 100% utilization of Fly ash generated.

iii. All the measures proposed during the presentation and application shall be implemented.

iv. Sale of baked anodes; sale of bath material; and sale of molten metal is permitted following the provisions of Hazardous and Other Waste Management Rules, 2016, applicable if any.

v. All the conditions prescribed in the environmental clearance letter No J-11011/136/2009-IA-II (I) dated 29.11.2012 shall be strictly complied with.

vi. The company shall obtain fresh environmental clearance in case of any change in the scope of the project.

8.0 The Ministry of Environment, Forest and Climate Change has considered the application based on the recommendations of the Expert Appraisal Committee (Industry-I) and hereby decided to grant amendment in Environmental Clearance issued vide F. No. J-11011/136/2009-IA-II (I) dated 29.11.2012 for enhancement of pot line current from 360 to 380 kA and allied activities through process optimization; Change in Coal Source to CPP (44% by rail and 56% by road in 2017-18; 60% by rail and 40% by road in 2018-19; 64% by rail and 36% by road in 2020-21; 96% by rail and 4% by road in 2022-23; 100% by rail from 2023-24 onwards); sale of baked anodes; sale of bath material; sale of molten metal under the provisions of EIA Notification, 2006 subject to following additional conditions:

i. The project proponent shall develop in-house facilities for treatment of Spent Pot Lining (SPL) generated in the Aluminium Smelter. Meanwhile, Refractory part may be sent to CHWTSDF as per the provisions of Hazardous and Other Waste Amendment Rules, 2016.

ii. The PP shall ensure 100% utilization of Fly ash generated.

iii. All the measures proposed during the presentation and application shall be implemented.

iv. Sale of baked anodes; sale of bath material; and sale of molten metal is permitted following the provisions of Hazardous and Other Waste Management Rules, 2016, applicable if any.

v. The project proponent shall develop in-house facilities for treatment of SPL in 2 to 3 years.

vi. All the conditions prescribed in the environmental clearance letter No J-11011/136/2009-IA-II (I) dated 29.11.2012 shall be strictly complied with.

vii. The company shall obtain fresh environmental clearance in case of any change in the scope of the project.

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

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

11.0 The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report and that during their presentation to the Expert Appraisal Committee.

12.0 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 and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

This issues with the approval of competent Authority.

14/8/18

**(Sharath Kumar Pallerla)**
**Scientist 'F' / Director**

**Copy to:-**

1. **The Secretary**, Department of Environment, Government of Odisha, Secretariat Bhubaneswar.
2. **The Additional Principal Chief Conservator of Forests**(C), Ministry of Environment, Forest and Climate Change, Regional Office (EZ), A/3, Chandrasekharpur, Bhubneshwar-751 023.
3. **The Chairman**, Odisha State Pollution Control Board, Parivesh Bhawan, A/118 Nilakantha Nagar, Unit-VIII, Bhubaneshwar-751012.
4. **The Member Secretary**, Central Ground Water Authority, A-2, W3, Curzon Road Barracks, K.G. Marg, New Delhi-110001.
5. **The District Collector**, Sambalpur **District**, State of Odisha.
6. **Guard File / Record file / Monitoring file.**
7. **MOEF&CC Website.**

14/8/18

**(Sharath Kumar Pallerla)**
**Scientist 'F'/Director**