ADITYA BIRLA

HINDALCO

Ref.: AA/E&S/2021/720

Date: 06/09/2021

To

**The Regional Officer**
State Pollution Control Board,
Plot No.1070, Hospital Road, Modipara,
Sambalpur – 768 002, Odisha

Sub.: Submission of Environmental Statement (Form – V) for the FY 2020 – 21.

Ref.: Environment Clearance (EC) Letter No.J-11011/136/2009-IA-I (1) dated 29th Nov. 2012 and amendments dated 14/06/2013, 14/08/2018 & 20/07/2020.

Dear Sir,

With reference to the Clause No. XIII, General Conditions of the Environmental Clearance, please find attached herewith the Annual Environment Statement for the year 2020-21 in Form-V.

We request for acknowledgement of receipt of the letter.

Thanking you,

Yours faithfully,
For Aditya Aluminium

Sameer Nayak

(Sameer Nayak)
Unit Head

Copy to:

1. The Member Secretary, State Pollution Control Board, A/118, Nilakanthanagar, Bhubaneswar.
2. The Director, Eastern Regional Office, MoEFCC, A/3, Chandrasekharpur, Bhubaneswar.
3. The Regional Director, Central Pollution Control Board, Southernd Conclave, 1582 Rajdanga Main Road, Kolkata -700107

Hindalco Industries Limited
**Aditya Aluminium**: At/P.O.: Lapanga - 768 212, District: Sambalpur, Odisha, India
T: +91 663 2536 247 | Fax: +91 663 2536 499 | E: hindalco@adityabirla.com | W: www.hindalco.com
Registered Office: Ahura Centre, 1st Floor, B-Wing, Mahakali Caves Road, Andheri (East), Mumbai 400 093
Tel: +91 22 6691 7000 | Fax: + 91 222 6691 7001
Corporate ID No.: L27020MH1958PLC011238

# FORM – V

(See rule 14)

**Environmental Statement for the financial year ending the 31st March 2021.**

## PART – A

| | |
|---|---|
| Name and address of the owner/**occupier** of the industry operation or process. | Mr. Kailash Nath Bhandari<br>5, New House Road, Sector 7<br>Jodhpur 342004, Tel No- 0291- 2549948 |
| Industry category | Large scale Industry (Red Category) |
| Production capacity | 6x150 MW CPP & 0.38 MTPA Aluminium Smelter |
| Year of establishment | 2013-14 |
| Date of the last environmental statement submitted | 07th August 2020 |

## PART – B

**(1) Water Consumption (m3/Day):**

Process: ┐
Cooling: ┘ ├– 29496 m3/day (avg.)

Domestic: 1160 m3/day (avg.)

| Sl. No. | Name of Products | Process water consumption per unit of product output | |
|---|---|---|---|
| | | During the Previous Financial Year 2019-20 | During the Current Financial Year 2020-21 |
| 1 | Aluminium Metal | 0.99 m3/ MT | 0.98 m3/ MT |
| 2 | Power | 2.06 m3/MWH | 1.93 m3/MWH |

**ii) Raw Material Consumption**

| Sl. No. | Name of raw materials | Name of products | Consumption of raw material per Unit of output | |
|---|---|---|---|---|
| | | | During the Previous financial year 2019-20 | During the current financial year 2020-21 |
| 1 | Coal | Power | 0.69 Kg/KWH | 0.70 Kg/KWH |
| 2 | Alumina | Aluminium metal | 1.915 ton / ton of metal | 1.914 ton / ton of metal |
| 3 | Carbon | | 0.412 ton/ ton of metal | 0.413 ton/ ton of metal |
| 4 | Energy (electricity) | | 14,116 KWH/ ton of metal | 14,399 KWH/ ton of metal |
| 5 | $AlF_3$ | | 11.99 kg / ton of metal | 12.38 kg / ton of metal |

## PART – C

### Pollution discharged to environment/unit of output

(Parameter as specified in the consent issued)

| 1) Pollutants | Units & Parameters | | Quantity of pollutants discharged (mass/day) | Concentrations of pollutants in discharges (mass/volume) | % of variation from prescribed standards with reasons |
|---|---|---|---|---|---|
| a) Water | | | Nil | NA | NA |
| b) Air | UOM | | Kg/Day | mg/Nm3 | |
| | CPP Unit -1 | PM | 696.5 | 42.17 | Within the prescribed limits. |
| | | SOx | 20790.5 | 1260.43 | |
| | | NOx | 3810.8 | 230.41 | |
| | CPP Unit -2 | PM | 585.6 | 44.31 | |
| | | SOx | 16883.5 | 1278.29 | |
| | | NOx | 3588.7 | 270.82 | |
| | CPP Unit -3 | PM | 470.4 | 42.97 | |
| | | SOx | 14348.0 | 1299.46 | |
| | | NOx | 2979.1 | 273.64 | |
| | CPP Unit -4 | PM | 629.7 | 44.26 | |
| | | SOx | 18462.6 | 1298.47 | |
| | | NOx | 4106.2 | 287.00 | |
| | CPP Unit -5 | PM | 601.2 | 43.65 | |
| | | SOx | 17921.2 | 1300.89 | |
| | | NOx | 3932.0 | 285.42 | |
| | CPP Unit -6 | PM | 674.2 | 42.34 | |
| | | SOx | 20747.2 | 1293.30 | |
| | | NOx | 4428.5 | 276.85 | |
| | GTC -1 | PM | 172.8 | 3.61 | |
| | | Total Fluoride | 26.9 | 0.57 | |
| | GTC - 2 | PM | 179.8 | 3.94 | |
| | | Total Fluoride | 25.8 | 0.57 | |
| | FTC - 1 | PM | 21.2 | 8.1 | |
| | | Total Fluoride | 1.4 | 0.55 | |
| | FTC - 2 | PM | 24.6 | 16.74 | |
| | | Total Fluoride | 0.84 | 0.57 | |

Note: All the emission values are expressed as annual average value.

## PART – D

### Hazardous Wastes

(As specified under Hazardous Waste Management and Handling Rules, 1989)

| Hazardous Waste | Waste category | UOM | Total Generated Quantity | |
|---|---|---|---|---|
| | | | During the previous financial year 2019-20 | During the current financial year 2020-21 |
| a) From Process | Used Oil | KL | 68.381 | 38.95 |
| | Waste containing Oil | MT | 1.896 | 1.778 |
| | Spent Pot lining (Cathode Residues) | MT | 5390.702 | 6547.43 |
| | Pot Lining Scraps and Wastes | MT | 4.95 | Nil |
| | Rejected lining of furnace(Refractory) | MT | Nil | Nil |
| | Shot Blasting Dust (Containing Fluoride) | MT | 737.1 | 794.9 |
| | Ladle Cleaning Residue | MT | 120.48 | 141.03 |
| | Rejected AlF3 Bags | No's | 27539 | 5441 |
| | Aluminium Dross | MT | 2474.71 | 2539.49 |
| | Aluminium Dross Residue* | MT | 1779.0 | 1505 |
| | Fluoride contaminated waste (Spilled waste from pot line) | MT | 2276.52 | 2178.6 |
| | Drain cleaning sludge | MT | 1.4 | 3.07 |
| | Floor sweeping/house-keeping waste | MT | 143 | 172 |
| | ETP sludge | MT | 123 | 91.9 |
| | Used anode Butts of Aditya | MT | 47139.41 | 47234.36 |
| | Pre-processed Used Anode Butts received from M/s Hindalco Industries Ltd, Hirakud. | MT | 20383.03 | 18879.60 |
| | Discarded containers/ Liners used of storage of Hazardous Chemicals | MT | 0.1792 | 1.09 |

| | | | | |
|---|---|---|---|---|
| | Spent Resin | MT | Nil | Nil |
| b) From pollution control facilities | Tar containing waste (from FTC | MT | 12 | 12 |
| | Rejected filter bags (GTC & FTC) | Nos. | 35579 | 766 |

* Aluminium Dross Residue is generated during recycling of aluminium dross in the dross processing unit.

## PART – E
## (Solid Wastes)

| | Category | UOM | Total Quantity | |
|---|---|---|---|---|
| | | | During the previous financial year 2019-20 | During the current financial year 2020-21 |
| (a)From process | Fly ash and Bottom Ash Generated | MT | 1486657.5 | 1478601.3 |
| (b)From pollution control facility | Supplied to Cement industries | MT | 1073733.9 | 1174786.7 |
| (c) (1)Quantity recycled or re-utilized within the unit (2) Sold | Utilized for road making | MT | 0 | 1766.1 |
| | Utilized for Dyke raising | MT | 0 | 0 |
| | Utilized for low lying area development/filing | MT | 97684.2 | 63015.9 |
| | Supplied to Bricks Manufacturing | MT | 13596.4 | 63391.4 |
| | Ash Utilized from Previous Stock (stored in Ash Pond (MT) | MT | 135418.7 (75712 MT used in ash pond dyke raising, 55690 MT in low lying area development & 4016.71 MT supplied to cement plant) | 99292.4 (99292.4 MT supplied to Dalmia Cement, Rajgangpur) |
| (3) Disposed | Sent to Ash Pond | MT | 301642.6 | 175641.3 |

## PART – F

**Please specify the characterizations (in terms of composition of quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.**

| Sr. No. | Name of Hazardous Waste | UOM | Qty. of generation in FY 2020-21 | Qty. of Disposal FY 2020 -21 | Mode of Disposal |
|---|---|---|---|---|---|
| 1 | Used Oil | KL | 38.95 | 58.38 | Sold to authorize recyclers. |
| 2 | Waste containing oil | MT | 1.778 | 1.778 | Incinerated in PF Boilers. |

| | | | | | |
|---|---|---|---|---|---|
| 3 | Spent Pot lining (Cathode Residues) | MT | 6547.43 | 5608.46 | Sold to authorize re-Processing units i.e. Green Energy Resources, Sambalpur |
| 4 | Pot Lining Scraps and Wastes | MT | NIL | NIL | Not generated |
| 5 | Rejected lining of furnace(Refractory) | MT | NIL | NIL | Not generated |
| 6 | Shot Blasting Dust (Containing Fluoride) | MT | 794.9 | 789.1 | Disposed in CHW-TSDF |
| 7 | Ladle Cleaning Residue | MT | 141.03 | 126.74 | Disposed in CHW-TSDF |
| 8 | Rejected Filter Bags (GTC/FTC) | No's | 766 | 34206 | Burnt inside the electrolytic pots. |
| 9 | Rejected AlF3 Bags | No's | 5441 | 11953 | Burnt inside the electrolytic pots. |
| 10 | Aluminium Dross | MT | 2539.49 | 1983.29 | 297.65 MT Reused along with bath materials in pots and 1685.64 MT processed in dross Processing unit. |
| | | | | 770.08 | Sold to authorized recycler or pre-Processor. |
| 11 | Aluminium Dross Residue | MT | 1505 | 1629.53 | Send to recycler or pre-Processor, M/s Shivam Metallurgicals Pvt Ltd. |
| 12 | Fluoride contaminated waste (Spilled waste from pot line) | MT | 2178.6 | 2359.94 | Disposed in CHW-TSDF |
| 13 | Drain cleaning sludge | MT | 3.07 | 4.47 | To be disposed in CHW-TSDF. |
| 14 | Floor sweeping/house-keeping waste | MT | 172 | 227.28 | Disposed in CHW-TSDF |
| 15 | Tar Containing Waste (FTC conditioning dust) | MT | 12 | 12 | Reused in green anode making |
| 16 | ETP sludge | MT | 91.9 | 111.56 | Disposed in CHW-TSDF |
| 17 | Used anode Butts of Aditya | MT | 47234.36 | 46248.07 | Reused in Green Anode Plant for making green anode. |
| 18 | Pre-processed Used Anode Butts generated from M/s Hindalco Industries Ltd, Hirakud. | MT | 18879.60 | 18122.09 | Reused in Green Anode Plant for making green anode. |
| 19 | Discarded containers/ Liners used of storage | MT | 1.09 | 0.5029 | Supply to authorized party. |

| | | | | | |
|---|---|---|---|---|---|
| | of Hazardous Chemicals | | | | |
| 20 | Spent Resin | MT | 0 | 0 | Not generated |
| **Sr. No.** | **Solid Waste** | | **Quantity of generation in FY 2020-21** | **Quantity of disposal FY 2020-21** | **Mode of Disposal** |
| 1 | Fly Ash and Bottom Ash | MT | 1478601.3 | 1174786.7 | Supplied to Cement industries |
| | | MT | | 1766.1 | Utilized for road making |
| | | MT | | 0 | Utilized for Ash Pond dyke raising |
| | | MT | | 63015.9 | Utilized for low lying area development/filing inside the plant premises |
| | | MT | | 63391.4 | Supplied to Bricks Manufacturing |
| | | MT | | 99292.4 | Ash Utilized from Previous Stock (stored in Ash Pond (MT) |
| | | MT | | 175641.3 | Sent to Ash Pond |

## PART – G

**Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production:**

Pollution abetment measure taken on conservation of natural resources are as follows:

## A. Water Pollution Control Measures:

1. We have implemented integrated waste water management system first time in the country by mixing both the waste water of CPP & Smelter areas which are collected in a Guard Pond of 65,000m3 capacity and then treated with a RO based ETP of 300 cum/hr capacity and the permeate water is send back to the Power Plant for reuse.
2. Separate drainage system constructed for collection of initial rain water & waste water and the guard pond of 65,000 cum capacity is constructed close to the ETP, to store waste water and storm water from Smelter and waste water from CPP.

3. The Effluent Treatment Plant (ETP) of 300 Cum/hr capacity is coupled with double Staged Reverse Osmosis system and is the latest ETP plant in the Odisha.
4. Two nos. of Sewage treatment plants (STP) established in Plant and Township separately for 600 KLD and 300 KLD respectively. The treated water from STPs used for greenbelt and gardening purposes.
5. The water consumption in power plant is reduced by adopting the Dry bottom ash collection system for PF boilers first time in Odisha and increased CoC of Cooling water which reduces the generation of waste water.
6. Ash pond is lined with HDPE liners to prevent contamination of ground water.
7. The decanted water from the ash pond is reused in ash handling.
8. Rain Water harvesting pond established inside the township for reuse in gardening/horticulture purposes
9. Rain water recharge structures made in the township buildings/multi facility complexes.

## B. Air Pollution Control Measures :

1. ESPs having two parallel gas paths of 99.9% efficiency installed in each units of CPP to achieve the emission level within 50 mg/Nm3. One ESP path in maintenance while the plant is in operation is a unique procedure developed in Aditya Aluminium to improve overall efficiency of ESP.
2. Three no of HFTR (High Frequency Transformers with Pulse) installation completed in CPP unit to further reduce the PM emission level, for remaining units it is under progress.
3. CTE received from OSPCB for Semi Dry-FGD installation and Civil & Structural Work is under progress in CPP Unit-6.
4. Tri-Flue Stacks with 275 m height installed for wider dispersion of pollutants.
5. 12 nos. of Bag filters installed in Coal Handling Plant & Ash Handling Plant for fugitive dust control.
6. 20 nos. of Dust suppression & DFDS system installed in coal handling/conveying circuit (Excluding Coal yard) & 4 nos. of dust suppression & dry Fog System installed in ash silo areas.
7. Gas Treatment Center (GTC) with dry scrubbing system installed in Pot Line for recycling of fluoride and venting out clean air through the stack having 100 m height.
8. Hyper dense phase system for dust free alumina transfer installed in pot room, Consistent Quality of Alumina & Process optimization resulting us one of the 2nd lowest alumina consumption Smelter plant in the country.

9. Fume Treatment Center (FTC) installed and attached to ABF for recovery of Fluoride and vents out clean air to atmosphere.
10. 63 nos. of De-dusting system installed at Alumina Handling, Coke Handling, Green Anode Plant, Anode Rodding Shop, Bath Recycling Shop, Carbon Recycling Shop, Anode Baking Furnace and other areas of Smelter for control for fugitive emission and recycling of the dust collected in the bag filters. Vacuum cleaning system installed of Green Anode Plant makes the Plant very much clean.
11. Mechanized road sweeping machine deployed for cleaning of all internal roads and shop floors to minimize fugitive dust emission from roads.

## C. Solid Waste Management Practice:

1. Maximum quantity of ash is being send to Cement Plants.
2. 100% Tarpaulin cover during transportation ash and coal is ensured.
3. Ash is being supplied to cements plant from the ash pond.
4. Low lying area development inside the plant is being as per the OSPCB guideline

## D. Hazardous Waste Management Practice :

1. All the hazardous waste is being kept inside covered storage shed with display of SOPs and MSDS and maintaining record in Form - 3 for all the hazardous waste generated.
2. Exploring maximum recycling of Hazardous Waste generated from Smelter like Shot blasting dust, Aluminium Dross, Skimmed coke, GTC/FTC and Other DE system used filter bags, Alf3 bags and tar containing waste etc.
3. Butt generated is completely recycled and preprocessed used anode butt received from Hirakud Smelter is also reused in green anode making.
4. Aluminium Dross is being re-processed in the dross processing unit, aluminium metal is recovered and residue generated is send to recycler or pre-Processor, M/s Shivam Metallurgicals Pvt Ltd for recuse/recycling.
5. Manifest & TREM card system is being followed judiciously.
6. Trainings are being given on hazardous waste management.

## E. Green Belt Development :

1. Thick green belt developed around the plant boundary, with a density of approx. 1000 no's/acres and more than 5, 76,500 no's of trees planted with in an area of 941 acres till 2020-21. Plantation activity for FY 21-22 is under progress. Total 30-acre area covered with 30,000 no's of trees planted till Aug-21.

## PART – H

## Additional measures/investment proposal for environmental protection including abatement of pollution, prevention of pollution:

| Areas | Investment made till 31.03.2021 (lakhs) |
|---|---|
| Water pollution control system | 5088.24 |
| Air pollution control system | 66644.71 |
| Solid Waste Management System | 20800.93 |
| Hazardous Waste Management System | 1747.81 |
| Biomedical Waste Management System | 18.8 |
| Total (Lakhs) | 94300.49 |

1. A solar power project of 30 MW (DC) capacity (PV Based) is established inside the plant for generation of green energy (renewable).
2. Food waste is being used in Vermi-Composter in colony areas for conversion of food waste & organic wastes for generation manure and which is being used in gardening purposes.
3. Two no's of Mechanized housekeeping machine used for cleaning of internal roads to keep control on the fugitive dust emission from roads during vehicle movement.

## PART – I

**Any other particulars for improving the quality of environment:**

1. Implemented Integrated Management System (ISO 9001 & ISO 14001) for better quality & environmental management system and control, ISO 45001 & ISO 50001 certification is also completed.
2. Phase-wise greenbelt development work is under implementation to achieve 33% of the project area under greenbelt/green cover.
3. Environmental laboratory established for monitoring and analysis of environmental pollutants.
4. Celebrating Environmental promotional activities like World Environment Day, Van Mahotsav, National Safety Day/Week, etc.
5. Promote the principles of waste prevention, reduction, reuse, recycling and recovery to minimize waste generation and strengthen the practices for management of wastes through "Value from Wastes Programme".
6. Raise environmental awareness at all levels of our operations, through training and effective communication, participation and consultation.

Sameer Nayak

**(Authorized Signatory)**