



Ref.: AA/E&S/2024/ 1137

Date: 10/09/2024

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 2023 – 24.

Ref.: Environment Clearance (EC) Letter No. J-11011/136/2009-IA-I (1) dated 29<sup>th</sup> Nov. 2012 and amendments dated 14/06/2013, 14/08/2018, 20/07/2020 & 12/08/2022.

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 2023-24 in Form-V.

We request for acknowledgement of receipt of the letter.

Thanking you,

Yours faithfully,  
For Aditya Aluminium

*Sameer Nayak*

(Sameer Nayak)  
President & 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, Southern Conclave, 1582 Rajdanga Main Road, Kolkata -700107

Hindalco Industries Limited

Aditya Aluminium : At/P.O.: Lapanga, District : Sambalpur, Odisha, India  
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Registered Office: 21st Floor, One Unity Center, Senapati Bapat Marg, Prabhadevi, Mumbai - 400013, India  
Tel: +91 22 6947 7000 / 6947 7150 | Fax: + 91 22 6947 7001 / 6947 7090  
Corporate ID No.: L27020MH1958PLC011238

**FORM – V**

(See rule 14)

**Environmental Statement for the financial year ending the 31<sup>st</sup> March 2024.****PART – A**

Name and address of the owner/occupier of the industry operation or process.	Mr. Kailash Nath Bhandari 5, New House Road, Sector 7 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	12 <sup>th</sup> September 2023

**PART – B****(1) Water Consumption (m3/Day):**

Process:	}	30749.1 m3/day (avg.)
Cooling:		
Domestic:		2040.9 m3/day (avg.)

Sl. No.	Name of Products	Process water consumption per unit of product output	
		During the Previous Financial Year 2022-23	During the Current Financial Year 2023-24
1	Aluminium Metal	1.76 m3/ MT	1.76 m3/ MT
2	Power	1.94 m3/MWH	1.92 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 2022-23	During the current financial year 2023-24
1	Coal	Power	0.71 Kg/KWH	0.74 Kg/KWH
2	Alumina	Aluminium metal	1.944 ton / ton of metal	1.930 ton / ton of metal
3	Carbon		0.413 ton/ ton of metal	0.412 ton/ ton of metal
4	Energy (electricity)		14,313 KWH/ ton of metal	14,373 KWH/ ton of metal
5	AlF <sub>3</sub>		11.84 kg / ton of metal	11.86 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/Nm <sup>3</sup>	
	CPP Unit -1	PM	712.31	40.84	Within the prescribed limits.
		SOx	21475.73	1245.72	
		NOx	4128.71	237.27	
	CPP Unit -2	PM	682.51	43.2	
		SOx	19992.58	1272.34	
		NOx	4000.58	253.38	
	CPP Unit -3	PM	731.70	41.18	
		SOx	23463.49	1323.41	
		NOx	4228.15	236.55	
	CPP Unit -4	PM	636.23	42.22	
		SOx	18408.22	1221.52	
		NOx	4220.70	279.99	
	CPP Unit -5	PM	487.16	41.59	
		SOx	14187.01	1218.12	
		NOx	3224.17	277.10	
	CPP Unit -6	PM	604.12	36.49	
		SOx	16785.62	1015.85	
		NOx	4401.03	265.79	
	GTC -1	PM	180.18	3.63	
		Total Fluoride	25.19	0.50	
	GTC -2	PM	183.61	3.81	
		Total Fluoride	24.44	0.51	
	FTC -1	PM	14.96	5.47	
Total Fluoride		1.35	0.50		
FTC -2	PM	8.46	5.05		
	Total Fluoride	0.81	0.50		

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



**PART – D****Hazardous Wastes**

(As specified under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.)

Hazardous Waste	Waste category	UOM	Total Generated Quantity	
			During the previous financial year 2022-23	During the current financial year 2023-24
a) From Process	Used Oil	MT	69.10	80.93
	Waste containing Oil	MT	17.97	19.51
	Spent Pot lining (Cathode Residues)	MT	3119.61	4812.67
	Pot Lining Scraps and Wastes	MT	Nil	Nil
	Rejected lining of furnace(Refractory)	MT	Nil	Nil
	Shot Blasting Dust (Containing Fluoride)	MT	925.5	910.8
	Ladle Cleaning Residue	MT	196.78	161.96
	Rejected AIF3 Bags	MT	12.76	8.83
	Aluminium Dross	MT	3424.63	3215.87
	Aluminium Dross Residue*	MT	1866.0	1137.0
	Fluoride contaminated waste (Spilled waste from pot line)	MT	4258.90	3552.29
	Drain cleaning sludge	MT	4.15	3.98
	Floor sweeping/house-keeping waste	MT	136	135.8
	ETP sludge	MT	102	99.0
	Used anode Butts of Aditya	MT	46521.15	47868.27
Pre-processed Used Anode Butts received from M/s Hindalco Industries Ltd, Hirakud.	MT	21161.24	21843.08	
Discarded containers/Liners used of storage	MT	15.08	16.45	

	of Hazardous Chemicals			
	Spent Resin	MT	0	14.30
b) From pollution control facilities	Tar containing waste (from FTC)	MT	11.6	11.84
	Rejected filter bags (GTC & FTC)	MT	65.71	11.42

\* 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 2022-23	During the current financial year 2023-24
(a) From process	Fly ash and Bottom Ash Generated	MT	1541399.0	1689889.0
(b) From pollution control facility	Supplied to Cement industries	MT	1381751.0	1409564.50
(c) (1) Quantity recycled or re-utilized within the unit	Utilized for road making	MT	0	19590.0
	Utilized for low lying area development/filing	MT	65727.2	217092.04
(2) Sold	Supplied to Bricks Manufacturing	MT	14344.0	43642.46
(3) Disposed	Sent to Ash Pond/ present in Silo	MT	0	0



**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	UO M	Qty. of generation in FY 2023-24	Qty. of Disposal FY 2023 -24	Mode of Disposal
1	Used Oil	MT	80.93	69.72	Sold to authorize recyclers.
2	Waste containing oil	MT	19.510	19.51	Co-processing in cement Kiln
3	Spent Pot lining (Cathode Residues)	MT	4812.67	20947.45	SPL Carbon Supplied to authorize re-Processing units i.e. Green Energy Resources & Regrow Tanso Private Limited & SPL Silicon Carbide to Sunraj Transport & Contractor. SPL Refractory Supplied to authorize Re-Processing units i.e. Tekno Processors Llp & some part disposed to CHWTSDF site of Resustainability Limited for landfill.
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	910.8	967.29	Disposed in CHW-TSDF
7	Ladle Cleaning Residue	MT	161.96	180.17	Disposed in CHW-TSDF
8	Rejected Filter Bags (GTC/FTC)	MT	11.42	11.42	Burnt inside the electrolytic pots.
9	Rejected AIF <sub>3</sub> Bags	MT	8.83	9.88	Burnt inside the electrolytic pots.
10	Aluminium Dross	MT	3215.87	1495.73	In-house recycling in dross Processing unit.
				1716.15	Sold to authorized recycler or pre-Processor.
11	Aluminium Dross Residue	MT	1137.00	1106.48	Send to recycler or pre-Processor
12	Fluoride contaminated waste (Spilled waste from pot line)	MT	3552.29	3583.11	Disposed in CHW-TSDF
13	Drain cleaning sludge	MT	3.98	3.98	Disposed in CHW-TSDF



14	Floor sweeping/house-keeping waste	MT	135.8	137.16	Disposed in CHW-TSDF
15	Tar Containing Waste (FTC conditioning dust)	MT	11.84	11.84	Reused in green anode making
16	ETP sludge	MT	99.0	95.36	Disposed to Cement plant for Co-processing in cement Kiln & some part disposed to CHW-TSDF
17	Used anode Butts of Aditya	MT	47868.27	47749.07	Reused in Green Anode Plant for making green anode.
18	Pre-processed Used Anode Butts generated from M/s Hindalco Industries Ltd, Hirakud.	MT	21843.08	21073.62	Reused in Green Anode Plant for making green anode.
19	Discarded containers/ Liners used of storage of Hazardous Chemicals	MT	16.45	15.34	Supply to authorized party & disposal through original supplier
20	Spent Resin	MT	14.3	14.3	Co-Incineration in CPP
<b>Sr. No.</b>	<b>Solid Waste</b>		<b>Quantity of generation in FY 2023-24</b>	<b>Quantity of disposal FY 2023-24</b>	<b>Mode of Disposal</b>
1	Fly Ash and Bottom Ash	MT	1689889.0	1409564.50	Supplied to Cement industries
		MT		19590	Utilized for road making
		MT		217092.04	Utilized for low lying area development/filing inside & outside the plant premises
		MT		43642.46	Supplied to Bricks Manufacturing



## PART – G

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

Pollution abatement 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 65,000m<sup>3</sup> 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 /pipeline system constructed for collection of initial rainwater & 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. All the wastewater generated from Smelter and CPP completely recycled in the ETP, the treated effluent reused in CPP
6. 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 wastewater.
7. Ash pond is lined with HDPE liners to prevent contamination of ground water.
8. As a water conservation initiative, we have installed High Concentrated slurry disposal (HCSD) system and dry bottom ash collection system and the recovery water from the ash pond is returned for reuse in ash mixing, resulting in complete recycle & reuse
9. The decanted water from the ash pond is reused in ash handling.
10. Rainwater harvesting pond capacity of 60,000 m<sup>3</sup> established inside the township for reuse in gardening/horticulture purposes
11. Rainwater recharge structures made in the township buildings/multi facility complexes.



12. Surface Run-off treatment system Tube Settler Capacity of 50 m<sup>3</sup>/Hr installed in Coal Handling Plant.
13. Training & awareness session conducted in the shop floor for the employee & workmen.
14. Connectivity of CPP boiler blow down water to the cooling water.
15. Internal water audit conducted at shop floor inline to water utilization & its management.
16. Pipeline extension done for 100% utilization of Township & Plant STP Water
17. RO reject water treatment system- 200 KLD MVR system installed in ETP plant. commissioning is under progress.

## **B. Air Pollution Control Measures:**

1. ESPs having two parallel gas paths of 99.9% efficiency installed in each unit of CPP to achieve the emission level within 50 mg/Nm<sup>3</sup>. 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. We have installed the High Frequency Transformer Rectifier (HFTR), 3 phase transformer rectifier and improved pulse controller in suitable combination in both passes of ESPs in all 6 units of CPP.
3. Semi-dry Flue Gas De-Sulphurisation system has been successfully installed in Unit-6 of CPP for SO<sub>2</sub> emission control from Stack.
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. Installed pipeline length of around 1500 mtr. to cover coal roads for water sprinkling to control the fugitive emission
7. 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.
8. Dedicated water tankers deployed for road sprinkling to reduce fugitive dust
9. Miyawaki Plantation has been carried out in different area of plants for controlling the dust emission.
10. Awareness training programme conducted in the shop floor inline to Air Pollution Control Measures.



11. 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.
12. 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.
13. Fume Treatment Center (FTC) installed and attached to ABF for recovery of Fluoride and vents out clean air to atmosphere.
14. Pneumatic Alumina Conveying system which transports the Alumina without spillage.
15. 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.
16. Mechanized road sweeping machine deployed for cleaning of all internal roads and shop floors to minimize fugitive dust emission from roads.
17. Performance evaluation monitoring of pollution control equipment (ESPs & Bag filters) is being carried out on annual basis through external agencies.
18. Track hopper & Wagon tippler installed in CHP for coal transportation to reduced Scope -3 emission.
19. Full Body vehicle washing system installed in CPP Ash Silo area for fugitive Emission Control.
20. Wheel washing system has been installed in Coal Handling Plant and SPL storage area.

### **C. Solid Waste Management Practice:**

1. The Ash utilization in FY 2023-24 is 100 % to comply with the Fly Ash Notification, 2021.
2. Closure & Reclamation Certificate of legacy Ash Pond having quantity of 9.44 lakh MT of Fly Ash @ 37 acres received from OSPCB.
3. Fly ash dispatched through BOXN Wagon in Rakes to various cement manufacturing units (Dalmia Cement, Shree Cement, Ultratech, ACC, Ambuja, Nuvoco vistas etc.) for cement manufacturing. This has resulted increase in ash utilization.
4. High Concentrated Slurry Disposal System installed for ash disposal to the ash pond.
5. 100% Tarpaulin cover during transportation of ash and coal in trucks is being ensured.



6. One Bio-digester and one Bio-composter installed for management of biodegradable waste in plant and colony.
7. All Municipal Solid Waste (MSW) generated from Plant & Township segregated & collected in designated place and MSW plastic waste, paper and other incinerable materials being sent to Cement Plant for co-processing in Cement kiln.

#### **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 and dispatch for recycling to the authorized recyclers/disposal in CHW-TSDF.
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, AlF<sub>3</sub> bags and tar containing waste etc.
3. Anode butt generated is completely recycled in Green Anode Plant for making green anode and the pre-processed used anode butt received from Hirakud Smelter is also reused in green anode making.
4. Dross generated at present is being recycled in the in-house dross recycling unit and reject generated from this process is sell out to authorized recyclers for making of synthetic Slag.
5. Specific Covered storage sheds developed for storage of all the hazardous waste generated in the plant
6. SOP & MSDS displayed at various locations of waste handling and storage areas.
7. Manifest System followed in HW disposal to CHW-TSDF and other authorized recyclers.
8. Pre-processed used anode butt from Hirakud Smelter also reused in making green anode in Green Anode Plant.
9. 04 No's of Hazardous waste storage shed has been established with an expenditure of 13 crores for environmentally friendly storage and handling of hazardous waste.
10. ETP sludge being dispose to Cement Plant for co-processing in the cement kiln to achieve the target of Zero Waste to Landfill.

#### **E. Green Belt Development:**

1. Thick green belt developed around the plant boundary, with a density of approx. 2000 tree/Hater and more than 7,52,230 no's of trees planted with in an area of 1098 acres till



2023-24. Plantation activity for FY 24-25 is under progress to achieve the density of approx. 2000 no's/acres. Total 1,38,000 nos of trees planted till Aug-24.

2. We have adopted Miyawaki plantation method for green belt development & density enhancement inside plant.

## PART – H

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

Areas	Investment made till 31.03.2024 (lakhs)
Water pollution control system	5536.35
Air pollution control system	81496.94
Solid Waste Management System	21057.91
Hazardous Waste Management System	1833.06
Biomedical Waste Management System	18.80
<b>Total (Lakhs)</b>	<b>109943.06</b>

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 nos 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. Environmental laboratory established for monitoring and analysis of environmental pollutants.



3. Celebrating Environmental promotional activities like World Environment Day, Van Mahotsav, National Safety Day/Week, etc.
4. 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 Program".
5. Our Unit has been certified for the Single Use Plastic Free Plant from Confederation of Indian Industry (CII).
6. Raise environmental awareness at all levels of our operations, through training and effective communication, participation, and consultation.

*Sameer Nayak*

**(Authorized Signatory)**

Investment made till 31.03.2024 (INR)	Investment made till 31.03.2023 (INR)
1000000	500000
2000000	1000000
3000000	1500000
4000000	2000000
5000000	2500000