

CPP-II/ENVT/A-02(C)/2024/337

28<sup>th</sup> September 2024

To,  
The Member Secretary,  
Head Office, Chhattisgarh Environment Conservation Board,  
Paryavas Bhawan, North Block, Sector-19,  
Atal Nagar, Naya - RAIPUR (C.G.)

**Sub:** Environment Statement of 1200MW and 540MW Power Plants Including DG set (7 X 3000 KVA and 3 X 1500 KVA) for the financial year 2023-24.

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Dear Sir,

With reference to the captioned subject, we, on behalf of Bharat Aluminium Company Limited, are enclosing herewith the Environment Statement of 1200MW and 540MW Power Plants Including DG set (7 X 3000 KVA and 3 X 1500 KVA) for the financial year 2023-24 in the prescribed Form - V under Rule 14 of the Environment (Protection) Rules, 1986 and the relevant provisions of the Environment (Protection) Act, 1986.

Thanking you,

Yours truly,

  
Ashutosh Dwivedi  
COO-Power

Encl: a/a

**Copy to:**

1. Regional Officer, CECB, Korba



**FORM- V**  
**(See Rule-14)**

**ENVIRONMENTAL STATEMENT OF FOR THE FINANCIAL YEAR 2023-24**

**PART – A**

1. Name & address of the owner/  
occupier of the industry operation or  
process : **Mr. Rajesh Kumar**  
**CEO & Whole Time Director (BALCO)**  
Bharat Aluminium Company Limited  
Korba – 495684 (Chhattisgarh)
2. Industry category primary (STC  
Code) /Secondary (STC Code) : Primary
3. Production Capacity : 1740 MW  
(1200MW TPP, 540MW TPP, 3X1500 KVA DG Set  
and 7X3000 KVA DG Set including railway siding for  
540 MW and 1200 MW)
4. Year of establishment : 540MW TPP – 2005  
1200MW TPP – 2014  
7X3000 KVA DG Set – 2016  
3X1500 KVA DG Set - 2021
5. Date of last Environment Statement  
Submitted : 28<sup>th</sup> September 2023

**PART – B**

**WATER AND RAW MATERIAL CONSUMPTION**

**i) Water Consumption in m<sup>3</sup>/day: -**

Process	:	5607.481
Cooling	:	68225.385
Domestic	:	1240.511

NAME OF PRODUCT	WATER CONSUMPTION PER UNIT OF PRODUCT OUTPUT (m <sup>3</sup> /MWh)	
	FY 2022-23	FY 2023-24
Power	2.61	2.36

**ii) Raw Material Consumption:**

Name of raw Materials	Name of Product	CONSUMPTION OF RAW MATERIAL (MT/MWh)	
		FY 2022-23	FY 2023-24
Sp. Coal Consumption	Power	0.732	0.693
Sp. Biomass Consumption		0.00057	0.0012
Sp. HFO Consumption		0.00018	0.00009
Sp. LDO Consumption		0.00026	0.00014

**PART – C**

**Water:** Zero discharge condition maintained.

**Air:** Monitoring results for major pollutants are attached as Annexure-I

**PART- D**

**HAZARDOUS WASTE**

***As specified under Hazardous Waste (Management and Transboundary Movement) Rules 1989***

Hazardous Waste	TOTAL QUANTITY GENERATED (MT)	
	FY 2022-23	FY 2023-24
Used Oil/Spent Oil	40.05	163.700
Wastes containing oil	1.00	1.900
Glasswool	23.0	2.000
Empty barrels /Containers /Liners contaminated with Hazardous Chemicals/Waste	13.9	15.035
Spent ion exchange resin containing toxic metals	Nil	Nil

**PART- E**

**SOLID WASTE**

**a. From Process:**

Hazardous Waste	TOTAL QUANTITY GENERATED (MT)	
	FY 2022-23	FY 2023-24
Wastes containing oil	1.00	1.900
Glasswool	23.00	2.000
Empty barrels /containers /liners contaminated with hazardous chemical/Waste-(33.1)	13.9	15.035
Spent ion exchange resin containing toxic metals	Nil	Nil

**b. From Pollution Control Equipment:**

S. No.	Waste	TOTAL QUANTITY GENERATED (MT)	
		FY 2022-23	FY 2023-24
1.	Ash	2464171	3133853

**c. (3) Sold:**

Hazardous Waste	Quantity Sold (MT) in FY 2023-24
Used / Spent Oil	156.152
Empty barrels/ containers/liners (Contaminated)	23.182

**PART- F**

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

**Hazardous waste**

S.No	Type of hazardous waste	Disposal practice
1	Wastes containing oil	Captive Incineration in cast house furnaces/ Sale to authorized recyclers
2	Glasswool	Disposal in captive SLF/TSDF
3	Empty barrels /containers /liners contaminated with hazardous chemical/waste	Sale to authorized recyclers
4	Spent ion exchange resin containing toxic metals	Utilization for energy recovery in boiler for steam or power generation as per SOP issued by CPCB

**Non-Hazardous waste**

S.No	Type of Non-hazardous waste	Disposal practice
1	Ash	<ul style="list-style-type: none"> <li>High-density slurry disposal system has been adopted.</li> <li>Fly ash from the ESP's is collected in silos by dry ash extraction system from where it is transported to cement plants and brick manufacturing plants. It is also utilized in road construction, mine void filling and reclamation of low-lying areas.</li> </ul>

## **PART- G**

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

The 1740 MW power plant has been designed with the latest technology equipped with hybrid ESP, electrostatic precipitators (ESPs) followed by bag filters. The chimneys are 275m high which ensures adequate dispersion of the air pollutants.

Effluent treatment plants of adequate capacity have been installed and treated water is recycled maintaining zero discharge to reduce the water consumption.

High-Concentration Slurry Disposal (HCSD) system has been adopted for ash transportation to ash pond which reduces the land footprint for disposal and water consumption. Further due to high concentration disposal the ash pond is more stable and less prone to suspension of fugitive dust.

Expenditure / investment for environmental protection, for the year 2023-24 for 1740 MW power plant including DG sets and railway sidings was approx. Rs. 195.73 Cr. (Capex Rs. 25.56 Cr. & Opex Rs. 170.17 Cr.) which includes capital investment in environment protection, operation and maintenance of air pollution control equipment, water pollution control equipment, horticulture, housekeeping, waste management, monitoring, and other expenses.

The details of expenditure in various environmental measures are as under-

<b><u>Expenditure incurred for various Environmental measures 2023-24</u></b>		
<b>S. No.</b>	<b>Project Description</b>	<b>Amount (Cr)</b>
<b>A.</b>	<b>Capital Expenditure (Capex)</b>	
1	ETP in coal handling plant to increase recycling rate	25.25
2	Wind breaking screen installation at plant boundary along coal siding	0.20
3	Wheel wash system at coal entry gate	0.11
	<b>Sub Total</b>	<b>25.56</b>
<b>B.</b>	<b>Operational Expenditure (Opex)</b>	
1	ESP, AHP, CHP maintenance and spares cost	25.34
2	Water and other utilities pollution control equipment - operation and maintenance cost	2.24
3	Ash Handling Services	142.59
	<b>Sub Total</b>	<b>170.17</b>
	<b>Total</b>	<b>195.73</b>

#### **PART- H**

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

Hybrid ESP consisting of Electrostatic precipitator followed by bag filters are installed in all ESP's of power plant to keep emission level well below the norms. Additionally, ETP with RO is under installation to improve the treated effluent quality to increase the water recyclability.

#### **PART – I**

##### ***Any other particulars for improving the quality of the environment.***

- GPS facilities have been installed in all the ash transportation vehicles and ash transportation through rake initiated.
- Tree plantation is carried out every year in and around the BALCO complex as well as in the Balco Township. During the year 2023-24 we have carried out plantation of 85,111 saplings at various places in and around BALCO Plant premises.
- BALCO is certified with the Environment Management System (ISO 14001:2015) certificate.
- BALCO is certified with the Energy Management System (ISO 50001:2018) certificate.
- Environment Day, Ozone Day, Earth Day being celebrated to awareness stakeholders and employees of BALCO for protection of Environment.

FY 2023-24															
540 MW	Parameter	Norms	Unit	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
Unit#1	PM	50	(mg/Nm3)	USD	23.5	26.4	29.1	24.4	27.5	31.1	28.6	32.1	16.5	24.3	21
Unit#2	PM	50	(mg/Nm3)	23.1	28.3	25.5	34.7	30.9	28.4	38.7	36.1	33.9	35.3	36.3	28.4
Unit#3	PM	50	(mg/Nm3)	24.7	27.6	29.5	31.8	18.8	29.3	34.8	40.2	23.5	22.5	13.4	26.7
Unit#4	PM	50	(mg/Nm3)	21.5	21.8	28.8	30.7	29.3	30.8	32.1	35	19.3	17.5	16.9	27.3
1200 MW	Parameter	Norms	Unit	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
Unit#1	PM	50	(mg/Nm3)	27.1	29.3	27.6	USD	USD	USD	25.2	20.3	28	13.1	20.1	25.4
Unit#2	PM	50	(mg/Nm3)	25.8	26.9	28.2	31.3	22.1	32.4	28.3	27.8	30	26.4	22.9	26.5
Unit#3	PM	50	(mg/Nm3)	22.9	25.7	20	18.7	33.9	23.7	32.7	31.7	29.3	31.7	38.1	27.7
Unit#4	PM	50	(mg/Nm3)	USD	24.4	34.3	24.5	31.3	29.5	29.1	36.3	26.5	29.1	19.8	24.1

\*USD- Unit Under Shut Down