



September 21, 2024

The Member Secretary  
U.P. Pollution Board  
T.C 12 – V, Vibhuti Khand,  
Gomtinagar,  
LUCKNOW

Sub: Environmental Statement for the Year ending 31<sup>st</sup> March 2024

Dear Sir,

With reference to Rule 14 of Environment (Protection) Amendment Rules 1993 as notified by Govt. of India vide Notification NO. GSR – 386 (E) dated 22<sup>nd</sup> April 1993, all industries are required to submit environmental statement every year by 30<sup>th</sup> September.

We are enclosing herewith environmental statement in respect of our industry on prescribed Form No. V along with enclosure for the financial year ending 31<sup>st</sup> March 2024 for your kind perusal.

Thanking You,

FOR HINDALCO INDUSTRIES LIMITED

A handwritten signature in blue ink, appearing to read "Anil Singh", is written over a white background.

Anil Singh  
A.G.M (Environment)

Encl: as above

cc The Regional Officer,  
U.P.Pollution Control Board,  
House No. 162, Utter Mohal  
Sonebhadra.

HINDALCO INDUSTRIES LIMITED  
Renukoot Works  
P.O.Renukoot - 231217  
Distt. Sonebhadra (U.P.)  
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Corporate Identity No. L27020MH1958PLC011238

**3"FORM V"  
(See Rule 14)**

**Environmental Statement for the financial year ending the 31<sup>st</sup> March, 2023.**

**P A R T - A**

- i) Name and address of the owner / occupier of the industry operation or process –  
M/s Hindalco Industries Ltd.  
P.O. Renukoot – 231 217,  
Dist. Sonbhadra (U.P.)
- ii) Industry category Primary – (STC Code) Secondary – STC Code.
- iii) Production capacity (a) Primary Aluminium Metal – 4,20,000 MTPA (Extruded Product-3750 MT/Month, Flat Rolled Product-10000 MT/Month, Wire Rod-8500 MT/Month), using Bauxite as main raw material and Alumina (720 KTPA) as intermediate product and Co-Gen Power-84 MW.
- iv) Year of establishment – 1962
- v) Date of the last environmental statement submitted – September 21, 2023

**P A R T - B**

**Water and Raw Material Consumption**

- i) **Water consumption m<sup>3</sup> / Day**

	2023 – 2024
Process	4478
Domestic	20956

Name of products	Process water consumption per unit of product output	
	During the previous financial year	During the current financial year
	1	2
1. Primary Aluminium Metal (2023 – 2024) 410661.738 MT/ Year	3.97 M <sup>3</sup>	3.99 M <sup>3</sup>

c. 'Raw Material consumption

*Name of Raw Materials	Name of products Aluminium Metal	Consumption of Raw Material per unit of output.	
		During the previous financial year	During the current financial year
1. Bauxite		4.040 MT	3.893 MT
2. Caustic Soda		0.169 MT	0.177 MT
3. Al. Fluoride		0.017 MT	0.017 MT
4. C.P. Coke		0.361 MT	0.388 MT
5. LSHS / HSD Oil		0.165 MT	0.164 MT
6. Steam Coal		1.770 MT	1.790 MT

\* Industry may use codes if disclosing details of raw material would violate contractual Obligations, otherwise, all industries have to name the raw material used.

**PART - C**

**Pollution discharged to environment / unit of output (parameter as specified in the consent issued)**

1. Pollutants	Quantity of Pollutants discharged (mass/day)	Concentrations of pollutants in discharges (mass/volume) (Average based on yearly data)	Percentage of variation from prescribed standards with reasons.
<b>a) Effluent Water :-</b>			
pH	--	8.04	
Total suspended solids	87.24 kg/day	17.98 mg/lit	On the lower side of prescribed limits
Fluoride	6.50 kg/day	1.34 mg/lit	
Oil & Grease	6.74 kg/day	1.39 mg/lit	
B.O.D	70.35 kg/day	14.50 mg/lit	
C.O.D	400.19 kg/day	82.48 mg/lit	
Sulphide	5.87 kg/day	1.21 mg/lit	
Flow	4852 kl /day *(Recycled)		
* Variation of 10 – 15% in flow quantity only during rainy season, pollutants quantity is the same.			
<b>b) STP Water: - 6887 KI /day (recycled for process &amp; horticulture use).</b>			
<b>c) Air</b>			
<b>(A) Particulate Matter :-</b>			
1. Calciner # 1	0.28 MT/Day	98.88 mg/Nm <sup>3</sup>	250 mg/Nm <sup>3</sup>
2. Calciner # 2	0.33 MT/Day	98.48 mg/Nm <sup>3</sup>	250 mg/Nm <sup>3</sup>
3. Baking Furnace # 4	0.13 MT/Day	34.60 mg/Nm <sup>3</sup>	50 mg/Nm <sup>3</sup>
4. Baking Furnace # 5	0.11 MT/Day	33.23 mg/Nm <sup>3</sup>	50 mg/Nm <sup>3</sup>
5. Baking Furnace # 6	0.11 MT/Day	36.63 mg/Nm <sup>3</sup>	50 mg/Nm <sup>3</sup>
6. Boiler # 1	0.46 MT/Day	102.68 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
7. Boiler # 2	0.57 MT/Day	113.80 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
8. Boiler # 3	0.33 MT/Day	97.48 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
9. Boiler # 4	0.54 MT/Day	97.89 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>

c. Raw Material consumption

*Name of Raw Materials	Name of products	Consumption of Raw Material per unit of output.	
		Aluminium Metal	
		During the previous financial year	During the current financial year
1. Bauxite		4.040 MT	3.893 MT
2. Caustic Soda		0.169 MT	0.177 MT
3. Al. Fluoride		0.017 MT	0.017 MT
4. C.P. Coke		0.361 MT	0.388 MT
5. LSHS / HSD Oil		0.165 MT	0.164 MT
6. Steam Coal		1.770 MT	1.790 MT

\* Industry may use codes if disclosing details of raw material would violate contractual Obligations, otherwise, all industries have to name the raw material used.

**PART - C**

**Pollution discharged to environment / unit of output (parameter as specified in the consent issued)**

1. Pollutants	Quantity of Pollutants discharged (mass/day)	Concentrations of pollutants in discharges (mass/volume) (Average based on yearly data)	Percentage of variation from prescribed standards with reasons.
<b>a) Effluent Water :-</b>			
pH	--	8.04	
Total suspended solids	87.24 kg/day	17.98 mg/lit	On the lower side of prescribed limits
Fluoride	6.50 kg/day	1.34 mg/lit	
Oil & Grease	6.74 kg/day	1.39 mg/lit	
B.O.D	70.35 kg/day	14.50 mg/lit	
C.O.D	400.19 kg/day	82.48 mg/lit	
Sulphide	5.87 kg/day	1.21 mg/lit	
Flow	4852 kl/day		
	*(Recycled)		
* Variation of 10 – 15% in flow quantity only during rainy season, pollutants quantity is the same.			
<b>b) STP Water: - 6887 KI /day (recycled for process &amp; horticulture use).</b>			
<b>c) Air</b>			
<b>(A) Particulate Matter :-</b>			
1. Calciner # 1	0.28 MT/Day	98.88 mg/Nm <sup>3</sup>	250 mg/Nm <sup>3</sup>
2. Calciner # 2	0.33 MT/Day	98.48 mg/Nm <sup>3</sup>	250 mg/Nm <sup>3</sup>
3. Baking Furnace # 4	0.13 MT/Day	34.60 mg/Nm <sup>3</sup>	50 mg/Nm <sup>3</sup>
4. Baking Furnace # 5	0.11 MT/Day	33.23 mg/Nm <sup>3</sup>	50 mg/Nm <sup>3</sup>
5. Baking Furnace # 6	0.11 MT/Day	36.63 mg/Nm <sup>3</sup>	50 mg/Nm <sup>3</sup>
6. Boiler # 1	0.46 MT/Day	102.68 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
7. Boiler # 2	0.57 MT/Day	113.80 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
8. Boiler # 3	0.33 MT/Day	97.48 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
9. Boiler # 4	0.54 MT/Day	97.89 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>

10	DSS Pot Line – I	: 0.19 MT/Day	16.15 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
11	DSS Pot Line – II	: 0.15 MT/Day	13.73 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
12	DSS Pot Line – III	: 0.18 MT/Day	13.90 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
13	DSS Pot Line – IV (old)	: 0.04 MT/Day	15.23 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
14	DSS Pot Line – IV (Ph-I)	: 0.06 MT/Day	18.93 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
15	DSS Pot Line – IV (Ph-II)	: 0.11 MT/Day	13.38 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
16	DSS Pot Line – V	: 0.28 MT/Day	17.75 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
17	DSS Pot Line – VI	: 0.32 MT/Day	17.75 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
18	DSS Pot Line – VII	: 0.29 MT/Day	17.08 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
19	DSS Pot Line – VIII	: 0.26 MT/Day	17.00 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
20	DSS Pot Line – IX	: 0.24 MT/Day	16.38 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
21	DSS Pot Line – X	: 0.28 MT/Day	18.33 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
22	DSS Pot Line – XI	: 0.32 MT/Day	19.60 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
23	Hammer Mill # 1	: 0.04 MT/Day	106.58 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
24	Hammer Mill # 2	: 0.05 MT/Day	117.48 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
25	Hammer Mill # 3	: 0.10 MT/Day	124.00 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
26	Hammer Mill # 4	: 0.13 MT/Day	122.90 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
27	Hammer Mill # 5	: 0.05 MT/Day	123.85 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
28	North Bag House	: 1.02 MT/Day	99.43 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
29	Middle Bag House	: 1.14 MT/Day	106.60 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
30	South Bag House	: 1.25 MT/Day	112.18 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
31	Anode Bag House	: 0.35 MT/Day	107.33 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
32	Cathode Bag House	: 0.34 MT/Day	114.40 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
33	Mixing & Proportioning Bag House	: 0.26 MT/Day	108.80 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
34	12 Ton Ball Mill Bag House	: 0.26 MT/Day	109.35 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
35	Pitch Fume Treatment Plant Bag House	: 1.83 MT/Day	113.38 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
36	Butt CKT Bag House	: 1.03 MT/Day	109.45 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
37	Pitch Bag House	: 0.60 MT/Day	129.23 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
38	CPC Bag House (new)	: 0.38 MT/Day	95.40 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
39	CPC Bag House (old)	: 1.10 MT/Day	120.10 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
40	CPC Bag House New CKT	: 2.78 MT/Day	93.20 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
41	Additional CPC Bag House	: 0.61 MT/Day	128.70 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
42	Cast House S1	: 0.02 MT/Day	81.88 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
43	Cast House S2	: 0.02 MT/Day	87.90 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
44	Cast House S3	: 0.019 MT/Day	95.70 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
45	Cast House P1 & P2	: 0.017 MT/Day	102.05 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
46	Caster Plant	: 0.012 MT/Day	110.78 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
47	Melting & Holding Furnace DC2	: 0.016 MT/Day	102.68 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
48	Holding Furnace DC3	: 0.019 MT/Day	116.05 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
49	Holding Melting & Furnace DC4	: 0.021 MT/Day	121.15 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
50	Holding Melting & Furnace DC5	: 0.020 MT/Day	110.08 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
51	Holding Melting & Furnace 6	: 0.025 MT/Day	105.73 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
52	Holding Melting & Furnace 6A	: 0.024 MT/Day	111.98 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
53	Holding Melting & Furnace 7	: 0.018 MT/Day	109.85 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
54	Holding Melting & Furnace 7A	: 0.026 MT/Day	125.90 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
55	Holding Melting & Furnace 8	: 0.019 MT/Day	97.60 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
56	Holding Melting & Furnace 8A	: 0.026 MT/Day	121.20 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
57	Billet Casting Melting cum Holding Furnace no B1	: 0.025 MT/Day	117.15 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
58	Billet Casting Melting cum Holding Furnace no B2	: 0.020 MT/Day	114.25 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
59	Cupola	: 0.050 MT/Day	237.03 mg/Nm <sup>3</sup>	450 mg/Nm <sup>3</sup>

**B. Sulphur Dioxide :-**

1	Calciner # 1	: 0.24 MT/Day	85.23 mg/Nm <sup>3</sup>
2	Calciner # 2	: 0.32 MT/Day	93.98 mg/Nm <sup>3</sup>
3	Baking Furnace # 4	: 0.50 MT/Day	134.38 mg/Nm <sup>3</sup>
4	Baking Furnace # 5	: 0.31 MT/Day	95.65 mg/Nm <sup>3</sup>
5	Baking Furnace # 6	: 0.30 MT/Day	94.48 mg/Nm <sup>3</sup>
6	Boiler # 1	: 1.24 MT/Day	275.45 mg/Nm <sup>3</sup>
7	Boiler # 2	: 1.82 MT/Day	363.03 mg/Nm <sup>3</sup>
8	Boiler # 3	: 1.22 MT/Day	362.45 mg/Nm <sup>3</sup>
9	Boiler # 4	: 1.91 MT/Day	343.68 mg/Nm <sup>3</sup>
10	Cast House S1	: 0.01 MT/Day	28.48 mg/Nm <sup>3</sup>
11	Cast House S2	: 0.006 MT/Day	27.73 mg/Nm <sup>3</sup>
12	Cast House S3	: 0.005 MT/Day	31.70 mg/Nm <sup>3</sup>
13	Cast House P1 & P2	: 0.006 MT/Day	38.25 mg/Nm <sup>3</sup>
14	Caster Plant	: 0.003 MT/Day	33.85 mg/Nm <sup>3</sup>
15	Melting & Holding Furnace DC2	: 0.01 MT/Day	35.80 mg/Nm <sup>3</sup>
16	Holding Furnace DC3	: 0.01 MT/Day	35.38 mg/Nm <sup>3</sup>
17	Holding Melting & Furnace DC4	: 0.01 MT/Day	34.88 mg/Nm <sup>3</sup>
18	Holding Melting & Furnace DC5	: 0.01 MT/Day	36.25 mg/Nm <sup>3</sup>
19	Holding Melting & Furnace DC6	: 0.01 MT/Day	41.40 mg/Nm <sup>3</sup>
20	Holding Melting & Furnace 6A	: 0.01 MT/Day	37.48 mg/Nm <sup>3</sup>
21	Holding Melting & Furnace 7	: 0.01 MT/Day	39.60 mg/Nm <sup>3</sup>
22	Holding Melting & Furnace 7A	: 0.01 MT/Day	42.58 mg/Nm <sup>3</sup>
23	Holding Melting & Furnace 8	: 0.006 MT/Day	38.48 mg/Nm <sup>3</sup>
24	Holding Melting & Furnace 8A	: 0.01 MT/Day	42.58 mg/Nm <sup>3</sup>
25	Billet Casting Melting cum Holding Furnace no B1	: 0.01 MT/Day	43.90 mg/Nm <sup>3</sup>
26	Billet Casting Melting cum Holding Furnace no B2	: 0.01 MT/Day	40.05 mg/Nm <sup>3</sup>
27	Cupola	: 0.03 MT/Day	118.25 mg/Nm <sup>3</sup>

Height of stacks installed are more than as per calculation based on CPCB formula on the basis of max. Sulphur content in fuel. On the basis of monitored values the height of stacks are well within the limits.

**C. Total Fluorides :-**

1	DSS Pot Line – I	: 0.12 Kg / Ton of Aluminium produced	0.8 Kg /Ton of Aluminium produced
2	DSS Pot Line – II	: 0.12 Kg /Ton of Aluminium produced	0.8 Kg /Ton of Aluminium produced
3	DSS Pot Line – III	: 0.13 Kg /Ton of Aluminium produced	0.8 Kg /Ton of Aluminium produced
4	DSS Pot Line – IV (old)	: 0.05 Kg /Ton of Aluminium produced	0.8 Kg /Ton of Aluminium produced
5	DSS Pot Line – IV (Ph-I)	: 0.06 Kg /Ton of Alu. produced	0.8 Kg /Ton of Aluminium produced
6	Pot Line – IV (Ph-II)	: 0.13 Kg /Ton of Aluminium produced	0.8 Kg /Ton of Aluminium produced
7	DSS Pot Line – V	: 0.13 Kg /Ton of Aluminium produced	0.8 Kg /Ton of Aluminium produced
8	DSS Pot Line – VI	: 0.16 Kg /Ton of Aluminium produced	0.8 Kg /Ton of Aluminium produced

9	DSS Pot Line – VII	:	0.14 Kg /Ton of Aluminium produced	0.8 Kg /Ton of Aluminium produced
10	DSS Pot Line – VIII	:	0.14 Kg /Ton of Aluminium produced	0.8 Kg /Ton of Aluminium produced
11	DSS Pot Line – IX	:	0.13 Kg /Ton of Aluminium produced	0.8 Kg /Ton of Aluminium produced
12	DSS Pot Line – X	:	0.13 Kg /Ton of Aluminium produced	0.8 Kg /Ton of Aluminium produced
13	DSS Pot Line – XI	:	0.13 Kg /Ton of Aluminium produced	0.8 Kg /Ton of Aluminium produced
14	Baking Furnace # 4	:	0.019 Kg /Ton of Aluminium produced	0.3 Kg /Ton of Aluminium produced
15	Baking Furnace # 5	:	0.013 Kg /Ton of Aluminium produced	0.3 Kg /Ton of Aluminium produced
16	Baking Furnace # 6	:	0.012 Kg /Ton of Aluminium produced	0.3 Kg /Ton of Aluminium produced

**P A R T – D**

**Hazardous Wastes**

**(As specified under [Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2016])**

* Hazardous Wastes		Total Quantity (Generation)		
		During the previous financial year	During the current financial year**	
a)	From process	Used Oil	1714.290 KL	1986.506 KL
b)	From pollution control facilities	ETP sludge	2558.940 MT	2066.110 MT
c)	From process	SPL	5499.244 MT	6981.481 MT
d)	From process	Aluminium Dross	5927.410 MT	5742.050 MT
e)	From process	Used Anode Butts	42738.565 MT	42200.335 MT
f)	From Process	Vanadium Sludge	4718.14 MT	4724.350 MT
g)	From pollution control facilities	APCS Dust	989.225 MT	1138.350 MT
h)	From Process	Empty Barrels / Containers	44.00 MT	166.728 MT
i)	From Process	Contaminated Cotton Rags	53.140 MT	66.320 MT
j)	From Process	Tar Containing Waste	250.00 MT	361.690 MT
k)	From Process	Spent Resin	3.78 MT	11.100 MT

\* We have Authorization under Hazardous Waste Rules, 2016, Authorization No.14307 / UPPCB / Sonebhadra (UPPCBRO) / HWM / SONBHADRA / 2021 dated June 4, 2021, valid till June 04, 2026 and amended Authorization Vide 20290/UPPCB/HWM/Sonebhadra/2023 dated 30/5/2023 for Tar Containing Waste.

\*\* Details are in the section of Hazardous Waste in Part – F

**P A R T – E**  
**Solid Wastes**

	Total Quantity	
	During the previous financial year	During the current financial year
a) From process: (Generation)		
Red Mud	1080532 MT (As 73-74% solid cake)	1077335 MT (As 73-74% solid cake)
Fly ash	227943.078 MT	287775 MT
b) From pollution control facility:		
Alumina dust	1573.82 MT	1195.58 MT
Fly ash	529.22 MT	584.71 MT
c) Quantity recycled or re-utilized within the unit: Haz. Waste.		
a) Used Anode Butts	42738.565 MT	42200.335 MT
b) ETP Sludge	2558.940 MT	2066.11 MT
c) APCS Dust	989.225 MT	1138.350 MT
d) Coolant Oil	1483.707 KL	1829.426 KL
e) Spent Resin	3.78 MT	11.100 MT
d) Disposed / Utilization		
a) Red Mud	1212439 MT (As 73-74% solid cake)	1101551 MT (As 73-74% solid cake)
b) Fly Ash	206009.868 MT	287957 MT
e) TSDF / Approved recyclers / approved re-processors: Haz. Waste.		
a) SPL (Carbon & Refractory Portion)	6792.21 MT	6798.96 MT
i. Carbon Portion	1419.22 MT	1760.52 MT
ii. Refractory Portion	5372.99 MT	5038.44 MT
b) Used Oil	230.58 KL	157.08 KL
c) Empty Barrels / Containers	44.00 MT	166.728 MT
d) Contaminated Cotton Rags	53.140 MT	66.320 MT
e) Tar Containing Waste	250.00 MT	361.690 MT
f) Aluminium Dross	6027.80 MT	5801.935 MT
g) Vanadium Sludge	4697.05 MT	4661.416 MT



## PART – F

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

### Hazardous Waste

- |       |                            |   |
|-------|----------------------------|---|
| i)    | Used oil                   | : Used oil sold through disposal department to registered recyclers from Pollution Control Board. Coolant oil was re-distilled in our oil distillation unit for reuse.  |
| ii)   | ETP Sludge                 | : Totally used in Red Mud Plantation Area within our premises as soil conditioner. Analysis enclosed herewith as Annexure – I.  |
| iii)  | Spent Potlining            | : SPL Refractory Portion was send to M/s BOWML, Kanpur for TSDF and SPL Carbon had been Co-processed by approved recyclers. Analysis enclosed herewith as Annexure – II.  |
| iv)   | Used Anode Butts           | : No storage as and when generated reused in our captive Anode Plant within plant premises. Analysis enclosed herewith as Annexure –III.  |
| v)    | Aluminium Dross            | : Aluminium Dross stored temporarily in our disposal yard under covered shed with concrete flooring. Aluminium Dross had been send to approved recyclers / re-processers. Analysis enclosed herewith as Annexure – IV.      |
| vi)   | Vanadium Sludge            | : Vanadium Sludge stored temporarily in our Raw material Godown under covered shed with concrete flooring. Vanadium Sludge had been send to approved recyclers / re-processers. Analysis enclosed herewith as Annexure – V. |
| vii)  | APCS Dust                  | : No storage as and when generated sent to boiler for recovery of energy value by mixing in coal. Analysis enclosed herewith as Annexure – VI.  |
| viii) | Empty Barrels / Containers | : Stored temporarily at site in our disposal yard under covered shed with concrete flooring, sold to approved vendor.   |
| ix)   | Contaminated Cotton Rags   | : Stored temporarily at site in our disposal yard under covered shed with concrete flooring, send to M/s Ultra Tech Dalla for Co-Processing in Kiln.  |
| x)    | Tar Containing Waste       | : Stored temporarily at site in our disposal yard under covered shed with concrete flooring, send to approved TSDF operator for incineration. Analysis enclosed herewith as Annexure – VII.                                 |
| xi)   | Spent Resin                | : No storage as and when generated sent to boiler for recovery of energy value by mixing in coal.   |

## Solid Wastes

- i) Red Mud : Dry stacking on own land as 73-74% solid cake. We had dispatched Red Mud to various cement plants through Rail / Road for utilization. During the year approx. 102.2% Red Mud has been utilized. Analysis enclosed herewith as Annexure – VIII.
  
- ii) Fly Ash : We have dry ash handling system in all Four Boilers. Various cement manufacturers and other users took away fly ash. We have disposed Fly Ash to various cement plants for utilization and Bottom / Wet / Pond ash had been utilized in low lying area. During the year approx. 100.06% Ash has been utilized. Analysis enclosed herewith as Annexure – IX.

## PART - G

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

Guided by our Purpose 'To enrich lives, by building dynamic and responsible businesses and institutions, that inspire trust', and by leveraging our resources, expertise, and influence, we aspire to be a catalyst for meaningful impact, shaping a future where business serves as a force for good in everything that we touch and do.

Our Company's recent global recognitions are testimony to our differentiated ESG approach which includes targeted initiatives to achieve net zero, zero waste to landfill, no net-loss to biodiversity, and water positivity, by 2050. As a result of these efforts, we ranked among the top 1% in the aluminium industry in the S&P global (DJSI) Sustainability Yearbook of 2024 for the third time in a row.

These affirmations signify our commitment to design pioneering solutions for a greener, stronger and smarter future, driven by our belief that business can and must serve as a catalyst for positive change.

To protect the Environment, it is essential to properly dispose waste from operations. We have formed Waste Management Task Forces. These task forces serve the purpose of developing a structured approach for prevention and reduction of waste generation. Further, they also take efforts towards creating some value from the generated waste, which is an extension of our 'Value from Waste' initiative that aims at achieving 100% utilisation. We have set up a Y-o-Y target of 5% for recycling and reusing generated waste, with the aim to achieve zero waste to landfill by 2050.

We are taking up several initiatives towards conservation of biodiversity, including conducting risk assessments and developing biodiversity management plans.

Our non-GHG air emissions result from both fuel combustion and production processes. Our aluminium smelting process contributes to fluoride emissions while the burning of fossil fuels contributes to release of SO<sub>x</sub>, NO<sub>x</sub> and Particulate Matter. Efficient Air Prevention Technology is in place for prevention of air emissions.

## PART - H

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

We have established Red Mud utilization very well with Cement Industries. During the year, total Red Mud 1101551 which is approx. 102 % of our generation has been dispatched through rail/road to various cement industries.

Four Nos Continuous Ambient Air monitoring system is working well, and online data is being transferred to CPCB server regularly. We have installed 22 Nos CEMS for monitoring of PM and HF from our process and data has been transferred to CPCB as per guidelines.

Ash is being utilized in Cement Plant in and Low-Lying area, during the year 100.06% has been utilized.

For monitoring of Fugitive emission in pot lines technology has been finalized. Equipment will be installed for monitoring of HF and CO.

We have initiated action to develop Temporary ash storage dyke in our premises which is approx. of area 100x100 m<sup>2</sup>.

## PART - I Miscellaneous

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

The company's integrated Aluminium complex at Renukoot are certified for Integrated Management System (ISO-14001, OHSAS-18001 and ISO-9001) and bi-annually audited during the year by DNV -GL Business Assurance India.

Greenery development job is in progress in phased manner in Red Mud abandoned areas. Two Nos Fog Gun has been deployed in red mud area to prevent fugitive emission through out of the year.



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GSTIN :- 09AAJFP3925G1ZY

## Test Report for Solid Waste Quality

Report No. PCS/SW/03/2024 Reference No. PCS/HIL/01/2024 Issue Date 22/03/2024

1. Name & Address of Industry:	M/s Hindalco Industry Limited, PO - Renukoot, Dist- Sonbhadra (UP)		
2. Type of Industry:	Aluminium Industry	8. Date of Sampling:	06/02/2024
3. Sampling Done by:	Mr. Asheesh, Shubham & Umakant	9. Sample Receipt in lab:	12/02/2024
4. Sampling Location:	ETP Sludge	10. Date of Testing:	12/02/2024 - 07/02/2024
5. Weather Condition :	Clear Sky	11. Sample Analyzed By:	Mr. Ajay Kumar
6. Lab Code:	PCS24/28/111		
7. Method of Sampling:	PCS/WI/SAMP/21		

S.No.	Parameters	Unit	Reference Method	Result
1.	Al <sub>2</sub> O <sub>3</sub>	%	-	39.21
2.	TiO <sub>2</sub>	%	-	1.14
3.	Fe <sub>2</sub> O <sub>3</sub>	%	-	5.53
4.	Na <sub>2</sub> O	%	PCS/SOP/SOIL/03: 2016	1.24
5.	CaO	%	PCS/SOP/SOIL/03: 2016	2.36
6.	MgO	%	-	0.32
7.	SiO <sub>2</sub>	%	-	9.65
8.	P <sub>2</sub> O <sub>5</sub>	%	-	0.65
9.	V <sub>2</sub> O <sub>5</sub>	%	-	0.81
10.	LOI	%	-	31.8

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(Dr Divya Misra)  
Managing Director

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Tel: 0522-4002545, Mobile: 09415518818,  
GSTIN :- 09AAJPP5925Q1Z Y

## Test Report for Solid Waste Quality

Report No. PCS/SW/06/2024 Reference No. PCS/HIL/01/2024 Issue Date 22/03/2024

1. Name & Address of Industry:	M/s Hindalco Industry Limited, PO - Renukoot, Dist- Sonbhadra (UP)		
2. Type of Industry:	Aluminium Industry	8. Date of Sampling:	06/02/2024
3. Sampling Done by:	Mr. Asheesh, Shubham & Umakant	9. Sample Receipt in lab:	12/02/2024
4. Sampling Location:	Spent Pot lining Material (SPL)	10. Date of Testing:	12/02/2024 - 07/02/2024
5. Weather Condition :	Clear Sky	11. Sample Analyzed By:	Mr. Ajay Kumar
6. Lab Code:	PCS24/28/108		
7. Method of Sampling:	PCS/WI/SAMP/21		

S.No.	Parameters	Unit	Reference Method	Result
1.	pH	%	IS 2720 Part 26 : 1987	9.51
2.	Moisture	%	-	10.4
3.	Total Solid	%	-	64.8
4.	Volatile solid in total solid	%	-	10.5
5.	Ash in total solid	%	-	21.5
6.	Fluoride as F	%	-	15.1
7.	Sodium as Na	%	PCS/SOP/SOIL/03: 2016	1.60
8.	Potassium as k	%	PCS/SOP/SOIL/03: 2016	1.21
9.	Calcium	%	PCS/SOP/SOIL/03: 2016	1.53
10.	Magnesium as Mg	%	-	286.2
11.	Iron	mg/kg	EPA3050 b: 1996	272.6
12.	Cadmium	mg/kg	EPA3050 b 1996:	<0.025
13.	Zinc	mg/kg	EPA3050 b: 1996	20.4
14.	Manganese	mg/kg	EPA3050 b: 1996	36.5
15.	Lead	mg/kg	EPA3050 b: 1996	18.1
16.	Nickel	mg/kg	EPA3050 b: 1996	38.6
17.	Copper	mg/kg	EPA3050 b: 1996	65.1
18.	Chromium	mg/kg	EPA3050 b : 1996	98.4
19.	Cobalt	mg/kg	-	9.5

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Managing Director

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GSTIN :- 09AAJFP3925G1ZY

## Test Report for Solid Waste Quality

Report No. PCS/SW/08/2024		Reference No. PCS/HIL/01/2024		Issue Date 22/03/2024	
1. Name & Address of Industry:		M/s Hindaleo Industry Limited, PO - Renukoot, Dist- Sonbhadra (UP)			
2. Type of Industry:		Aluminium Industry		8. Date of Sampling:	
3. Sampling Done by:		Mr. Asheesh, Shubham & Umakant		06/02/2024	
4. Sampling Location:		Used Anode Butt Analysis		9. Sample Receipt in lab:	
5. Weather Condition :		Clear Sky		12/02/2024	
6. Lab Code:		PCS24/28/115		10. Date of Testing:	
7. Method of Sampling:		PCS/WI/SAMP/21		12/02/2024 - 07/02/2024	
11. Sample Analyzed By:		Mr. Ajay Kumar			
S.No.	Parameters	Unit	Reference Method	Result	
1.	Ash	%	-	1.13	
2.	Si	%	-	0.025	
3.	Fe	%	EPA3050 b 1996:	0.191	
4.	Ni	%	EPA3050 b 1996:	0.019	
5.	V	%	-	0.017	
6.	Sodium as Na	%	PCS/SOP/SOIL/03: 2016	0.007	
7.	Calcium	%	PCS/SOP/SOIL/03: 2016	0.025	
8.	S	%	-	1.38	

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GSTIN :- 09AAJFP5925G12Y

## Test Report for Solid Waste Quality

Report No.	Reference No.	Issue Date	
PCS/SWQ/01/2024	PCS/HIL/01/2024	22/03/2024	
1. Name & Address of Industry:	M/s Hindalco Industry Limited, PO - Renukoot, Dist- Sonbhadra (UP)		
2. Type of Industry:	Aluminium Industry	8. Date of Sampling:	06/02/2024
3. Sampling Done by:	Mr. Asheesh, Shubham & Umakant	9. Sample Receipt in lab:	12/02/2024
4. Sampling Location:	Aluminum dross	10. Date of Testing:	12/02/2024 - 07/02/2024
5. Weather Condition :	Clear Sky	11. Sample Analyzed By:	Mr. Ajay Kumar
6. Lab Code:	PCS24/28/109		
7. Method of Sampling:	PCS/WI/SAMP/21		

S.No.	Parameters	Unit	Reference Method	Result
1.	Al <sub>2</sub> O <sub>3</sub>	%	-	67.1
2.	TiO <sub>2</sub>	%	-	0.24
3.	Fe <sub>2</sub> O <sub>3</sub>	%	-	0.35
4.	Na <sub>2</sub> O	%	PCS/SOP/SOIL/03: 2016	1.71
5.	CaO	%	PCS/SOP/SOIL/03: 2016	0.28
6.	MgO	%	-	0.59
7.	SiO <sub>2</sub>	%	-	1.18
8.	MnO <sub>2</sub>	%	-	0.17
9.	F <sup>-</sup>	%	-	4.41
10.	Cl	%	-	0.72

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## Test Report for Solid Waste Quality

Report No.	Reference No.	Issue Date		
PCS/SW/09/2024	PCS/HIL/01/2024	22/03/2024		
1. Name & Address of Industry:	M/s Hindalco Industry Limited, PO - Renukoot, Dist- Sonbhadra (UP)			
2. Type of Industry:	Aluminium Industry	8. Date of Sampling:	06/02/2024	
3. Sampling Done by:	Mr. Asheesh, Shubham & Umakant	9. Sample Receipt in lab:	12/02/2024	
4. Sampling Location:	Vanadium Sludge	10. Date of Testing:	12/02/2024 - 07/02/2024	
5. Weather Condition :	Clear Sky	11. Sample Analyzed By:	Mr. Ajay Kumar	
6. Lab Code:	PCS24/28/113			
7. Method of Sampling:	PCS/WI/SAMP/21			
S.No.	Parameters	Unit	Reference Method	Result
1.	Al <sub>2</sub> O <sub>3</sub>	%	-	1.47
2.	P <sub>2</sub> O <sub>5</sub>	%	-	5.28
3.	SO <sub>4</sub>	%	-	0.16
4.	Na <sub>2</sub> O	%	PCS/SOP/SOIL/03: 2016	25.1
5.	AS <sub>2</sub> O <sub>3</sub>	%	-	0.48
6.	V <sub>2</sub> O <sub>5</sub>	%	-	20.5
7.	F	%	-	2.38
8.	Moisture	%	-	36.8
9.	Cl	%	-	0.061

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 Tel: 0522- 4002543, Mobile: 09415518818,  
 GSTIN :- 09AAJFP3925G1ZY

## Test Report for Solid Waste Quality

Report No. PCS/SW/02/2024	Reference No. PCS/IIIIL/01/2024	Issue Date 22/03/2024
1. Name & Address of Industry:	M/s Hindalco Industry Limited, PO - Renukoot, Dist- Sonbhadra (UP)	
2. Type of Industry:	Aluminium Industry	8. Date of Sampling: 06/02/2024
3. Sampling Done by:	Mr. Ashresh, Shubham & Umakant	9. Sample Receipt in lab: 12/02/2024
4. Sampling Location:	APCS Dust Analysis	10. Date of Testing: 12/02/2024 - 07/02/2024
5. Weather Condition :	Clear Sky	11. Sample Analyzed By: Mr. Ajay Kumar
6. Lab Code:	PCS24/28/114	
7. Method of Sampling:	PCS/WI/SAMP/21	

S.No.	Parameters	Unit	Reference Method	Result
1.	Ash	%	-	40.1
2.	Si	%	-	0.216
3.	Fe	%	EPA3050 b 1996:	7.18
4.	Ni	%	EPA3050 b 1996:	0.178
5.	V	%	-	0.69
6.	Sodium as Na	%	PCS/SOP/SOIL/03: 2016	5.54
7.	Calcium	%	PCS/SOP/SOIL/03: 2016	1.98
8.	S	%	-	3.71
9.	Al	mg/kg	-	10.73
10.	Cu	mg/kg	EPA3050 b 1996:	5.01
11.	F	mg/kg	-	8.58

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## Test Report for Solid Waste Quality

Report No. PCS/SW/071/2024 Reference No. PCS/HIL/01/2024 Issue Date 22/03/2024

1. Name & Address of Industry:	M/s Hindalco Industry Limited, PO - Renukoot, Dist- Sonbhadra (UP)		
2. Type of Industry:	Aluminium Industry	8. Date of Sampling:	06/02/2024
3. Sampling Done by:	Mr. Asheesh, Shubham & Umakant	9. Sample Receipt in lab:	12/02/2024
4. Sampling Location:	Tar Containing Waste	10. Date of Testing:	12/02/2024 - 07/02/2024
5. Weather Condition :	Clear Sky	11. Sample Analyzed By:	Mr. Ajay Kumar
6. Lab Code:	PCS24/28/110		
7. Method of Sampling:	PCS/WI/SAMP/21		

S.No.	Parameters	Unit	Reference Method	Result
1.	pH	%	IS 2720 Part 26 : 1987	9.86
2.	Moisture	%	-	12.1
3.	Total Solid	%	-	74.5
4.	Volatile solid in total solid	%	-	11.9
5.	Ash in total solid	%	-	24.2
6.	Fluoride as F	%	-	20.8
7.	Sodium as Na	%	PCS/SOP/SOIL/03: 2016	1.81
8.	Potassium as k	%	PCS/SOP/SOIL/03: 2016	1.61
9.	Calcium	%	PCS/SOP/SOIL/03: 2016	1.96
10.	Magnesium as Mg	%	-	280.6
11.	Iron	mg/kg	EPA3050 b: 1996	292.7
12.	Cadmium	mg/kg	EPA3050 b 1996:	<0.025
13.	Zinc	mg/kg	EPA3050 b: 1996	18.4
14.	Manganese	mg/kg	EPA3050 b: 1996	32.8
15.	Lead	mg/kg	EPA3050 b: 1996	19.7
16.	Nickel	mg/kg	EPA3050 b: 1996	36.5
17.	Copper	mg/kg	EPA3050 b: 1996	71.7
18.	Chromium	mg/kg	EPA3050 b : 1996	89.3
19.	Cobalt	mg/kg	-	8.8

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1. Name & Address of Industry:	M/s Hindalco Industry Limited, PO - Renukoot, Dist- Sonbhadra (UP)		
2. Type of Industry:	Aluminium Industry	8. Date of Sampling:	06/02/2024
3. Sampling Done by:	Mr. Asheesh, Shubham & Umakant	9. Sample Receipt in lab:	12/02/2024
4. Sampling Location:	Red Mud	10. Date of Testing:	12/02/2024 - 07/02/2024
5. Weather Condition :	Clear Sky	11. Sample Analyzed By:	Mr. Ajay Kumar
6. Lab Code:	PCS24/28/112		
7. Method of Sampling:	PCS/WI/SAMP/21		

S.No.	Parameters	Unit	Reference Method	Result
1.	pH	%	IS 2720 Part 26 : 1987	9.76
2.	Moisture	%	-	20.4
3.	Total Solid	%	-	52.3
4.	Volatile solid in total solid	%	-	5.51
5.	Ash in total solid	%	-	59.8
6.	Fluoride as F	%	-	0.39
7.	Sodium as Na	%	PCS/SOP/SOIL/03: 2016	0.68
8.	Potassium as k	%	PCS/SOP/SOIL/03: 2016	0.51
9.	Calcium	%	PCS/SOP/SOIL/03: 2016	0.39
10.	Magnesium as Mg	%	-	260.0
11.	Iron	mg/kg	EPA3050 b: 1996	6231.0
12.	Cadmium	mg/kg	EPA3050 b: 1996:	<0.025
13.	Zinc	mg/kg	EPA3050 b: 1996	60.15
14.	Manganese	mg/kg	EPA3050 b: 1996	21.6
15.	Lead	mg/kg	EPA3050 b: 1996	39.7
16.	Nickel	mg/kg	EPA3050 b: 1996	22.51
17.	Copper	mg/kg	EPA3050 b: 1996	33.8
18.	Chromium	mg/kg	EPA3050 b : 1996	485.0
19.	Cobalt	mg/kg	-	9.32

- Note: 1. The results in the Test Report related only to the items tested.  
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3. The report shall not be used for any other purpose than declared by the sponsor.  
4. Prakriti Consultants Services are not regulatory agency hence no part of this report should be used for legal purpose under any circumstances  
5. No deviation as per the Standard Method

Authorized Signatory

(Dr Divya Misra)  
Managing Director

-----"End of this Test Report"-----

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# Prakriti Consultants Services

Category 'A' QCI-NABET Accredited EIA Consultant Organization  
An Approved Laboratory From MoEF - CC & Uttar Pradesh Pollution Control Board  
(An ISO 14001:2015, ISO 9001:2015 and ISO 45001:2018 Certified Organization)  
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Tel: 0522- 4002545, Mobile: 09415518818,  
GSTIN :- 09AAJFP3925QIZY

## Test Report for Solid Waste Quality

Report No. PCS/SW/04/2024 Reference No. PCS/HIL/01/2024 Issue Date 22/03/2024

1. Name & Address of Industry:	M/s Hindalco Industry Limited, PO - Renukoot, Dist- Sonbhadra (UP)		
2. Type of Industry:	Aluminium Industry	8. Date of Sampling:	06/02/2024
3. Sampling Done by:	Mr. Asheesh, Shubham & Umakant	9. Sample Receipt in lab:	12/02/2024
4. Sampling Location:	Fly Ash	10. Date of Testing:	12/02/2024 - 07/02/2024
5. Weather Condition :	Clear Sky	11. Sample Analyzed By:	Mr. Ajay Kumar
6. Lab Code:	PCS24/28/116		
7. Method of Sampling:	PCS/WI/SAMP/21		

S.No.	Parameters	Unit	Reference Method	Result
1.	pH	%	IS 2720 Part 26 : 1987	8.56
2.	Moisture	%	-	3.78
3.	Total Solid	%	-	79.38
4.	Volatile solid in total solid	%	-	12.26
5.	Ash in total solid	%	-	58.56
6.	Fluoride as F	%	-	0.29
7.	Sodium as Na	%	PCS/SOP/SOIL/03: 2016	0.36
8.	Potassium as k	%	PCS/SOP/SOIL/03: 2016	0.62
9.	Calcium	%	PCS/SOP/SOIL/03: 2016	0.008
10.	Magnesium as Mg	%	-	227.3
11.	Iron	mg/kg	EPA3050 b: 1996	<0.025
12.	Cadmium	mg/kg	EPA3050 b 1996:	23.9
13.	Zinc	mg/kg	EPA3050 b: 1996	31.10
14.	Manganese	mg/kg	EPA3050 b: 1996	74.8
15.	Lead	mg/kg	EPA3050 b: 1996	42.9
16.	Nickel	mg/kg	EPA3050 b: 1996	30.5
17.	Copper	mg/kg	EPA3050 b: 1996	189.6
18.	Chromium	mg/kg	EPA3050 b : 1996	421.5
19.	Cobalt	mg/kg	-	2.56

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Authorized Signatory  
  
(Dr Divya Misra)  
Managing Director

-----"End of this Test Report"-----

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Services Available  
Environmental Monitoring, Preparation of EIA/EMP, Baseline data generation for Air, Water, Soil, Noise & Meteorology  
Environmental and Safety Audit reports, Commissioning, Erection, Operation and Maintenance of STP/ETP, Clearances from  
Ground Water Board, Compliance of F.C., NOC from UPPCB, MoEF