ज़ावर माईन्स
पिन कोड - 313901
जिला - उदयपुर (राज.)

HINDUSTAN ZINC LIMITED
हिन्दुस्तान जिंक लिमिटेड

Telephone - (0294) 2723400

Zawar Mines
PIN Code – 313901
Dist - Udaipur (Raj.)

Ref.: - HZL/ZM/ENV/2025 259

Date – 26.08.2025

By Registered

The Member Secretary
Rajasthan State Pollution Control Board
4- Institutional Area, Jhalana Dungri
JAIPUR-302004 (Raj)

Sub.: Environmental Statement for the year 2024-25 for Zawar Group of Mines

Ref: F(Mines)/Udaipur (Sarada)/53(1)/2016-2017/5003-5007 dated 20/12/2022
F (HDF)/Udaipur (Sarada)/1(1)/2020-2021/5368-5370 dated 28/12/2022
Environment Clearance vide No – J-11015/259/2012-IA-II(M) dated 16/10/2020

Sir

Please find attached herewith the **Environmental Statement** for the year **2024-25** for **Zawar Group of Mines**

Thanking you

Yours Sincerely

Anshul Kumar Khandelwal
(CEO- IBU, Zawar)

CEO-IBU Zawar
Hindustan Zinc Limited
Zawar Mines
District-Udaipur (Raj.)
PIN-313901

Encl.: As above
CC: 1. The Deputy Director (S), Scientist- C, Ministry of Environment, Forest & Climate Change, Integrated Regional Office, B-213 & 216, Aranya Bhawan, Jhalana Institutional Area, Jaipur (Rajasthan)- 302004
2. The Regional Officer, Rajasthan State Pollution Control Board, F-470, Near UCCI Building, Madri Industrial Area, Udaipur-313003 (Raj.).
3. Office Copy (Env. Cell)

CEO-IBU Zawar
Hindustan Zinc Limited
Zawar Mines
District-Udaipur (Raj.)
PIN-313901

FORM – V
(See Rule-14)

Environmental Statement for the financial year ending the 31st MARCH, 2025

PART – A

(i)	Name and Address of the Owner / Occupier of the Industry / Operation or Process	Sh. Arun Misra (Occupier) CEO & Whole Time Director Hindustan Zinc Limited, Yashad Bhawan, Udaipur-313001 (Raj)
		Sh. Anshul Kumar Khandelwal (Location Head) CEO- IBU Zawar Mines Hindustan Zinc Limited, Zawar Mines, Tehsil-Sarada, Dist.- Udaipur- 313901 (Raj)
(ii)	Industry category Primary (STC code) Secondary (STC code)	Red/Large Mining of lead-zinc minerals and ore processing NA
(iii)	Production capacity	4.8 Mtpa of ore production & Its beneficiation
(iv)	Year of establishment	Prior to 1950
(v)	Date of last environmental statement submitted	08.08.2024

PART – B

Water and Raw material Consumption

(i) Water consumption m^3/d
Process – 2001.02 m^3/d
Cooling - NA
Domestic- 3842 m^3/d

Name of product	Process fresh water consumption per unit of product output.**	
	During the previous financial year (2023-24)	During the current financial year (2024-25)
	(1)	(2)
(1) Lead - Zinc concentrate	0.24 m^3/MT*	0.23 m^3/MT*

(ii) Raw material consumption

Name of Raw materials	Name of products	Consumption of raw material per unit of output (gm/MT) **	
		during the previous financial year (2023-24)	during the current financial year (2024-25)
Copper Sulphate	Lead - Zinc concentrate	131.44	149.59
MIBC + Frothosol		26.04	23.72
Xanthate		26.28	32.17
Sodium Cyanide		1.67	1.18
Lime		1.04	0

*Our product output is lead - zinc concentrate. Whereas water consumption shown as cubic meter per ton of ore treatment in beneficiation plant

**Raw material consumption is shown as grams per ton of ore treatment

Production	2023-24 (MT)	2024-25 (MT)
Ore Treatment	4008593	4249308
Total Concentrate	321445	378374

PART – C

Pollution discharged to environment/unit of output.

(Parameters as specified in the consent issued)

(1) Pollution	Quantity of pollutants discharged (mass/day)	Concentration of pollutants in discharge (mass/volume)	Percentage of variation from prescribed standards with reason
a) Water	Zero discharge status	No Discharge	Zero discharge is maintained as per the consent granted by the RSPCB.
(b) Air			
Air dust emission from stack (PM)			
Mochia Crusher Balaria Crusher DE-2 (Mill-2) DG- Set	19.7 kg/day 20.7 kg/day 7.0 kg/day	27.47 mg/Nm^3 26.89 mg/Nm^3 27.38 mg/Nm^3 46.73 mg/Nm^3	81.69% lesser than standard 82.07% lesser than standard 81.74% lesser than standard 37.7% lesser than standard

PART – D
HAZARDOUS WASTES

(as specified under Hazardous Wastes (Management, Handling & Transboundary Movement) Rules 2016)

Hazardous wastes	Total Quantity (MT)	
	during the previous financial year (2023-24)	during the current financial year (2024-25)
(a) From Process		
Decontaminated drums	135 Nos. (Gen.), 0.64 MT (Disposed)	111 Nos. (Gen.), 0.68 MT (Disposed)
Waste oil sold	19.42 MT	0 MT
Used Oil sold	ZM- 290.083 MT ZM CPP- 5.14 MT Total- 295.223 MT	ZM- 314.01 MT ZM CPP- 0.98 MT Total- 314.99 MT
Scrap batteries sold	9.68 MT	13.36 MT
(b) From pollution control facilities	Nil	Nil

PART – E

Solid Wastes

		Total Quantity (MT)	
		during the previous financial year (2023-24)	during the current financial year (2024-25)
A	From process (Tailings)*	3687148 MT	3870934 MT
B	From pollution control facility **	Nil	Nil
C	1-Quantity recycled or reutilized	Nil	Nil
	2-Solid	Nil	Nil
	3-Disposed***		
	Decontaminated drums	135 Nos. (Gen.), 0.64MT (Disposed)	111 Nos. (Gen.), 0.68 MT (Disposed)
	Waste Oil sold	19.42 MT	0 MT
	Used Oil sold	ZM- 290.083 MT ZM CPP- 5.14 MT Total- 295.223 MT	ZM- 314.01 MT ZM CPP- 0.98 MT Total- 314.99 MT
	Scrap batteries sold	9.68 MT	13.36 MT

* Tailing is a major waste material generated from beneficiation plant.
** All the dust slurry transported to process plant and utilized.
*** Used/Spent oil & Scrap lead acid batteries sold to registered parties with MoEF/CPCB.

PART – F

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

i. **Solid Waste**- The Solid Waste in form of tailings (Non-Hazardous) generated from beneficiation plant is- **3870934 MT** having following mineralogical composition

Particular	**% Content**
Total Lead	0.06%
Total Zinc	0.12%
Total Iron	3.46 %
Insoluble	30.87 %
Cadmium	0.0006%

Tailing is pumped to Dry tailing plant where water is separated from tailings and dry tailing cake having moisture around 15 to 18% is disposed in Tailing storage facility (TSF). Water thus separated is 100% recycled in beneficiation plant.

Hydro fill plant and paste fill plant are in place to backfill the tailing in mine void at Mochia and Zawarmala respectively. During the year, **460905 MT** of tailing backfilled in mine void.

Waste rock- Total generation – **1386819 Tonnes**
Waste rock are filled back in mine void and partially utilized for covering slope of TSF etc. for arresting fugitive dust generation.

Used oil- Used oil is recovered from the different machinery and heavy earth movers. Used oil is stored in drums and kept in the specified area for disposal to registered re-refiners with MoEF/CPCB

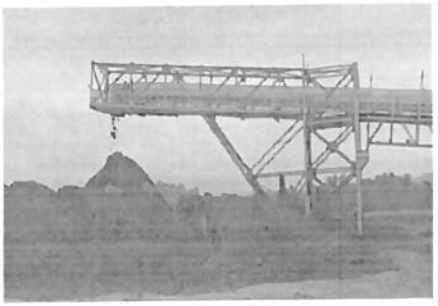
Discarded Containers and bags- Discarded containers of chemicals are stored in the earmarked place and after decontamination, disposal to authorize TSDF.

PART – G

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

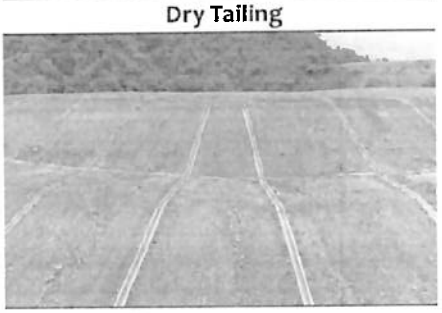
Wet Tailing of beneficiation plant is being processed in Dry Tailing Plant to produce dry tailing of 15-18% moisture content, which is stacked in Tailing Storage facility. Water is reclaimed from Dry Tailing plant and is pumped back to beneficiation plant for reuse. Water requirement is met out by our captive Tidi Dam. The water requirement for process plant is meet out by 80% reclaimed water of tailing storage facility thereby reducing fresh water consumption.

Dry Tailing Plant



Dry Tailing

Tailing Storage Overview



Tailing Embankment Drain

PART – H

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

- Implementation of 4 MLD High rate solids contact clarifier (HRSCC) and reverse osmosis plant increasing water recyclability and reducing freshwater consumption.

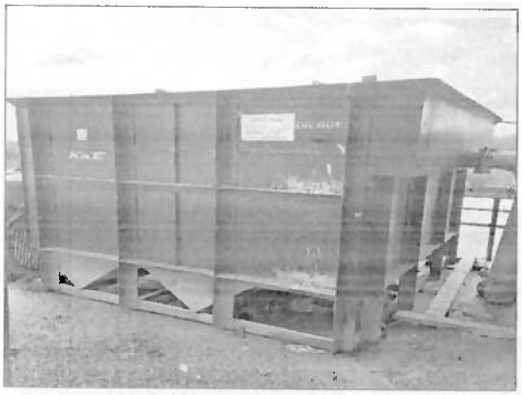
4 MLD HRSCC

- Hydrofill and paste fill plant to backfill tailings in mine void

Hydro Fill Plant

Paste Fill Plant

- Wet drilling operations continued.
- Transportation of concentrates in tarpaulin covered trucks.
- Underground water sprinkler on haul road.
- Oil water separator



Oil Water Separator

Vehicle Washing Facility

Tarpaulin covered truck

- De-dusting systems at both the secondary crushers at Beneficiation Plant (Mochia & Balaria crushers & New Crusher).
- Installation of water sprinklers at Ore Stockpile and other transfer points.

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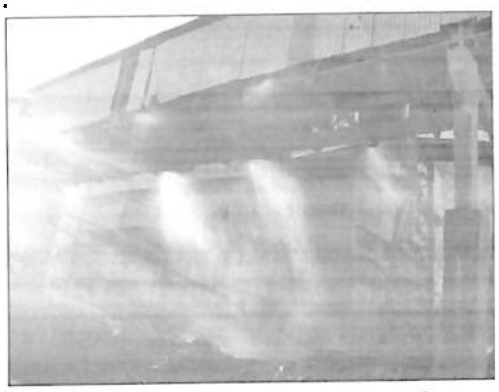
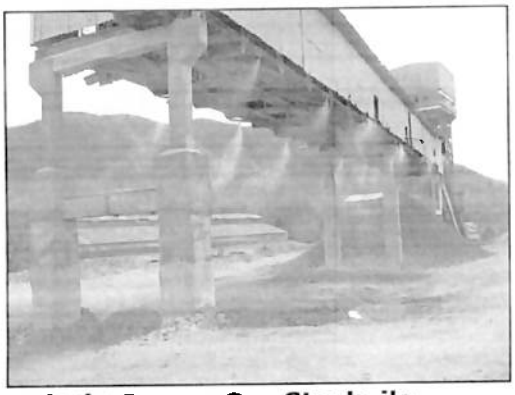
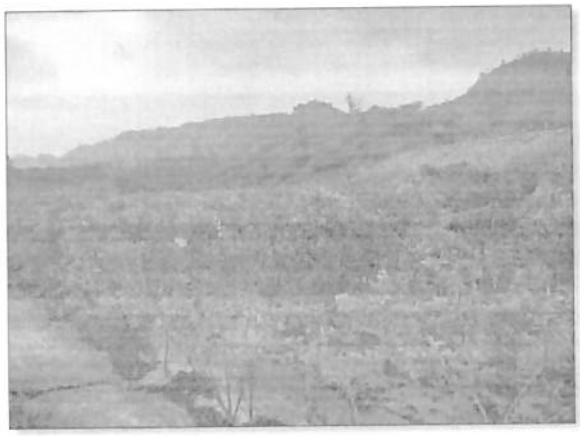


Mochia Coarse Ore Stockpile



Balaria Coarse Ore Stockpile



TSF Plantation

Unit is certified for ISO-9001:2015 (Quality Management System), ISO-14001:2015 (Environmental Management System), ISO-45001:2018 (Occupational Health & Safety Management System), SA-8000:2014 (Social Accountability) and ISO 50001:2018 (Energy Management System)

Part- I

Any other particulars for improving the quality of the environment.

1. **Air pollution control**: Dust extraction systems are in place for the crushers. Water sprinkling on ore while transportation and prior to crushing. Monitoring twice a month of ambient air at 8 locations and stack emission from stacks of crushing section for suspended particulate matter.

2. **Water pollution control**:
   a. Quality of mine water and ground water in and around the mine complex is being monitored regularly.
   b. Wet Tailing of beneficiation plant is being processed in Dry Tailing Plant to produce dry tailing of 15-18 % moisture content, which is stacked in Tailing Storage facility. Water is reclaimed from Dry Tailing plant and is pumped back to beneficiation plant for reuse.
   c. Reclaim water reservoir of 2,000 m^3 capacity is used to prevent processed water from mixing to natural water source.

3. **Noise and Vibration control:** Sound level for mining equipment's, beneficiation plant is regularly monitored. Use of blasting software for blast design and improvement in fragmentation. Ground vibrations are monitored on regular basis.

4 **Plantation**: Land acquired for mining activity is 483.23 hectares, out of this 170.85 is having plantation. During the year 21423 plantation done around Sheetla Mata area and Zawar Mines premises.

5 **Expenditure**: Year wise expenditure are reported to MoEF and its Regional Office at Lucknow. Total expenses during 2024-25 is **523.822 lac.**

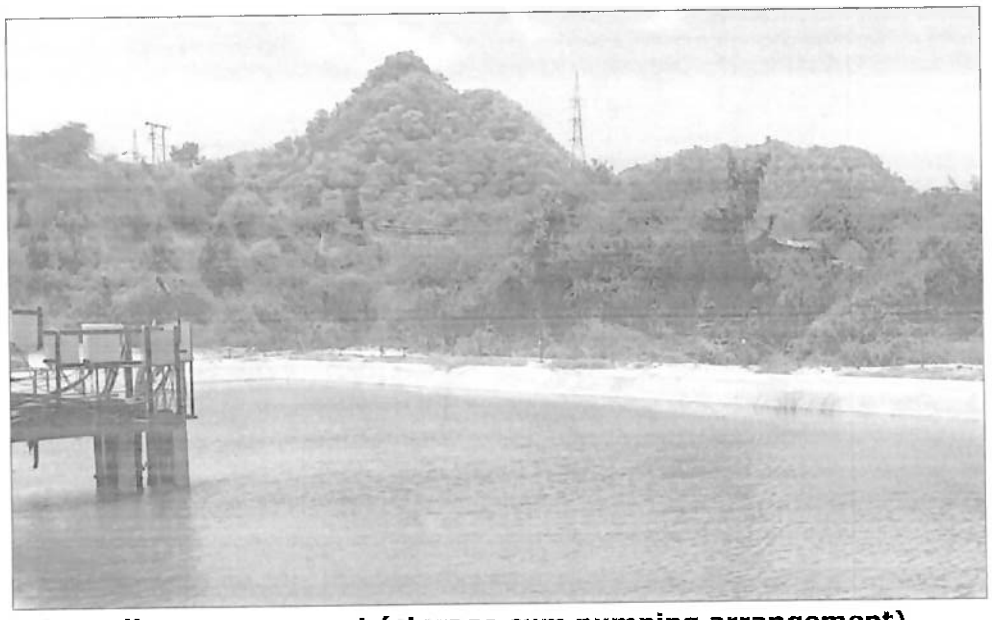
6. Environmental awareness:

Several environment awareness activities are organized by Zawar Mines Environment Team. Plantation drive Conducted at various locations of Zawar Mines: Balaria Mines, Mochia Mines, Baroi Mines, Zawarmala Mines, Mill Office, VTC. Also, Various competitions were organized on World Environment day.

Also, conducted training programs on Environment rules and regulations, waste management Climate change and other environment management aspects.

7. Water Conservation Measures: By deploying various water conservation measures Zawar Mines maintains Zero Effluent Discharge status. Following activities are being practiced and will be continued for monitoring and maintain zero discharge:

- Recycling of mine water for mining and beneficiation process.
- Wet Tailing of beneficiation plant is being processed in Dry Tailing Plant to produce dry tailing of 15-18 % moisture content, which is stacked in Tailing Storage facility. Water is reclaimed from Dry Tailing plant and is pumped back to beneficiation plant for reuse.
- Sewage Treatment Plants (300 KLD & 150 KLD) for domestic wastewater. Treated water is recycled in Beneficiation plant, surface exploration drilling, plantation etc.
- 5,000 m^3 Reservoir to collect and recycle the water.
- Zero discharge is being maintained.
- Regular monitoring of ground water.



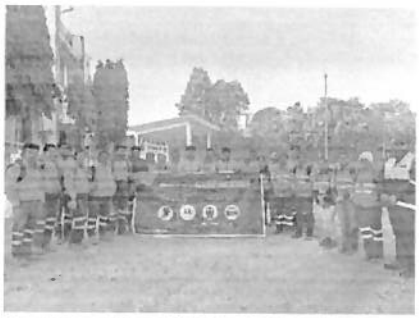
Recycling arrangement (storage cum pumping arrangement)

Sewage Treatment Plan

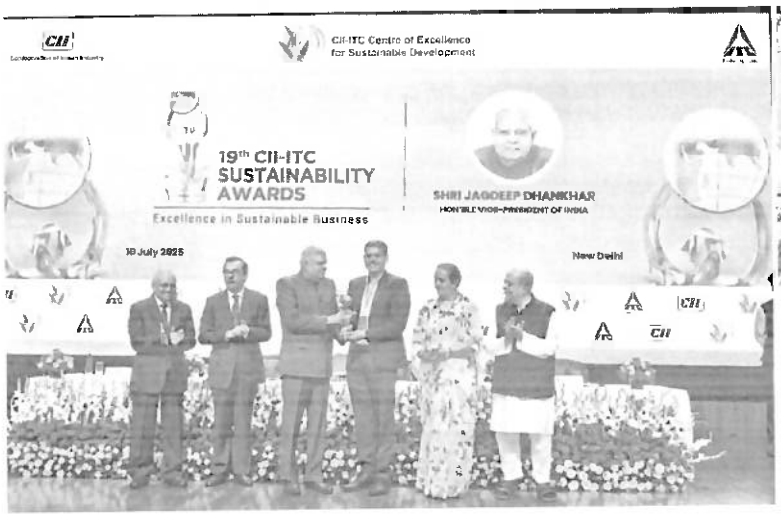
8. World Environment Day Celebration: World Environment Day was celebrated on **5th June 2024 & 2025**. Various competitions were organized, for example painting competition on Land restoration and beat the plastic, Quiz competition on environment & sustainability, poster, slogan & birdfeeder making, Environment games, Sustainability pledge, River cleaning drive etc. and prizes were distributed to the winners. Plantation was also done by participants at designated site.

9. World Ozone Day : On the occasion of world ozone day 16th September we have organized various quiz competition, Ozone Day awareness session and Pledge for school children.

10. Energy Conservation Week Celebration: Celebrated energy conservation week in which various events like poster, slogan & crossword competition were organized. Conserve to preserve hour organized in office premises. Organized **No Vehicle Day** on 14th December.



11. CII-ITC Sustainability Award- Zawar Mines received the CII-ITC Sustainability Award in Environment Excellence domain Presented by Hon'ble Vice President of India. The purpose of this award is to identify the characteristics of environmental awards and analyze their relevance to the environmental commitment of organizations



AMBIENT AIR QUALITY AT ZAWAR GROUP OF MINES

PM_{10} IN AMBIENT AIR ZAWAR GROUP OF MINES (µg/m^3) Limit for PM_{10}=100						
Month	**Mill Office**	**Mochia Mine**	**Balaria Mine**	**Admin Block**	**Zawarmala Mine**	**Baroi Mine**
Apr-24	63.9	60.3	56.9	69.4	62.3	58.7
May-24	71.2	60.4	59.8	70.7	66.1	63.5
Jun-24	64.5	57.9	56.1	68.4	58.3	61
Jul-24	58.4	51.2	46.2	62	50.9	62
Aug-24	64.7	58	56.2	64.1	60.7	60
Sep-24	68.2	55.6	54.6	70.5	58.4	65.2
Oct-24	63.7	58.4	50.9	72	53	61.9
Nov-24	63	59.3	51.9	68.8	54.7	62
Dec-24	59.4	52	50.6	63.8	54.9	58.8
Jan-25	66	61.2	57.5	70	58.6	65.3
Feb-25	70.3	64.4	62	68	66	62
Mar-25	63	56.3	54	68	60.1	63.3

PM2.5 IN AMBIENT AIR ZAWAR GROUP OF MINES (µg/m3) Limit for PM2.5=60						
Month	**Mill Office**	**Mochia Mine**	**Balaria Mine**	**Admin Block**	**Zawarmala Mine**	**Baroi Mine**
Apr-24	38	35.7	34.4	41.3	37.9	34
May-24	41.9	36.1	35.7	41.6	39.5	37.5
Jun-24	38	39.2	34.5	40.9	34.6	36.7
Jul-24	34.2	31	28.5	47.1	31	37.2
Aug-24	38.1	34.9	34	38.5	35.8	35.7
Sep-24	40.6	33.1	32.9	42	34.6	39
Oct-24	38.1	35.2	30.5	43.1	32	36.5
Nov-24	38	35	31.8	41	32	37
Dec-24	35.6	31.4	29.9	38.4	32.8	35
Jan-25	39.5	37	34.9	41.8	35	38.7
Feb-25	42.6	38.2	37	40.5	41	36.8
Mar-25	38.3	34	32	41	35.7	38

SO_2 IN AMBIENT AIR ZAWAR GROUP OF MINES (µg/m3) Limit for SOX=80						
Month	**Mill Office**	**Mochia Mine**	**Balaria Mine**	**Admin Block**	**Zawarmala Mine**	**Baroi Mine**
Apr-24	8.4	7.2	7	8.8	7.6	7.2
May-24	8.4	7.6	6.8	9.5	8.5	7.4
Jun-24	7.8	7.2	7.2	10.2	7.4	7.1
Jul-24	6.6	6.2	6	7.3	6.3	7.9
Aug-24	7.3	7	7	8.3	7.9	7
Sep-24	8.5	7.8	6.8	8.9	7.5	7.6
Oct-24	7.6	7.2	6.5	10.5	6.9	7.1
Nov-24	7.6	8.2	6.4	8.5	7	7.3
Dec-24	7	6.4	6.2	9.7	6.5	6.7
Jan-25	8.2	7.8	6.8	10.1	7.4	7.6
Feb-25	8.7	8.5	7.5	9.7	8.2	7.3
Mar-25	7.4	6.8	6.7	10.3	7.4	7

NOX IN AMBIENT AIR ZAWAR GROUP OF MINES (µg/m3) Limit for NOX=80						
Month	Mill Office	Mochia Mine	Balaria Mine	Admin Block	Zawarmala Mine	Baroi Mine
Apr-24	13.7	12.5	10.8	15.2	12.8	10.5
May-24	14.9	11.5	10.3	16.1	14.7	12.6
Jun-24	13	10.6	9.6	17.6	12	11.3
Jul-24	10.3	9.5	8.6	10.5	9.1	12
Aug-24	12.9	10.4	11	14.6	12.4	11
Sep-24	13.7	12	10.5	16.2	10.7	12
Oct-24	11.2	10.8	9.4	18.7	9.1	10.4
Nov-24	11.2	12.9	9.7	14.7	9.6	11
Dec-24	10.8	9.6	9.5	16.5	10.1	10
Jan-25	13.5	12	10.5	16.9	11.2	11.6
Feb-25	14.2	13.9	12.1	16.4	13.6	10.4
Mar-25	11.2	10.3	9.8	17	11.9	10.6

CO IN AMBIENT AIR ZAWAR GROUP OF MINES (µg/m3) Limit for CO=2000						
Month	Mill Office	Mochia Mine	Balaria Mine	Admin Block	Zawarmala Mine	Baroi Mine
Apr-24	802	687	687	1031	802	687
May-24	1031	916	687	1031	1031	687
Jun-24	916	802	573	1145	802	802
Jul-24	687	687	458	802	573	916
Aug-24	916	802	802	916	802	802
Sep-24	1031	916	687	1031	687	916
Oct-24	916	802	573	916	802	802
Nov-24	916	1031	573	916	802	802
Dec-24	687	687	573	916	573	687
Jan-25	1031	916	687	1031	687	916
Feb-25	1145	1031	802	916	916	802
Mar-25	802	573	687	1031	916	802

Pb IN AMBIENT AIR ZAWAR GROUP OF MINES (µg/m3) Limit for Pb=1						
Month	Mill Office	Mochia Mine	Balaria Mine	Admin Block	Zawarmala Mine	Baroi Mine
Apr-24	0.17	0.16	0.12	0.29	0.24	0.15
May-24	0.29	0.2	0.11	0.36	0.27	0.23
Jun-24	0.2	0.15	<0.1	0.33	0.16	0.18
Jul-24	0.13	0.12	<0.1	0.15	0.12	0.19
Aug-24	0.2	0.15	0.13	0.27	0.16	0.16
Sep-24	0.23	0.18	0.12	0.3	0.13	0.19
Oct-24	0.18	0.15	0.1	0.27	0.11	0.19
Nov-24	0.16	0.2	<0.10	0.27	0.1	0.15
Dec-24	0.13	0.12	0.1	0.26	0.11	0.11
Jan-25	0.24	0.18	0.12	0.25	0.13	0.21
Feb-25	0.28	0.22	0.15	0.24	0.2	0.16
Mar-25	0.14	0.11	<0.10	0.29	0.13	0.12

STACK MONITORING AT ZAWAR GROUP OF MINES

All units are in mg/Nm^3

Month	Mochia Crusher Stack	Balaria Crusher Stack	DE – 2 (Mill – 2)	D.G. Set Stack			
Parameters	**PM**	**PM**	**PM**	**PM**	**NO_x**	**CO**	**NMHC**
Prescribed Limits by RSPCB	**150**	**150**	**150**	**75**	**710**	**150**	**100**
Apr-24	27.4	26.3	25	-	-	-	-
May-24	28.5	27.9	29.5	-	-	-	-
Jun-24	26.4	26.5	27.7	46.4	560	116.3	68.2
Jul-24	28.6	26.7	29	-	-	-	-
Aug-24	27.7	26.5	26	-	-	-	-
Sep-24	27.2	27.5	28.7	48.9	590	104.1	57.8
Oct-24	29.8	25.2	28	-	-	-	-
Nov-24	28.1	26.8	25.5	-	-	-	-
Dec-24	26.5	28.3	27.8	44.6	620	123.4	73.1
Jan-25	25.5	27.5	26.4	-	-	-	-
Feb-25	26.9	27	27.8	-	-	-	-
Mar-25	27	26.5	27.2	47	585	110.4	64.9

Ground Water wells quality at Zawar Group of Mines

Ground Water Quality at Zawar Group of Mines								
May-24								
S.No.	Parameters	IS : 10500:2012		Zawarmata Hand pump	Zawarmata Well	Naka Well	Mahadev ki Nal Well	Tiger Well
		Acceptable	Permissible					
1	pH	6.5-8.5	No Relaxation	7.92	7.76	7.97	7.08	7.77
2	Chlorides	250	1000	67.98	83.97	51.98	67.98	77.98
3	TSS	-	-	<5	<5	<5	<5	<5
4	Zinc	5	15	0.05	0.06	0.02	0.15	0.03
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	1.0	No Relaxation	0.03	0.04	0.02	0.06	0.04
7	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01
8	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003
9	Cyanides	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
10	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01

13	Total Organic Carbon	-	-	0.8	1.0	0.5	1.3	1.0

Except pH all values are in mg/lt.

Ground Water Quality at Zawar Group of Mines

Aug-24

S.No.	Parameters	IS : 10500:2012		Zawarmata Hand pump	Zawarmata Well	Naka Well	Mahadev ki Nal Well	Tiger Well
		Acceptable	Permissible					
1	pH	6.5-8.5	No Relaxation	7.76	7.92	8.05	7.67	7.92
2	Chlorides	250	1000	59.98	85.97	63.98	69.98	65.98
3	TSS	-	-	<5	<5	<5	<5	<5
4	Zinc	5	15	0.04	0.04	0.02	0.12	0.02
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	1.0	No Relaxation	0.03	0.03	0.03	0.05	0.03
7	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01
8	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003
9	Cyanides	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
10	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
13	Total Organic Carbon	-	-	0.6	0.8	<0.5	0.9	0.8

Except pH all values are in mg/lt.

Ground Water Quality at Zawar Group of Mines								
Nov-24								
S.No.	Parameters	IS : 10500:2012		Zawarmata Hand pump	Zawarmata Well	Naka Well	Mahadev ki Nal Well	Tiger Well
		Acceptable	Permissible					
1	pH	6.5-8.5	No Relaxation	7.90	8.24	8.0	7.98	8.01
2	Chlorides	250	1000	59.98	109.97	57.98	95.97	83.97
3	TSS	-	-	<5	<5	<5	<5	<5
4	Zinc	5	15	0.06	0.05	0.03	0.09	0.04
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	1.0	No Relaxation	0.04	0.04	0.03	0.05	0.05
7	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01
8	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003
9	Cyanides	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
10	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
13	Total Organic Carbon	-	-	0.5	1.2	<0.5	0.7	1.1
Except pH all values are in mg/lt.								

Ground Water Quality at Zawar Group of Mines								
Dec-24								
S.No.	Parameters	IS : 10500:2012		Zawarmata Hand pump	Zawarmata Well	Naka Well	Mahadev ki Nal Well	Tiger Well
		Acceptable	Permissible					
1	pH	6.5-8.5	No Relaxation	7.52	7.96	7.74	7.23	7.48
2	Chlorides	250	1000	57.98	97.97	55.98	75.98	77.98
3	TSS	-	-	<5	<5	<5	<5	<5
4	Zinc	5	15	0.04	0.05	0.02	0.14	0.04
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	1.0	No Relaxation	0.03	0.04	0.02	0.04	0.04
7	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01
8	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003
9	Cyanides	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
10	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
13	Total Organic Carbon	-	-	0.8	1	<0.5	1.2	1.6
Except pH all values are in mg/lt.								

Ground Water Quality at Zawar Group of Mines								
Jan-25								
S.No.	Parameters	IS : 10500:2012		Zawarmata Hand pump	Zawarmata Well	Naka Well	Mahadev ki Nal Well	Tiger Well
		Acceptable	Permissible					
1	pH	6.5-8.5	No Relaxation	7.84	8.20	8.17	7.11	7.94
2	Chlorides	250	1000	61.98	91.97	61.98	67.98	75.98
3	TSS	-	-	<5	6	<5	9	<5
4	Zinc	5	15	0.05	0.03	0.03	0.14	0.03
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	1.0	No Relaxation	0.04	0.04	0.03	0.08	0.05
7	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01
8	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003
9	Cyanides	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
10	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01

13	Total Organic Carbon	-	-	1	1	<0.5	2.5	1
Except pH all values are in mg/lt.								

Ground Water Quality at Zawar Group of Mines								
Mar-25								
S.No.	Parameters	IS : 10500:2012		Zawarmata Hand pump	Zawarmata Well	Naka Well	Mahadev ki Nal Well	Tiger Well
		Acceptable	Permissible					
1	pH	6.5-8.5	No Relaxation	7.94	7.78	8.16	7.65	7.91
2	Chlorides	250	1000	67.98	95.97	39.99	77.98	71.98
3	TSS	-	-	<5	<5	<5	<5	<5
4	Zinc	5	15	0.20	0.13	0.13	0.23	0.11
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	1.0	No Relaxation	0.03	0.03	<0.01	0.05	0.03
7	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01
8	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003
9	Cyanides	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
10	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
13	Total Organic Carbon	-	-	0.8	<1	<0.5	1.6	1.3
Except pH all values are in mg/lt.								

Piezometer Well Water Quality at Zawar Group of Mines

Piezometer Well Water Quality at Zawar Group of Mines									
Jun-24									
S.No.	Parameters	IS : 10500:2012		Near Bridge Vala Patel House (Pz – 01)	Near In front of Old Tailing Dam (Pz –02)	Near Tailing Dam Pump House (Pz – 03)	Near Magazine Area (Pz -04)	Near Below Tailing Pipe Lines (Pz –05)	Near Way to Tailing Dam Road (Pz –06)
		Acceptable	Permissible						
1	pH	6.5-8.5	No Relaxation	7.63	7.64	7.15	7.05	7.46	7.26
2	Chlorides	250	1000	53.98	65.98	107.97	53.98	49.98	57.98
3	Zinc	5	15	0.09	0.14	0.07	0.10	0.03	<0.01
4	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
5	Iron	1.0	No Relaxation	0.03	0.04	0.07	0.04	0.10	0.04
6	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
7	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
8	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
9	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
10	Cyanide	0.05	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
12	Total Organic Carbon	-	-	1.3	1.9	2.7	2.7	0.5	2.2
Except pH all values are in mg/lt									

Piezometer Well Water Quality at Zawar Group of Mines									
Sep-24									
S.No.	Parameters	IS : 10500:2012		Near Bridge Vala Patel House (Pz – 01)	Near In front of Old Tailing Dam (Pz –02)	Near Tailing Dam Pump House (Pz – 03)	Near Magazine Area (Pz -04)	Near Below Tailing Pipe Lines (Pz –05)	Near Way to Tailing Dam Road (Pz –06)
		Accept able	Permissible						
1	pH	6.5-8.5	No Relaxation	7.58	7.22	7.33	7.27	7.91	7.44
2	Chlorides	250	1000	53.98	71.98	189.94	59.98	39.98	33.99
3	Zinc	5	15	0.13	0.17	0.11	0.12	0.04	0.03
4	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
5	Iron	1.0	No Relaxation	0.04	0.04	0.08	0.04	0.03	0.03
6	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
7	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
8	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
9	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
10	Cyanide	0.05	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
12	Total Organic Carbon	-	-	2.2	2.5	3.3	3.0	0.6	2.0
Except pH all values are in mg/lt									

Piezometer Well Water Quality at Zawar Group of Mines

Dec-24

S.No.	Parameters	IS : 10500:2012		Near Bridge Vala Patel House (Pz – 01)	Near In front of Old Tailing Dam (Pz –02)	Near Tailing Dam Pump House (Pz – 03)	Near Magazine Area (Pz -04)	Near Below Tailing Pipe Lines (Pz –05)	Near Way to Tailing Dam Road (Pz –06)
		Acceptable	Permissible						
1	pH	6.5-8.5	No Relaxation	8.39	7.48	6.97	6.81	7.82	6.85
2	Chlorides	250	1000	45.98	63.98	95.97	61.98	35.99	45.98
3	Zinc	5	15	0.07	0.13	0.07	0.10	0.02	0.05
4	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
5	Iron	1.0	No Relaxation	0.02	0.03	0.05	0.04	0.02	0.04
6	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
7	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
8	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
9	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
10	Cyanide	0.05	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
12	Total Organic Carbon	-	-	2	2	2.9	2.4	0.8	3.3

Except pH all values are in mg/lt

Piezometer Well Water Quality at Zawar Group of Mines

Mar-25

S.No.	Parameters	IS : 10500:2012		Near Bridge Vala Patel House (Pz – 01)	Near In front of Old Tailing Dam (Pz –02)	Near Tailing Dam Pump House (Pz – 03)	Near Magazine Area (Pz -04)	Near Below Tailing Pipe Lines (Pz –05)	Near Way to Tailing Dam Road . (Pz –06)
		Acceptable	Permissible						
1	pH	6.5-8.5	No Relaxation	8.15	7.60	7.26	7.22	7.73	7.51
2	Chlorides	250	1000	153.95	75.98	63.98	59.98	45.99	45.98
3	Zinc	5	15	0.69	0.15	0.38	<0.01	0.03	0.10
4	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
5	Iron	1.0	No Relaxation	0.03	0.03	0.06	0.04	0.02	0.02
6	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
7	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
8	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
9	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
10	Cyanide	0.05	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
12	Total Organic Carbon	-	-	4.2	2.4	4.1	1.7	1.2	2.7

Except pH all values are in mg/lt

Ground Water Level Monitoring at Zawar Group of Mines

S.No.	Piezometers	Apr-24(m)	May-24(m)	Jun-24(m)	Jul-24 (m)	Aug-24 (m)	Sep-24(m)
1.	Near Bridge (Vala Patel House) (Pz – 01)	1.88	2.21	3.42	4.09	1.30	1.05
2.	Near In front of Old Tailing Dam (Pz – 02)	5.76	5.86	5.96	6.40	3.50	3.25
3.	Near Tailing Dam Pump House (Pz – 03)	3.04	3.21	3.39	4.08	2.05	2.02
4.	Near Magazine Area (Pz – 04)	4.96	5.14	5.27	5.87	3.63	3.45
5.	Near Below Tailing Pipe Lines (Pz – 05)	2.78	3.19	3.34	4.05	2.35	2.25
6.	Near Way to Tailing Dam Road (Pz – 06)	2.71	2.93	3.16	3.75	2.12	2.05

S.No.	Piezometers	Oct-24(m)	Nov-24(m)	Dec-24(m)	Jan-25 (m)	Feb-25 (m)	Mar-25(m)
1.	Near Bridge (Vala Patel House) (Pz – 01)	1.17	1.30	1.43	1.5	2.15	2.22
2.	Near In front of Old Tailing Dam (Pz – 02)	3.40	3.53	3.66	1.73	2.04	2.27
3.	Near Tailing Dam Pump House (Pz – 03)	2.15	2.27	2.68	2.71	2.82	2.91
4.	Near Magazine Area (Pz – 04)	3.58	3.73	3.86	3.88	4.10	4.38
5.	Near Below Tailing Pipe Lines (Pz – 05)	2.35	2.48	2.58	2.71	2.81	3.02
6.	Near Way to Tailing Dam Road (Pz – 06)	2.15	2.25	2.35	2.48	2.71	2.83

S.No.	Wells in the area	Apr-24(m)	May-24(m)	Jun-24(m)	Jul-24 (m)	Aug-24 (m)	Sep-24(m)
1.	Zawarmata Well	5.81	7.01	7.38	2.01	1.79	1.65
2.	Mahadev ki Nal Well	1.62	1.98	2.26	0.59	0.42	0.41

S.No.	Wells in the area	Oct-24(m)	Nov-24(m)	Dec-24(m)	Jan-25 (m)	Feb-25 (m)	Mar-25(m)
1.	Zawarmata Well	3.76	3.41	3.805	3.829	4.083	4.172
2.	Mahadev ki Nal Well	1.55	1.09	1.409	1.416	1.633	1.880

ANALYSIS OF MINE WATER AT ZAWAR GROUP OF MINES

1. Mochia Mine Water Report

Parameters	Effluent Standards as per IS:2490	Apr-24	Jul-24	Oct-24	Jan- 25
pH	5.5-9.0	6.67	7.06	7.49	8.18
Chlorides	1000	169.95	189.94	269.92	179.94
Hardness	-	588	560	584	450
Total Solids	2200	1133	1239	1668	1026
Total D.S.	2100	1121	1222	1647	1013
Total S.S.	100	12	17	21	13
Zinc	5.0	0.22	0.16	0.20	0.14
Lead	0.10	<0.01	<0.01	<0.01	<0.01
Iron	3.0	0.12	0.10	0.14	0.07
Copper	3.0	<0.01	<0.01	<0.01	<0.01
Cadmium	2.0	<0.003	<0.003	<0.003	<0.003
Cyanide	0.2	<0.01	<0.01	<0.01	<0.01
Except pH all values are in mg/lt					

2. Balaria Mine Water Report

Parameters	Effluent Standards as per IS:2490	Apr-24	Jul-24	Oct-24	Jan- 25
pH	5.5-9.0	7.25	7.78	7.11	7.76
Chlorides	1000	265.92	299.91	123.96	355.89
Hardness	-	536	496	596	388
Total Solids	2200	1371	1226	988	1588
Total D.S.	2100	1356	1220	973	1578
Total S.S.	100	15	6	15	10
Zinc	5.0	0.50	0.26	0.36	0.44
Lead	0.10	<0.01	<0.01	<0.01	<0.01
Iron	3.0	0.12	0.08	0.10	0.12
Copper	3.0	<0.01	<0.01	<0.01	<0.01
Cadmium	2.0	<0.003	<0.003	<0.003	<0.003
Cyanide	0.2	<0.01	<0.01	<0.01	<0.01
Except pH all values are in mg/lt					

3. Zawarmala Mine Water Report

Parameters	Effluent Standards as per IS:2490	Apr-24	Jul-24	Oct-24	Jan- 25
pH	5.5-9.0	6.87	6.62	7.44	7.70
Chlorides	1000	173.95	219.93	275.91	335.90
Hardness	-	556	520	556	596
Total Solids	2200	1154	1297	1476	1657
Total D.S.	2100	1144	1289	1462	1647
Total S.S.	100	10	8	14	10
Zinc	5.0	0.53	0.38	0.42	0.56
Lead	0.10	<0.01	<0.01	<0.01	<0.01
Iron	3.0	<0.14	0.08	0.11	0.13
Copper	3.0	<0.01	<0.01	<0.01	<0.01
Cadmium	2.0	<0.003	<0.003	<0.003	<0.003
Cyanide	0.2	<0.01	<0.01	<0.01	<0.01
Except pH all values are in mg/lt					

4. Baroi Mine Water Report

Parameters	Effluent Standards as per IS:2490	Apr-24	Jul-24	Oct-24	Jan- 25
pH	5.5-9.0	7.48	7.59	6.96	8.22
Chlorides	1000	213.95	287.91	303.91	179.94
Hardness	-	596	540	576	450
Total Solids	2200	1645	1594	1605	1065
Total D.S.	2100	1625	1582	1589	1053
Total S.S.	100	20	12	16	12
Zinc	5.0	0.17	0.12	0.16	0.10
Lead	0.10	<0.01	<0.01	<0.01	<0.01
Iron	3.0	0.08	0.11	0.16	0.06
Copper	3.0	<0.01	<0.01	<0.01	<0.01
Cadmium	2.0	0.003	<0.003	<0.003	<0.003
Cyanide	0.2	<0.01	<0.01	<0.01	<0.01
Except pH all values are in mg/lt					

Analysis of Tailing Dam Reclaim Water
Zawar Group of Mines

Except pH all values are in ppm.

SN	Parameters	Effluent Standards as per IS:2490	Apr- 24	May- 24	Jun- 24	Jul-24	Aug-24	Sep-24	Oct- 24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25
1	pH	5.5-9.0	7.29	7.49	7.80	7.18	7.70	7.74	7.25	7.56	7.23	7.45	7.57	7.29
2	Chlorides	-	359.89	319.90	53.98	63.98	81.97	97.97	109.97	97.97	103.97	139.96	111.97	129.96
3	TSS	100	12	12	10	15	16	15	23	18	19	9	14	13
4	Oil and Grease	10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
5	BOD 3 days at 27°C	30	10.6	10.5	3.6	4.5	9.7	4.2	6.7	4	4	5	6.1	5.5
6	COD	250	63.2	63.1	13.4	16.7	55.2	18.6	25.2	12.9	14.1	17.8	25.5	12
7	Zinc	5	1.20	1.09	0.25	0.32	1.15	0.16	0.19	0.10	0.10	0.23	0.16	0.66
8	Lead	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
9	Iron	3	0.12	0.12	0.03	0.04	0.12	0.02	0.02	0.06	0.02	0.03	0.04	0.02
10	Copper	3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cadmium	2	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
12	Cyanides	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
13	Nickel	3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
14	Cobalt	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
15	Chromium	2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

HINDUSTAN ZINC LIMITED

Ashok Nagar STP Analysis Report for 2024-25

Except pH all value are in mg/lt

Parameters	Limits As per CTO	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25
Total Suspended Solids	**100**	11	8	6	8	7	8	7	6	6	15	14	<5
pH Value	**5.5-9.0**	7.29	7.40	7.23	7.40	7.34	7.15	7.40	7.40	7.22	7.55	7.60	7.57
Oil and Grease	**10**	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Residual Chlorine	**1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ammonical Nitrogen (as N)	**50**	5.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Kjeldahl Nitrogen (as N)	**100**	6.7	6.3	5.8	6.1	5.6	5.2	5	<5	5.7	<5	<5	<5
Biochemical Oxygen Demand (3 days at 27°C)	**30**	10	9	7	6	8	9	8	7	8	7	8	9
Sulphide (as S)	**2**	<0.5	<.5	<.5	<0.5	<.5	<.5	<0.5	<0.5	<0.5	<0.5	<.5	<.5
Nitrate Nitrogen	**10**	3.3	3.6	4.2	4.4	4.2	4.8	4	5.7	4.2	4.6	4.24	7.34
Chlorides	**1000**	113.9	119.9	149.9	99.9	125.9	119.9	99.9	139.9	125.9	139.9	125.9	133.9
Sulphates	**1000**	340.5	296.4	210.5	192.7	263.5	189.6	210.2	210.2	167.4	210.2	356.4	192.6
Chemical Oxygen Demand	**250**	88	45	40	30	40	47	40	40	43	40	47	40

Ram Nagar STP Analysis Report for 2024-25

Except pH all value are in mg/lt

Parameters	Limits As per CTO	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan- 25	Feb- 25	Mar- 25
Total Suspended Solids	**100**	13	7	5	9	8	5	6	6	6	13	16	<4
pH Value	**5.5-9.0**	7.72	7.53	7.40	7.55	7.12	7.27	7.53	7.50	7.10	7.44	7.70	8.19
Oil and Grease	**10**	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Residual Chlorine	**1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ammonical Nitrogen (as N)	**50**	6.8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Kjeldahl Nitrogen (as N)	**100**	12.7	5.8	7.2	6.6	8.2	5.8	5	<5	5.1	<5	<5	<5
Biochemical Oxygen Demand (3 days at 27°C)	**30**	13	7	8	9	8	6	7	5	6	9	7	5
Sulphide (as S)	**2**	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<0.5	<0.5	<.5	<.5	<.5
Nitrate Nitrogen	**10**	3.7	3.9	5.4	4.7	4.4	4	3.7	5.2	3.8	3.52	4.97	7.54
Chlorides	**1000**	133.9	165.9	159.9	129.9	147.9	129.9	99.9	149.9	141.9	189.9	119.9	171.9
Sulphates	**1000**	482	394.7	296.4	180.7	288.7	210.3	165.1	261.6	197.2	218.7	296.3	243
Chemical Oxygen Demand	**250**	119	38	43	47	43	40	35	30	37	48	42	20