



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

**HINDUSTAN ZINC LIMITED**  
**हिन्दुस्तान जिंक लिमिटेड**  
Telephone - (0294) 2723400

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

Ref.: - HZL/ZM/ENV/2024/ 280

Date - 08.08.2024

**By Registered**

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

Sub.: Environmental Statement for the year 2023-24 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 **2023-24** for **Zawar Group of Mines**

Thanking you

Yours Sincerely

**Ram Murari**  
**(CEO- IBU, Zawar)**

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)

**FORM – V  
(See Rule-14)**

**Environmental Statement for the financial year ending the 31<sup>st</sup> MARCH, 2024**

**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. Ram Murari (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	10.08.2023

**PART – B**

**Water and Raw material Consumption**

- (i) Water consumption m<sup>3</sup>/d  
Process – 1746.07 m<sup>3</sup>/d  
Cooling - NA  
Domestic- 3977.62 m<sup>3</sup>/d

Name of product	Process fresh water consumption per unit of product output.**		
	During the previous financial year (2022-23)	During the current financial year (2023-24)	
	(1)	(2)	
(1) Lead - Zinc concentrate	0.29 m <sup>3</sup> /MT*	0.24 m <sup>3</sup> /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 (2022-23)	during the current financial year (2023-24)
Copper Sulphate	Lead - Zinc concentrate	110.86	131.44
MIBC + Frothosol		29.16	26.04
Xanthate		30.43	26.28
Sodium Cyanide		3.93	1.67
Lime		3.25	1.04

\*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	2022-23 (MT)	2023-24 (MT)
Ore Treatment	4289517	4008593
Total Concentrate	295508	321445

**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 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 (SPM)			
Mochia Crusher	16.1 kg/day	32.19 mg/Nm <sup>3</sup>	78.54 % lesser than standard
Balaria Crusher	15 kg/day	30.27 mg/Nm <sup>3</sup>	79.82 % lesser than standard
DE-2 (Mill-2)	6.9 kg/day	29.43 mg/Nm <sup>3</sup>	80.38 % lesser than standard
DG- Set		48.23 mg/Nm <sup>3</sup>	35.69 % lesser than standard

**PART – D****HAZARDOUS WASTES**

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

Hazardous wastes	Total Quantity (MT)	
	during the previous financial year (2022-23)	during the current financial year (2023-24)
(a) From Process		
Decontaminated drums	337 Nos. (Gen.), 1.8 MT (Disposed)	135 Nos. (Gen.), 0.64 MT (Disposed)
Waste oil sold	61.94 MT	19.42 MT
Used Oil sold	ZM- 287.18 MT ZM CPP- 4.96 MT	ZM- 290.083 MT ZM CPP- 5.14 MT
Scrap batteries sold	4.54 MT	9.68 MT
(b) From pollution control facilities		
	Nil	Nil

**PART – E****Solid Wastes**

		Total Quantity (MT)		
		during the previous financial year (2022-23)	during the current financial year (2023-24)	
A	From process (Tailings)*	3994009 MT	3687148 MT	
B	From pollution control facility **	Nil	Nil	
C	1-Quantity recycled or reutilized	Nil	Nil	
	2-Solid	Nil	Nil	
	3-Disposed***			
	Decontaminated drums	337 Nos. (Gen.), 1.8 MT (Disposed)	135 Nos. (Gen.), 0.64MT (Disposed)	
	Waste Oil sold	61.94 MT	19.42 MT	
	Used Oil sold	ZM- 287.18 MT ZM CPP- 4.96 MT	ZM- 290.083 MT ZM CPP- 5.14 MT	
	Scrap batteries sold	4.54 MT	9.68 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- **3687148 MT** having following mineralogical composition

Particular	% Content
Total Lead	0.10 %
Total Zinc	0.08 %
Total Iron	2.51 %
Insoluble	32.82 %
Cadmium	0.0008 %

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, **516737** MT of tailing backfilled in mine void.

**Waste rock-** Total generation – **838489 MT**

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.

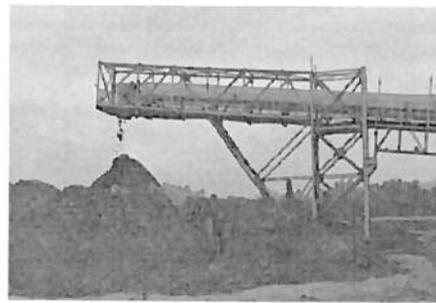
**PART – G**

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**

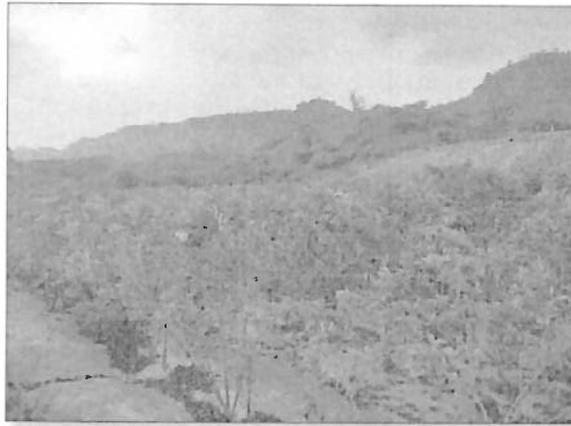
- De-dusting systems at both the secondary crushers at Beneficiation Plant (Mochia & Balaria crushers & New Crusher).
- Installation of water sprinklers at Ore Stockpile and other transfer points.



**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<sup>3</sup> 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 6000 plantation done opposite to Zawar Nikunj & CPP area.
5. **Expenditure:** Year wise expenditure are reported to MoEF and its Regional Office at Lucknow. Total expenses during 2023-24 is **863.32 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 waste water. Treated water is recycled in Beneficiation plant, surface exploration drilling, plantation etc.
- 5,000 m<sup>3</sup> 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. Nature Walk-** Conducted Nature Walk among the hills and forests of Zawar in association with IUCNN in April'23. The employees with their families observed the rich flora and fauna.



**9. World Environment Day Celebration:** World Environment Day was celebrated on **5<sup>th</sup> June 2023 & 2024**. Various competitions were organized, for example painting competition on Land restoration, Quiz competition on environment & sustainability, poster, slogan & birdfeeder making competition and prizes were distributed to the winners. Plantation was also done by participants at designated site.





**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 14<sup>th</sup> December.



**11. CII National Award-** Zawar Mines received the CII National award for Environment best practice i.e. India's first Dry Tailing Plant. The purpose of this award is to identify the characteristics of environmental awards and analyze their relevance to the environmental commitment of organizations



**हिंद जिंक की जावर माइंस को पर्यावरण के क्षेत्र में सीआईआई राष्ट्रीय पुरस्कार**



भूपुरी नखखोसि/वदयपुर। हिंदुस्तान जिंक की जावर माइंस की इनोवेटिव प्रोजेक्ट श्रेणी में पर्यावरण सर्वोत्तम कार्यप्रणाली के लिए प्रतिष्ठित सीआईआई राष्ट्रीय पुरस्कार 2023 से सम्मानित किया गया है। सम्मान की घोषणा पुणे, महाराष्ट्र में आयोजित ग्रोनको सम्मेलन 2023 में की गई थी। इस अवसर पर हिंदुस्तान जिंक के मुख्य कार्यकारी अधिकारी अरुण मिश्रा ने कहा कि एक जिम्मेदार खनन

कंपनी के रूप में हम पर्यावरणीय उत्कृष्टता की दिशा में निरंतर प्रयासरत हैं। हिंदुस्तान जिंक को यह पुरस्कार उसके जावर शिवत ड्राई टैलिंग प्लांट के लिए प्रदान किया गया। वैश्वीय समूह की कंपनी हिंदुस्तान जिंक इस सम्मान के साथ ही पूर्व में प्राप्त और खनन क्षेत्र के उत्तम प्रसिद्धि को स्वीकार कर दोबारा स्टेनेबिलिटी असेसमेंट में वैश्विक स्तर पर तीसरा और एशिया प्रसांत क्षेत्र में पहला स्थान दिया गया है।

**AMBIENT AIR QUALITY AT ZAWAR GROUP OF MINES**

<b>PM<sub>10</sub> IN AMBIENT AIR ZAWAR GROUP OF MINES (µg/m<sup>3</sup>) Limit for PM<sub>10</sub>=100</b>						
Month	Mill Office	Mochia Mine	Balaria Mine	Admin Block	Zawarmala Mine	Baroi Mine
Apr-23	76.53	77.12	68.69	72.47	62.33	76.57
May-23	75.19	74.13	79.55	72.46	73.25	74.15
Jun-23	71.43	75.49	68.09	62.57	68.02	60.48
Jul-23	52.88	49.27	55.82	48.69	40.31	43.49
Aug-23	55.51	53.99	72.49	54.63	58.03	75.59
Sep-23	50.09	49.34	59.67	55.24	63.43	56.64
Oct-23	56.5	59	55.6	68.5	63	57.3
Nov-23	61	63.9	58	70.1	66.7	65.2
Dec-23	58.6	56.4	55.2	65.3	63.3	59.7
Jan-24	66.2	62.1	58.4	74.2	66.1	60.9
Feb-24	68.1	67.1	56.1	72.9	62.9	65.7
Mar-24	58.6	56.4	55.2	65.3	63.3	59.7

<b>PM<sub>2.5</sub> IN AMBIENT AIR ZAWAR GROUP OF MINES (µg/m<sup>3</sup>) Limit for PM<sub>2.5</sub>=60</b>						
Month	Mill Office	Mochia Mine	Balaria Mine	Admin Block	Zawarmala Mine	Baroi Mine
Apr-23	38.2	32.32	25.82	30.04	34.77	34.79
May-23	30.89	31.7	33.75	29.99	32.14	33.66
Jun-23	28.4	32.38	31.92	27.41	41.78	23.33
Jul-23	23.35	21.08	23.94	24.36	24.53	22.51
Aug-23	21.85	24.94	31.97	25.76	25.26	24.92
Sep-23	28	26.19	29.9	23.68	25.12	28.01
Oct-23	34	35.2	33.4	41.6	38	34.9
Nov-23	36.3	38	35	42.5	40.5	39.5
Dec-23	35	34	33.7	38.9	37.8	35.6
Jan-24	41.5	37	35.1	45	40.5	35.8
Feb-24	42.6	38.2	34.5	44.2	37.1	39
Mar-24	35	34	33.7	38.9	37.8	35.6

<b>SO<sub>2</sub> IN AMBIENT AIR ZAWAR GROUP OF MINES (µg/m<sup>3</sup>) Limit for SO<sub>X</sub>=80</b>						
Month	Mill Office	Mochia Mine	Balaria Mine	Admin Block	Zawarmala Mine	Baroi Mine
Apr-23	6.07	6.22	6.69	4.36	4.22	3.59
May-23	5.33	4.72	5.42	4.61	5	3.28
Jun-23	3.78	3.63	3.85	5.45	4.29	4.8
Jul-23	5.04	5.46	6.41	6.29	5.96	5.98
Aug-23	7.06	7.87	6.92	6.95	5.88	6.27
Sep-23	5.59	5.03	5.23	5.61	5.3	5.1
Oct-23	7.3	7.1	7	8.5	7.5	7
Nov-23	7.7	8.5	7.4	8.1	7.9	7.8
Dec-23	7	7.9	7	7.9	7.5	6.8
Jan-24	9.2	7.6	7.2	9.6	8.2	7.4
Feb-24	8.7	7.8	7	10.3	7.5	7.9
Mar-24	7	7.9	7	7.9	7.5	6.8

<b>NOX IN AMBIENT AIR ZAWAR GROUP OF MINES (<math>\mu\text{g}/\text{m}^3</math>) Limit for NOX=80</b>						
Month	Mill Office	Mochia Mine	Balaria Mine	Admin Block	Zawarmala Mine	Baroi Mine
Apr-23	15.01	14.97	14.29	13.97	13.72	15.13
May-23	14.51	14.66	14.77	14.76	14.59	14.51
Jun-23	14.33	14.47	15.03	14.55	14.43	14.69
Jul-23	11.37	11.79	12.81	11.13	10.99	10.58
Aug-23	14.97	16.61	14.07	17.6	16.04	15.79
Sep-23	14.94	14.79	14.36	14.28	14.98	14.35
Oct-23	10.4	11	9.2	16.7	11.9	11.2
Nov-23	12.9	15.4	11.5	14.4	13.4	13.7
Dec-23	11.3	13.2	10.4	13.4	11.9	11.6
Jan-24	15	13.4	11.5	17.5	14.6	12.6
Feb-24	14	13.7	10.2	18.6	12.2	14.2
Mar-24	11.3	13.2	10.4	13.4	11.9	11.6

<b>CO IN AMBIENT AIR ZAWAR GROUP OF MINES (<math>\mu\text{g}/\text{m}^3</math>) Limit for CO=2000</b>						
Month	Mill Office	Mochia Mine	Balaria Mine	Admin Block	Zawarmala Mine	Baroi Mine
Apr-23	410	350	320	380	320	350
May-23	410	380	350	360	370	330
Jun-23	280	340	310	310	360	370
Jul-23	280	270	310	290	250	240
Aug-23	320	380	310	350	390	370
Sep-23	370	330	380	360	330	320
Oct-23	687	802	687	1031	916	687
Nov-23	802	802	802	916	916	916
Dec-23	687	687	687	802	802	802
Jan-24	916	916	802	1260	916	802
Feb-24	802	1031	687	1145	802	916
Mar-24	687	687	687	802	802	802

<b>Pb IN AMBIENT AIR ZAWAR GROUP OF MINES (<math>\mu\text{g}/\text{m}^3</math>) Limit for Pb=1</b>						
Month	Mill Office	Mochia Mine	Balaria Mine	Admin Block	Zawarmala Mine	Baroi Mine
Apr-23	0.09	0.1	0.09	0.09	0.1	0.1
May-23	0.09	0.09	0.09	0.09	0.1	0.08
Jun-23	0.1	0.1	0.12	0.09	0.09	0.1
Jul-23	0.12	0.12	0.13	0.13	0.14	0.13
Aug-23	0.07	0.07	0.08	0.07	0.08	0.07
Sep-23	0.08	0.08	0.08	0.08	0.08	0.08
Oct-23	0.14	0.02	0.13	0.29	0.23	0.18
Nov-23	0.19	0.26	0.16	0.33	0.26	0.27
Dec-23	0.15	0.22	0.13	0.27	0.22	0.2
Jan-24	0.21	0.22	0.15	0.35	0.26	0.22
Feb-24	0.24	0.26	0.13	0.32	0.2	0.27
Mar-24	0.15	0.22	0.13	0.27	0.22	0.2

**STACK MONITORING AT ZAWAR GROUP OF MINES**

All units are in mg/Nm<sup>3</sup>

Month	Mochia Crusher Stack	Balaria Crusher Stack	DE - 2 (Mill - 2)	D.G. Set Stack			
	SPM	SPM	SPM	SPM	NO <sub>x</sub>	CO	NMHC
Parameters Limits Prescribed by RSPCB	150	150	150	75	710	150	100
Apr-23	25.44	35.73	36.67	-	-	-	-
May-23	60.1	48.84	38.41	-	-	-	-
Jun-23	25.55	34.16	19.6	-	-	-	-
Jul-23	28.23	22.49	25.99	-	-	-	-
Aug-23	40.8	31.4	31.39	-	-	-	-
Sep-23	33.98	31.82	44.95	46.86	295	117	47
Oct-23	28.4	27.1	26.3	-	-	-	-
Nov-23	29.1	25.4	28.5	-	-	-	-
Dec-23	26.8	23	24.2	-	-	-	-
Jan-24	29.7	28.8	24.5	-	-	-	-
Feb-24	27.2	27	26.8	-	-	-	-
Mar-24	29.4	27.9	27.7	49.6	610	106.8	79.4

**Ground Water wells quality at Zawar Group of Mines**

Ground Water Quality at Zawar Group of Mines								
May -23								
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	7.58	7.04	7.22	7.24	7.07
2	Chlorides	250	1000	78.49	99.54	76.57	82.31	67
3	TSS	-	-	7	9	5	6	5
4	Zinc	5	15	0.02	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
5	Lead	0.01	No Relaxation	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
6	Iron	1.0	No Relaxation	0.12	0.07	0.08	BDL(<0.01)	0.03
7	Copper	0.05	1.5	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
8	Cadmium	0.003	No Relaxation	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
9	Cyanides	0.05	No Relaxation	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
10	Nickel	0.02	No Relaxation	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
11	Cobalt	-	-	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
12	Chromium	0.05	No Relaxation	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)

13	Total Organic Carbon	-	-	BDL (<1)				
Except pH all values are in mg/lt.								

<b>Ground Water Quality at Zawar Group of Mines</b>								
<b>August -23</b>								
S.No.	Parameters	IS : 10500:2012		Zawarmata Hand pump	Zawarmata Well	Naka Well	Mahadev ki Nai Well	Tiger Well
		Acceptable	Permissible					
1	pH	6.5-8.5	No Relaxation	7.63	7.37	7.61	6.81	6.96
2	Chlorides	250	1000	59.44	77.09	47.37	89.16	76.16
3	TSS	-	-	5	12	9	11	12
4	Zinc	5	15	0.02	BDL(<0.01)	BDL(<0.01)	0.71	0.05
5	Lead	0.01	No Relaxation	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
6	Iron	1.0	No Relaxation	0.05	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
7	Copper	0.05	1.5	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
8	Cadmium	0.003	No Relaxation	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
9	Cyanides	0.05	No Relaxation	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
10	Nickel	0.02	No Relaxation	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
11	Cobalt	-	-	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
12	Chromium	0.05	No Relaxation	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
13	Total Organic Carbon	-	-	BDL (<1)	BDL (<1)	BDL (<1)	BDL (<1)	BDL (<1)
Except pH all values are in mg/lt.								

### Ground Water Quality at Zawar Group of Mines

**November-23**

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	7.88	7.78	8.03	7.44	7.82
2	Chlorides	250	1000	57.98	87.97	59.98	77.98	73.98
3	TSS	-	-	<5	<5	<5	<5	<5
4	Zinc	5	15	0.21	0.24	0.21	0.58	0.17
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	1.0	No Relaxation	0.02	0.06	0.02	<0.03	<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	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
13	Total Organic Carbon	-	-	0.5	1.3	0.7	1.6	1.3

Except pH all values are in mg/l.

Ground Water Quality at Zawar Group of Mines								
December-23								
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	7.50	7.66	7.98	7.06	7.22
2	Chlorides	250	1000	37.99	91.97	63.98	77.98	71.98
3	TSS	-	-	<5	<5	<5	<5	<5
4	Zinc	5	15	0.23	0.06	<0.05	0.15	0.07
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	1.0	No Relaxation	0.07	<0.04	<0.03	<0.06	<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	-	-	1.3	1.0	0.6	0.8	0.9
Except pH all values are in mg/lit.								

Ground Water Quality at Zawar Group of Mines								
Jan-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	8.04	7.68	8.09	7.72	7.59
2	Chlorides	250	1000	64.98	104.97	79.98	74.98	71.98
3	TSS	-	-	<5	<5	<5	<5	<5
4	Zinc	5	15	0.06	0.05	0.04	0.12	0.05
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	1.0	No Relaxation	0.02	0.04	0.03	0.06	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	-	-	1.0	1.1	0.8	1.0	1.1
Except pH all values are in mg/lit.								

<b>Ground Water Quality at Zawar Group of Mines</b>								
<b>Mar-24</b>								
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	7.80	7.54	8.14	7.52	7.42
2	Chlorides	250	1000	65.98	107.97	49.98	79.98	67.98
3	TSS	-	-	<5	<5	<5	<5	<5
4	Zinc	5	15	0.03	0.04	0.02	0.10	0.04
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	1.0	No Relaxation	0.02	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	-	-	0.9	0.6	0.5	0.5	0.6
Except pH all values are in mg/lit.								

**Piezometer Well Water Quality at Zawar Group of Mines**

<b>Piezometer Well Water Quality at Zawar Group of Mines</b>									
<b>Jun-23</b>									
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 Magazin e 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	7.49	7.31	7.29	7.10	7.48	7.08
2	Chlorides	250	1000	26.73	42.4	55.3	48.85	60.83	42.4
3	Zinc	5	15	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
4	Lead	0.01	No Relaxation	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
5	Iron	1.0	No Relaxation	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
6	Copper	0.05	1.5	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
7	Cadmium	0.003	No Relaxation	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)
8	Nickel	0.02	No Relaxation	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
9	Chromium	0.05	No Relaxation	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
10	Cyanide	0.05	-	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
11	Cobalt	-	-	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
12	Total Organic Carbon	-	-	BDL(<1)	BDL(<1)	BDL(<1)	BDL(<1)	BDL(<1)	BDL(<1)

Except pH all values are in mg/lt

**Piezometer Well Water Quality at Zawar Group of Mines**

**Sep-23**

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	7.44	7.41	7.10	7.02	7.43	7.35
2	Chlorides	250	1000	14.73	15.68	60.8	64.6	30.4	74.66
3	Zinc	5	15	0.02	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
4	Lead	0.01	No Relaxation	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
5	Iron	1.0	No Relaxation	0.51	0.92	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
6	Copper	0.05	1.5	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
7	Cadmium	0.003	No Relaxation	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)
8	Nickel	0.02	No Relaxation	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
9	Chromium	0.05	No Relaxation	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
10	Cyanide	0.05	-	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
11	Cobalt	-	-	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	0.02	BDL (<0.01)	BDL (<0.01)
12	Total Organic Carbon	-	-	BDL(<1)	BDL(<1)	BDL(<1)	BDL(<1)	BDL(<1)	BDL(<1)

Except pH all values are in mg/lt

**Piezometer Well Water Quality at Zawar Group of Mines**

**Dec-23**

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 Magazin e 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	7.75	7.23	7.29	7.94	7.60	7.63
2	Chlorides	250	1000	19.99	41.98	73.98	65.98	41.98	43.98
3	Zinc	5	15	0.04	0.04	0.05	0.06	0.01	0.04
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	0.15	0.10	0.15	0.11
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	-	-	0.7	1.0	0.8	1.0	1.2	0.7

Except pH all values are in mg/lit

**Piezometer Well Water Quality at Zawar Group of Mines**

**Mar-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	6.99	7.55	7.01	7.08	7.28	7.49
2	Chlorides	250	1000	51.98	47.98	53.98	53.98	43.98	45.98
3	Zinc	5	15	0.07	0.06	0.03	0.08	0.02	0.02
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	0.03	0.08	0.06	0.10	0.07
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	-	-	1.0	0.8	0.6	1.2	0.5	0.5

Except pH all values are in mg/lit

**Ground Water Level Monitoring at Zawar Group of Mines**

S.No.	Piezometers	Apr-23(m)	May-23(m)	Jun-23(m)	Jul-23 (m)	Aug-23 (m)	Sep-23(m)
1.	Near Bridge (Vala Patel House) (Pz - 01)	2.18	2.47	2.53	1.55	1.06	0.80
2.	Near In front of Old Tailing Dam (Pz - 02)	5.63	5.91	6.03	5.20	4.37	3.68
3.	Near Tailing Dam Pump House (Pz - 03)	3.24	3.61	3.76	2.90	1.60	2.70
4.	Near Magazine Area (Pz - 04)	5.36	5.82	5.98	4.70	3.90	2.80
5.	Near Below Tailing Pipe Lines (Pz - 05)	4.27	4.46	4.56	3.95	3.06	1.50
6.	Near Way to Tailing Dam Road (Pz - 06)	2.45	2.62	2.77	2.05	1.46	1.45

S.No.	Piezometers	Oct-23(m)	Nov-23(m)	Dec-23(m)	Jan-24 (m)	Feb-24 (m)	Mar-24(m)
1.	Near Bridge (Vala Patel House) (Pz - 01)	1.45	1.50	1.58	1.60	1.66	1.76
2.	Near In front of Old Tailing Dam (Pz - 02)	5.10	5.10	5.20	5.53	5.60	5.68
3.	Near Tailing Dam Pump House (Pz - 03)	2.00	2.00	2.05	2.83	2.88	2.96
4.	Near Magazine Area (Pz - 04)	4.50	4.53	4.78	4.78	4.83	4.88
5.	Near Below Tailing Pipe Lines (Pz - 05)	2.15	2.20	2.15	2.43	2.53	2.68
6.	Near Way to Tailing Dam Road (Pz - 06)	2.25	2.30	2.30	2.35	2.45	2.58

S.No.	Wells in the area	Apr-23(m)	May-23(m)	Jun-23(m)	Jul-23 (m)	Aug-23 (m)	Sep-23(m)
1.	Zawarmata Well	2.46	3.06	2.39	2.09	1.86	1.74
2.	Mahadev ki Nal Well	2.74	1.84	1.59	0.61	0.45	0.43

S.No.	Wells in the area	Oct-23(m)	Nov-23(m)	Dec-23(m)	Jan-24 (m)	Feb-24 (m)	Mar-24(m)
1.	Zawarmata Well	2.03	2.99	3.32	4.12	4.73	4.94
2.	Mahadev ki Nal Well	0.83	1.95	1.41	1.02	1.69	1.45

**ANALYSIS OF MINE WATER AT ZAWAR GROUP OF MINES**

**1. Mochia Mine Water Report**

<b>Parameters</b>	<b>Effluent Standards as per IS:2490</b>	<b>Apr-23</b>	<b>Jul-23</b>	<b>Oct-23</b>	<b>Jan- 24</b>
pH	5.5-9.0	8.08	7.56	7.64	7.43
Chlorides	1000	44.30	240.77	155.96	179.96
Hardness	-	98.18	591.3	564	580
Total Solids	2200	288	1944	1318	1367
Total D.S.	2100	282	1928	1310	1358
Total S.S.	100	6	16	8	9
Zinc	5.0	BDL(<0.01)	0.79	0.15	0.18
Lead	0.10	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
Iron	3.0	BDL(<0.01)	0.02	0.18	0.15
Copper	3.0	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
Cadmium	2.0	BDL(<0.001)	BDL(<0.001)	BDL(<0.003)	BDL(<0.003)
Cyanide	0.2	BDL(<0.05)	BDL(<0.05)	BDL(<0.01)	BDL(<0.01)

Except pH all values are in mg/lit

**2. Balaria Mine Water Report**

<b>Parameters</b>	<b>Effluent Standards as per IS:2490</b>	<b>Apr-23</b>	<b>Jul-23</b>	<b>Oct-23</b>	<b>Jan- 24</b>
pH	5.5-9.0	8.09	7.56	7.21	7.32
Chlorides	1000	42.11	106.81	173.95	147.95
Hardness	-	101.82	580.6	480	440
Total Solids	2200	279	1922	1157	1126
Total D.S.	2100	272	1906	1147	1116
Total S.S.	100	7	16	10	10
Zinc	5.0	0.13	0.79	0.94	0.68
Lead	0.10	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
Iron	3.0	BDL(<0.01)	0.02	0.10	0.06
Copper	3.0	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
Cadmium	2.0	BDL(<0.001)	BDL(<0.001)	BDL(<0.003)	BDL(<0.003)
Cyanide	0.2	BDL(<0.05)	BDL(<0.05)	BDL(<0.01)	BDL(<0.01)

Except pH all values are in mg/lit

### 3. Zawarmala Mine Water Report

Parameters	Effluent Standards as per IS:2490	Apr-23	Jul-23	Oct-23	Jan- 24
pH	5.5-9.0	8.03	7.62	7.92	7.85
Chlorides	1000	42.11	92.88	157.96	165.96
Hardness	-	105.45	586.2	560	540
Total Solids	2200	291	1881	1275	1315
Total D.S.	2100	286	1864	1270	1310
Total S.S.	100	5	17	<5	<5
Zinc	5.0	0.02	0.93	0.89	0.62
Lead	0.10	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
Iron	3.0	BDL(<0.01)	BDL(<0.01)	0.21	0.16
Copper	3.0	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
Cadmium	2.0	BDL(<0.001)	BDL(<0.001)	BDL(<0.003)	BDL(<0.003)
Cyanide	0.2	BDL(<0.05)	BDL(<0.05)	BDL(<0.01)	BDL(<0.01)
Except pH all values are in mg/lit					

### 4. Baroi Mine Water Report

Parameters	Effluent Standards as per IS:2490	Apr-23	Jul-23	Oct-23	Jan- 24
pH	5.5-9.0	7.86	7.56	7.69	6.79
Chlorides	1000	42.11	88.24	147.96	185.96
Hardness	-	98.18	572.3	556	588
Total Solids	2200	295	1856	1399	1551
Total D.S.	2100	292	1846	1384	1536
Total S.S.	100	3	10	15	15
Zinc	5.0	0.11	0.91	0.13	0.10
Lead	0.10	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
Iron	3.0	BDL(<0.01)	0.02	0.03	0.06
Copper	3.0	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
Cadmium	2.0	BDL(<0.001)	BDL(<0.001)	BDL(<0.003)	BDL(<0.003)
Cyanide	0.2	BDL(<0.05)	BDL(<0.05)	BDL(<0.01)	BDL(<0.01)
Except pH all values are in mg/lit					



**HINDUSTAN ZINC LIMITED****Ashok Nagar STP Analysis Report for 2023-24**

Except pH all value are in mg/lit

Parameters	Limits	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Total Suspended Solids	100	27	39	13	17	15	14	16	23	18	20	14	10
pH Value	5.5-9.0	7.22	7.31	7.24	7.29	7.07	7.14	7.18	7.34	7.28	7.29	7.05	7.43
Oil and Grease	10	3	4	3	3	3	2	<5	<5	<5	<5	<5	<5
Total Residual Chlorine	1	BDL <0.1	BDL <0.1	BDL <0.1	BDL <0.1	0.3	BDL <0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ammonical Nitrogen (as N)	50	6.28	8.19	7.28	3.44	8.15	1.48	11	16.4	12	14.7	6.3	5.3
Total Kjeldahl Nitrogen (as N)	100	19.82	29.91	15.77	15.17	28.78	6.63	16.2	23.5	17.6	20.4	8.5	8.6
Biochemical Oxygen Demand (3 days at 27°C)	30	9.75	17.33	9.17	9.8	13.5	5.71	18	20	18	19	13	11
Sulphide (as S)	2	BDL <0.1	BDL <0.1	BDL <0.1	BDL <0.1	BDL <0.1	BDL <0.1	<0.5	<0.5	<0.5	<0.5	<.5	<.5
Nitrate Nitrogen	10	3.02	5.89	8.09	7.52	7.95	5.71	3.60	4.20	3.4	4.9	4.2	3.1
Chlorides	1000	116.56	82.56	172.29	123.51	90.26	95.01	121.96	139.96	145.9	131.9	117.9	139.9
Sulphates	1000	28.87	24.28	20.86	25.25	29.82	28.75	518.25	614.27	510.5	485.2	395.6	368.3
Chemical Oxygen Demand	250	65.5	112.13	51.58	66.24	78.4	34.5	138	152	140	153	119	85

**Ram Nagar STP Analysis Report for 2023-24**

Except pH all value are in mg/lit

Parameters	Limits	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan- 24	Feb- 24	Mar- 24
Total Suspended Solids	100	32	31	35	35	36	18	23	19	25	26	17	20
pH Value	5.5-9.0	7.30	7.36	7.13	7.25	7.85	7.10	7.25	7.54	7.42	7.44	7.56	7.16
Oil and Grease	10	3	4	5	3	3	3	<5	<5	<5	<5	<5	<5
Total Residual Chlorine	1	BDL <0.1	BDL <0.1	BDL <0.1	BDL <0.1	0.3	BDL <0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ammonical Nitrogen (as N)	50	7.08	9.58	8.42	4.15	9.80	1.78	12.4	12.0	14.2	9.6	7.4	6.3
Total Kjeldahl Nitrogen (as N)	100	17.10	28.83	18.45	22.88	26.41	7.63	18.3	23.5	30.3	23.1	18.5	10.2
Biochemical Oxygen Demand (3 days at 27°C)	30	9.2	14	17.73	16	14.75	7.4	20	18	22	22	17	10
Sulphide (as S)	2	BDL <0.1	0.7	<0.5	<0.5	<.5	<.5	<.5					
Nitrate Nitrogen	10	6.52	7.14	8.51	7.89	7.28	6.23	3.86	2.08	3.2	4.9	4.3	3.5
Chlorides	1000	87.42	97.13	124.43	108.41	95.01	99.76	159.95	113.97	123.9	169.9	155.9	115.9
Sulphates	1000	43.71	17.71	14.0	29.45	35.62	22.75	546.26	516.24	510.6	519.7	463.1	296.4
Chemical Oxygen Demand	250	61.23	109.89	119.81	116.64	90.94	43.9	165	133	187	180	146	67

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