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

HINDUSTAN ZINC LIMITED
हिन्दुस्तान जिंक लिमिटेड

Telephone - (0294) 2723400

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

Ref.: HZL/ZM/CPP/ENV/2023/ 405

Date - 14.09.2023

By Registered

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

Sub.: Environmental Statement for the year 2022-23 for Zawar CPP

Ref: F(Mines)/Udaipur(Sarada)/50(1)/2016-2017/2021-2023 dated 21.06.2023

Sir,

Please find attached herewith the **Environmental Statement** for the year **2022-23** for **Zawar Captive Power Plant**

Thanking you

Yours Faithfully

Abhay Pratap Singh
(Head – ZAWAR CPP)

Encl.: As above

CC:
1. The Deputy Director (S), Scientist- C, Ministry of Environment, Forest & Climate Change, Integrated Regional Office, A-209 & 218, 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/CPP Zawar

DLC

FORM – V

(See Rule- 14)

Environmental Statement for the financial year ending the 31st March 2023

PART – A

(i)	Name and Address of the Owner / Occupier of the Industry / Operation and Process	Sh. Arun Mishra (Occupier) CEO & Whole Time Director Hindustan Zinc Limited, Yashad Bhawan, Udaipur-313001 (Raj)
		Sh. Abhay Pratap Singh (Factory Manager) Head CPP ZAWAR Hindustan Zinc Limited, Zawar Mines Dist.- Udaipur- 313901 (Raj)
(ii)	Industry category	Red
(iii)	Production capacity	90 MW Power Generation
(iv)	Year of establishment	16.12.2008
(v)	Year of last environment statement submitted.	17.09.2022

PART – B

Water and Raw Material Consumption

(i) Water consumption m^3/day

Process- 3201.685
Cooling- NA
Domestic- NA

Name of Products		Process water consumption per unit of product output	
		During the previous financial year (2021-22)	During the current financial year (2022-23)
		(1)	(2)
(1) Power		2.21 m^3/MWh	2.48 m^3/MWh
(ii) Raw material consumption			
*Name of raw materials	Name of Products	Consumption of Raw material per unit of output*	
		during the previous financial year (2021-22)	during the current financial year (2022-23)
Coal Consumption	Power	475.90	477.59

* gm/kwh

Increase in coal consumption is due to use of lower GCV coal as compared to previous year.

PART – C

Pollution discharged to environment/unit of output.

(Parameter as specified in the consent issued)

(1) Pollution	Quantity of pollutants discharged (m^3/day)	Concentration of pollutants in discharges (m^3/day)	Percentage of variation from prescribed standards with reasons
(a) Water	Zero Discharge	Within the limits as prescribed by RSPCB in Consent to Operate	NIL
(b) Air	Less than 50 mg/Nm^3 of SPM	Within the limits as prescribed by RSPCB in Consent to Operate	NIL

PART – D

HAZARDOUS WASTES

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

Hazardous wastes	Total quantity during the year (MT)	
	during the previous financial year (2021-22)	during the current financial year (2022-23)
(a) From Process		
Used/Spent Oil Sold	7.29	4.96
(b) From pollution control facility	Nil	Nil

Note: Used oil from entire location is collected and sold from central store of Zawar Mines. As Zawar Mines complex (including CPP) is having common HWs authorization, quantity of oil sold from central store has been mentioned in Environment statement submitted for Zawar mines that includes for entire location including CPP.

PART – E

Solid Wastes

	Total Quantity (MT)			
	during the previous financial year (2021-22)		during the current financial year (2022-23)	
(a) From process (b) From Pollution control facility	Fly Ash	Bottom Ash	Fly Ash	Bottom Ash
(c) (1) Quantity recycled or re-utilized within the unit.	-	26943.43	-	432.58
(2) Sold	65785.25	5886.55	39486.92	4332.910
(3) Disposed	-	-	-	-

PART – F

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

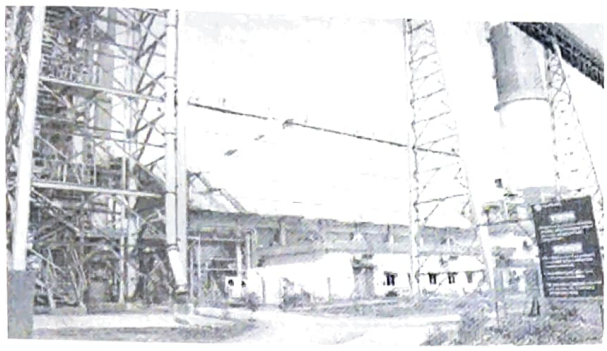
1. The Hazardous Waste generated is used / spent oil which is stored in 220 litre drums and then disposed to registered/ authorized recyclers.
2. Solid wastes generated are Fly Ash and Bottom Ash. These are sold to Cement Plants/ brick manufacturers in suitably designed bulkers owned by the cement plants. Also, bottom ash is partially recycled.

PART – G

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

It may be noted that higher production of power is achieved taking following measures:

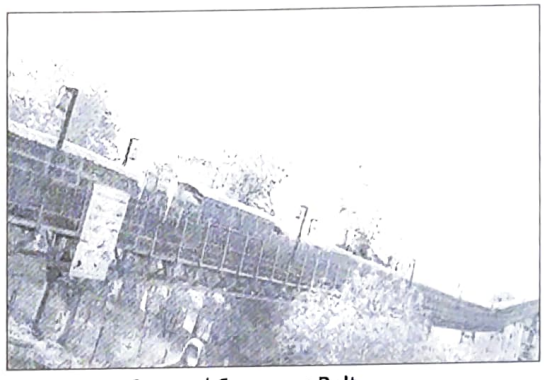
- Better capacity utilization of plant and equipment;
- Better maintenance practices resulting in lesser downtime and increased plant availability.
- 8 field ESP to arrest SPM going through chimney to maintain the emission below specified limit.
- Online monitoring system at stack for continuous monitoring of pollutants.
- Zero Discharge is followed. 100% blow down water reused for dust suppression as well for reuse in beneficiation plant
- STP water after treatment is pumped to blow down tank of CPP and utilized in CPP
- Cyclone separators and Bag filters at the transfer points so as to ensure minimum fugitive emission.
- Covered Coal conveyers for conveying of coal.
- Dust suppression and Dust extraction system installed to improve emissions within the plant premises.
- Regular care of the plantation is being taken.



8 Field ESP

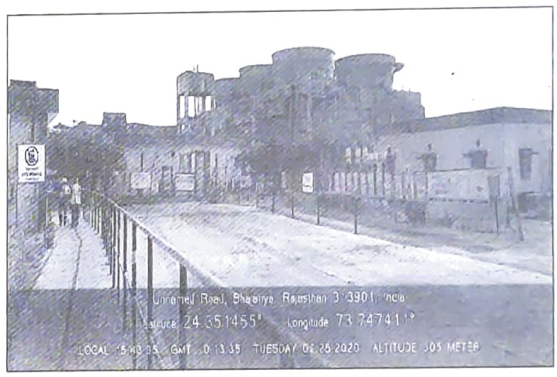
Ash Transportation via Bulker

Covered conveyor belt



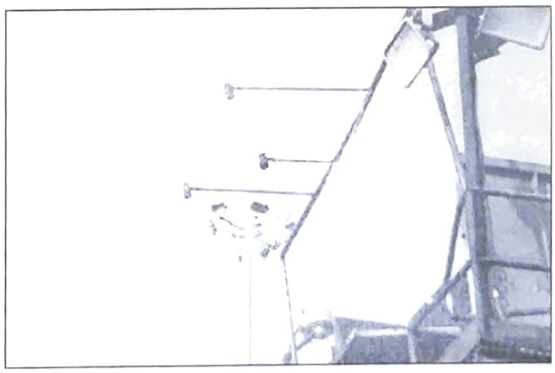
Covered Conveyor Belt

Transportation via covered trucks

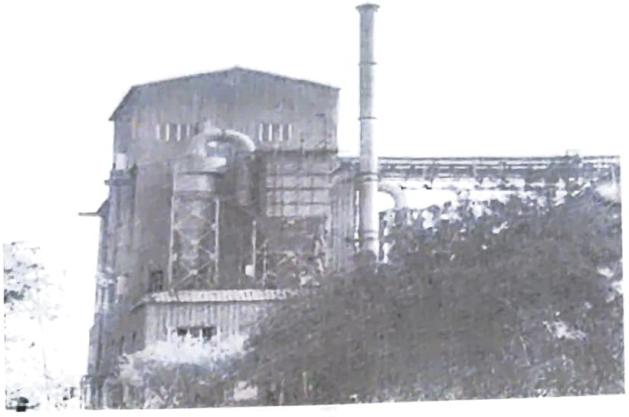


Concrete roads in Plant

Mist sprinkling system in coal yard

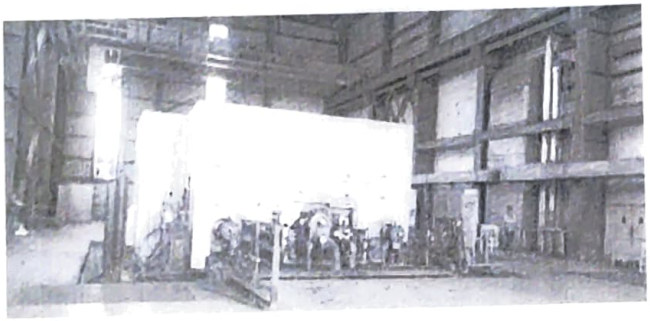


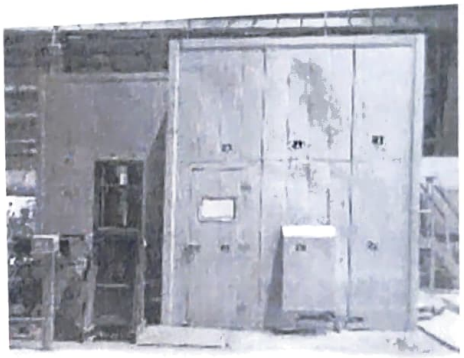
Water sprinkling system at coal yard



Coal Crusher Building

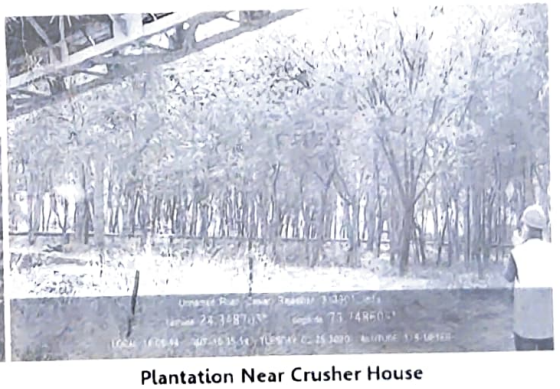
CAAQMS





Acoustic Enclosure for Turbine

Plantation Near Boiler Plant



Plantation Near Crusher House

Plantation Near DM Plant

Plantation Near Switch Yard

CAAQMS Station

Stack Mercury Monitoring Station

PART – H

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

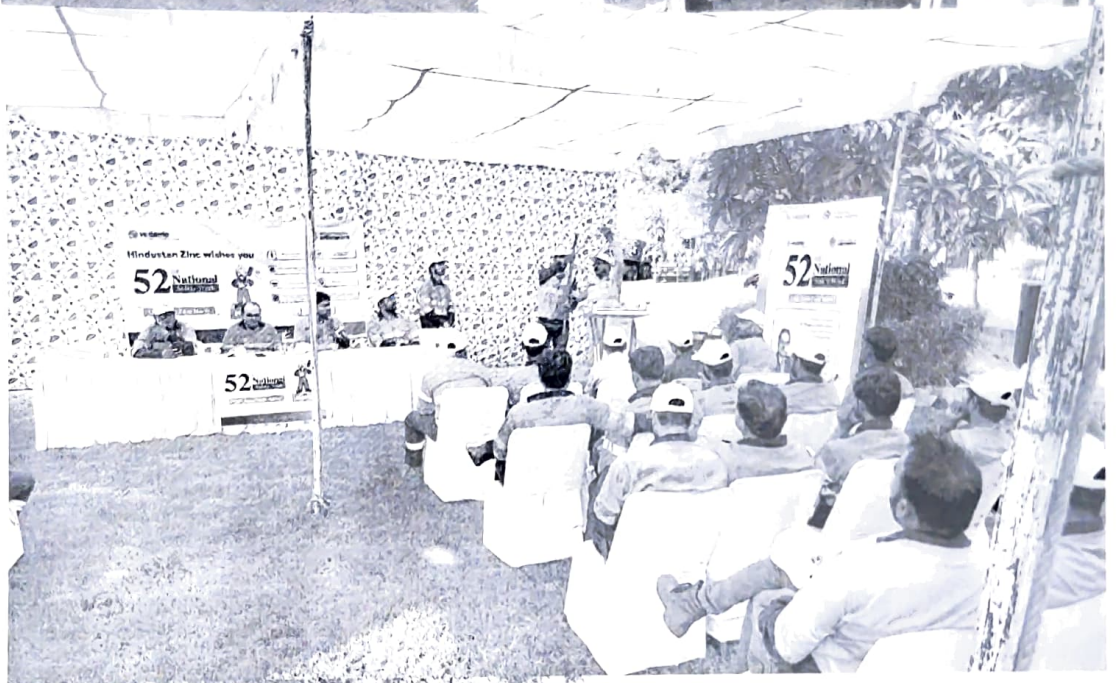
1. Water spraying on approach roads, coal yard to minimize fugitive dust outside the plant.
2. Monitoring of ambient air quality on regular basis at four locations, monitoring of both the stacks as well as water sample analysis
3. Proper training given to employees on various environment aspects like waste management, water awareness, climate change management and environment rules and regulation etc.
4. Zawar location including Captive Power Plant is certified for **ISO-9001:2015(QMS), ISO-14001:2015 (EMS), ISO-45001:2018 (OHSMS) and SA-8000:2014 (Social Accountability)**

PART – I

Any other information for improving the quality of the environment.

1. World Environment day was celebrated on 5th June. Various competitions for employees and children were conducted. Prizes were given to the winners on spot.

2. Safety Day was celebrated in the CPP premises.



3. 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.

HINDUSTAN ZINC LIMITED					
STACK MONITORING (in mg/Nm3), CPP ZAWAR					
Stacks	**ESP**				**Coal Crusher**
Parameters	**PM**	**SOx**	**Nox**	**Hg**	**PM**
Limits	**50**	**-**	**-**	**0.03**	**50**
Apr-22	39.1	964	241	0.000052 (online data)	31.3
May-22	28.6	893	216	0.002 (online data)	34.9
Jun-22	20.6	815	97	0.00006 (online data)	34.3
Jul-22	37.5	810	216.5	0.00023 (online data)	28.4
Aug-22	27.3	839	246	0.0054 (online data)	31.4
Sep-22	31.2	889	267	0.0049 (online data)	25.9
Oct-22	28.9	852	231	0.0042 (Online data)	36.1
Nov-22	27.3	809.4	216.7	0.003 (Online data)	32.2
Dec-22	30.1	916.8	297.5	0.008 (Online data)	35.7
Jan-22	34.7	892.5	279.1	0.0125 (Online data)	29.6
Feb-23	38.3	836.1	255.4	0.0107 (Online data)	35.4
Mar-23	28.1	820.9	236.4	0.0079 (Online data)	32

Ambient Air average values (in µg/m3) for 2022-23

Location	Parameters	Limits	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
Ashok Nagar	PM 10	**100**	53.45	51.05	46.50	45.10	50.20	49.40	51.15	51.50	54.65	48.80	52.65	50.10
	PM 2.5	**60**	32.1	30.50	27.40	26.80	30.75	30.20	30.50	30.30	32.95	29.40	30.95	30.40
	SOx	**80**	7.15	6.50	6.25	6.10	6.45	6.40	6.70	6.65	6.70	6.10	6.45	6.15
	NOx	**80**	13.4	10.00	8.30	7.95	8.95	8.90	10.30	9.60	9.95	9.00	9.60	8.45
	CO	**4000**	744.5	744.5	630	573	630	687	630	630	744.5	573	630	630
Weigh Bridge	PM 10	**100**	57.45	57.55	53.50	47.85	52.00	57.35	56.55	55.70	59.45	60.20	60.10	58.75
	PM 2.5	**60**	34.9	34.40	32.95	28.35	31.30	34.55	33.85	34.45	36.35	37.00	36.60	35.85
	SOx	**80**	7.9	7.75	7.25	6.25	6.90	7.80	7.85	8.35	8.35	8.80	8.50	8.35
	NOx	**80**	15	17.00	11.75	9.35	11.15	14.00	15.50	14.50	14.50	16.75	17.45	14.85
	CO	**4000**	744.5	859	744.5	630	687.5	744.5	802	744.5	859	859	744.5	744.5
Main Gate	PM 10	**100**	66.25	61.75	57.70	51.50	56.90	63.00	65.35	58.65	60.90	59.60	61.70	62.35
	PM 2.5	**60**	40.45	38.15	34.00	30.60	34.00	37.40	38.95	35.50	36.95	35.50	37.50	37.4
	SOx	**80**	10.7	10.10	8.60	7.30	8.65	8.85	9.05	8.25	8.55	8.30	8.70	9.00
	NOx	**80**	20.5	20.50	15.50	12.50	17.00	17.50	16.50	13.50	15.50	15.00	17.20	16.85
	CO	**4000**	973.5	916.5	744.5	687	744.5	859	859	859	859	744.5	859	859
MAS Office	PM 10	**100**	54.2	52.55	49.60	47.00	51.70	54.65	53.45	55.55	59.10	51.90	54.65	55.75
	PM 2.5	**60**	33.45	32.35	29.30	27.15	30.85	33.60	32.10	34.80	36.10	30.75	32.60	34.05
	SOx	**80**	7.1	6.80	6.70	6.25	6.85	7.20	6.75	7.35	7.80	6.80	7.15	7.60
	NOx	**80**	11.5	11.30	10.10	8.95	11.20	13.55	12.50	13.50	14.90	11.50	12.60	13.75
	CO	**4000**	687	744.5	630	573	687	744.5	744.5	744.5	859	630	744.5	630

Day time Noise Levels [in dB(A)] for 2022-23

Location	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
Near Main Gate	57.2	59.3	62.6	61.1	65.2	56.7	57.8	56.3	58.2	55.5	57.2	58.6
Near STP	56.8	66.3	59.5	60.2	66.5	61.0	60.8	62.1	60.8	60.3	61.2	59.1
Near Weigh Bridge	61.4	62.5	61.4	62.0	63.3	60.6	61.9	60.8	58.4	62.4	60.1	59.6
Mass Office	56.5	58.7	61.9	62.3	69.2	61.8	62.5	63.1	66.3	63.1	63.4	66.0
Permissible Limit	**75**											

Night time Noise Levels [in dB(A)] for 2022-23

Location	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
Near Main Gate	53.1	53.7	56.8	58.5	60.1	53.8	54.2	53.1	55.7	53.9	54.6	55.9
Near STP	55.5	58.4	56.1	53.8	63.8	49.3	48.1	52.3	54.7	54.1	57.3	57.8
Near Weigh Bridge	60.8	58.1	56.8	60.1	54.8	56.5	59.3	57.4	55.1	58.5	55.9	52.8
Mass Office	52.9	53.5	54.5	57.8	65.1	57.2	58.0	56.5	58.6	56.3	58.5	60.4
Permissible Limit	**70**											

Final Treated Water Analysis Report for 2022-23

Parameters	Limits	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
TSS mg/lt	**100**	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
BOD mg/lt	**30**	4.5	3.8	3.1	<2	<2	2.3	2.5	2.8	<2	<2	<2	<2
COD mg/lt	**250**	16.00	12.00	10.00	<5	<5	8.90	9.7	12.10	<5	<5	<5	<5
pH	**6.0-8.5**	7.62	7.43	7.35	7.11	7.45	7.53	7.41	7.59	7.38	7.20	7.63	7.41
Phosphate as P mg/lt	**5**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Oil & Grease mg/lt	**10**	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Free Available Chlorine mg/lt	**0.5**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Copper mg/lt	**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
Iron mg/lt	**1**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.05
Total Chromium Cr+6 mg/lt	**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
Zinc mg/lt	**1**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03
Sulphide mg/lt	**2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Temperture°C	**Not more than 10°C higher than the intake water temperature**	37	35	32	26	28	32	30	26	24.1	20.8	25.7	31.5

(10)

Ashok Nagar STP Analysis Report for 2022-23

Except pH all value are in mg/lt

Parameters	Limits	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
Total Suspended Solids	**100**	25	28	34	28	30	9	16	11	29	28	30	10
pH Value	**5.5-9.0**	7.20	7.10	7.34	7.11	7.27	7.67	7.12	7.11	7.16	7.29	7.12	7.00
Oil and Grease	**10**	2	4	4	5	4	2	2	2	5	4	5	3
Total Residual Chlorine	**1**	BDL < (0.1)	BDL <(0.1)	BDL < (0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL< (0.1)
Ammonical Nitrogen (as N)	**50**	8.96	12.80	10.63	9.79	11.27	1.07	1.45	1.71	6.71	9.17	9.19	8.04
Total Kjeldahl Nitrogen (as N)	**100**	22.40	25.42	26.33	21.72	18.28	3.79	8.06	5.51	23.76	21.34	22.84	18.72
Biochemical Oxygen Demand (3 days at 27°C)	**30**	4.36	20.71	9.67	13.75	10.23	5.88	6.29	7.00	14.33	9.5	15	9.40
Sulphide (as S)	**2**	BDL < (0.1)	BDL < (0.1)	BDL < (0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)
Nitrate Nitrogen	**10**	8.50	3.39	7.24	2.51	2.56	4.19	4.59	4.18	4.14	5.07	2.98	1.73
Chlorides	**1000**	97.84	111.54	91.21	71.25	97.84	115.71	95.01	110.89	101.25	110.89	115.71	110.89
Sulphates	**1000**	30.66	52.00	25.25	33.37	30.25	35.25	27.00	44.37	15.87	35.25	35.71	41.14
Chemical Oxygen Demand	**250**	32.64	154.05	88.13	127.30	81.60	23.52	30.72	43.26	97.66	83.90	115.71	78.62

Total Expenses for 2022-23

Particulars	Amount in Rs.
Plantation/Monitoring/Ash/RSPCB/Other Env Exp	**32,78,548.51**