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/2021/ 423 Date - 22.09.2021

By Registered

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

Sub.: Environmental Statement for the year 2020-21 for Zawar CPP

Ref: F(Mines)/Udaipur(Sarada)/50(1)/2016-2017/6817-6819 dated 18.02.2019
Environment Clearance vide No.-J-13011/79/2007-IA-II (T) dated 05.02.2008

Sir,

Please find attached herewith the **Environmental Statement** for the year **2020-21** for **Zawar Captive Power Plant**

Thanking you

Yours Faithfully

Mahender Singh Rathore
(Head – ZAWAR CPP)

Encl.: As above
CC: 1. The Director, Ministry of Environment and Forests, Regional Office (Central Region), Kendriya Bhawan, 5th Floor, Sector "H", Aliganj, Lucknow – 226024 (U.P.)
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

FORM – V

(See Rule- 14)

ENVIRONMENTAL STATEMENT FOR FINANCIAL YEAR ENDING ON 31st MARCH 2021

PART – A

1	Name and Address of the Owner / Occupier of the Industry / Operation and Process	Sh. Arun Mishra CEO & Whole Time Director Hindustan Zinc Limited, Yashad Bhawan, Udaipur-313001 (Raj)
2	Name and address of unit head	Sh. Mahender Singh Rathore Head CPP ZAWAR Hindustan Zinc Limited, Zawar Mines Dist.- Udaipur- 313901 (Raj)
3	Industry category	Red
4	Production capacity	90 MW Power Generation
5	Year of establishment	16.12.2008
6	Year of last environment statement submitted.	14.09.2020

PART – B

1. Fresh water consumption -

Details	**Water consumption**	
	2019-20	**2020-21**
Water Consumption (m^3)	1498963	1463964
Specific Water Consumption (m^3/MWh)	2.46	2.36

2. Raw material consumption-

Name of raw material	**Name of Product**	**Consumption of Raw material per unit of output***	
		2019-20	**2020-21**
Coal Consumption	Power	472.72	450.12

*** gm/kwh**

PART – C

Pollution generated (Parameter as specified in the consent issued)

Air & Water consent to operate - Validity up to 31st October 2022

Pollutants		Quantity of pollutants discharged (m^3/day)	Concentration of pollutants in discharges (m^3/day)	Percentage of variation from prescribed standards with
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 Waste (Management, Handling & Transboundary Movement) Rules 2016]

Hazardous wastes	**Total quantity during the year**	
	2019-20	2020-21
a. From Process		
Used/Spent Oil Sold	Nil	5.17
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 Waste

Solid Wastes	Total Quantity (MT)	
	2019-20	2020-21
FLY ASH		
Quantity recycled or re-utilized within the unit.	-	-
Sold	38235 MT	33723.17 MT
Disposed	-	-

Solid Wastes	Total Quantity (MT)	
	2019-20	2020-21
BOTTOM ASH		
Quantity recycled or re-utilized within the unit.	6728 MT	3789.95 MT
Sold	270 MT	2274.61 MT
Disposed	-	-

* The fly ash generated is transported & sent to cement plants by suitably designed bulkers owned by the cement plants and the bottom ash is given to brick manufactures and part of the bottom ash has been used as filling material or reuse.

PART – F

(Please specify the characteristics, in terms of composition and quantum of Hazardous waste and solid waste 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 recyclers registered with CPCB.
2. Solid wastes generated are Fly Ash and Bottom Ash. The fly ash generated is sent to Cement Plants by suitably designed bulkers owned by the cement plants and the bottom ash is transported and disposed to tailing dam or reuse as per the conditions of Environment Clearance.

PART – G

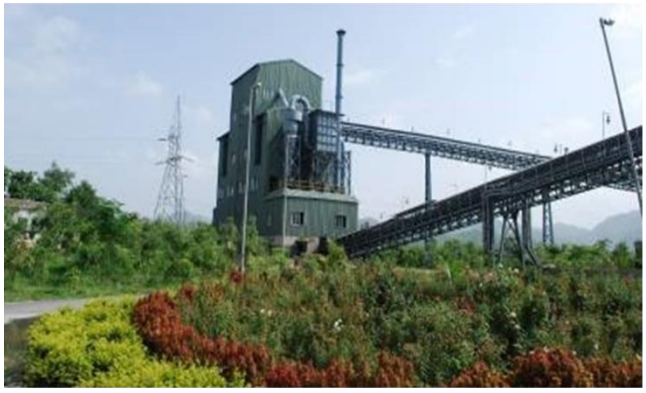
Impact of the pollution abetment measures taken on conservation of Natural resources and on the cost of production

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 of mines
- STP water after treatment is pumped to blow down tank of CPP which results in 100 % utilization of STP water.
- Cyclone separators and Bag filters at the transfer points so as to ensure minimum fugitive emission.
- Covered Coal conveyers for conveying of coal.
- Covered shade provided for storage of approximately 8000 tonnes coal.
- Dust suppression and Dust extraction system installed to improve emissions within the plant premises.
- Regular care of the plantation is being taken.

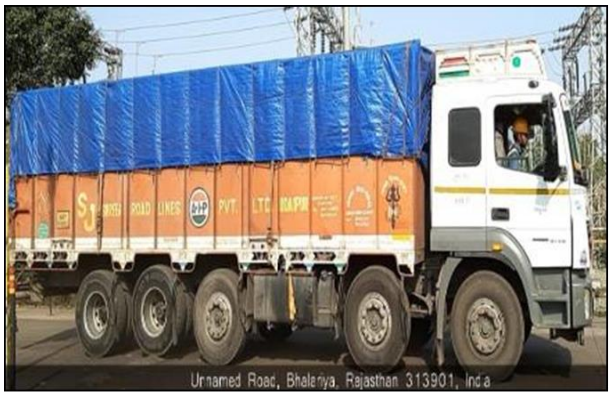
8 Field ESP

Ash Transportation via Bulker

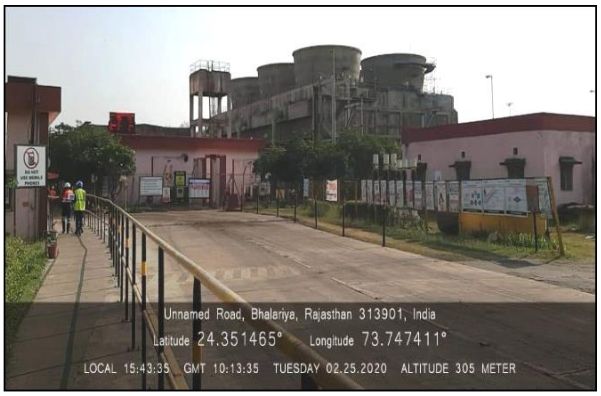


Covered conveyor belt

Covered Conveyor Belt

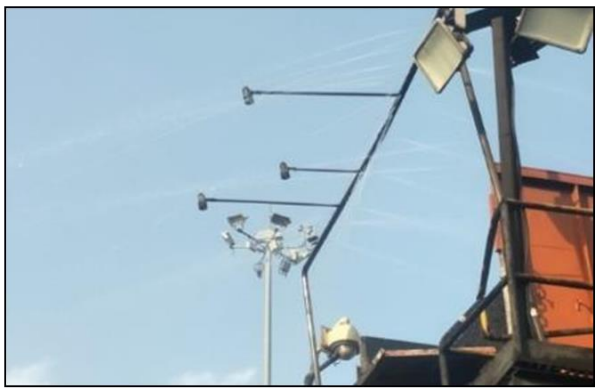


Transportation via covered trucks

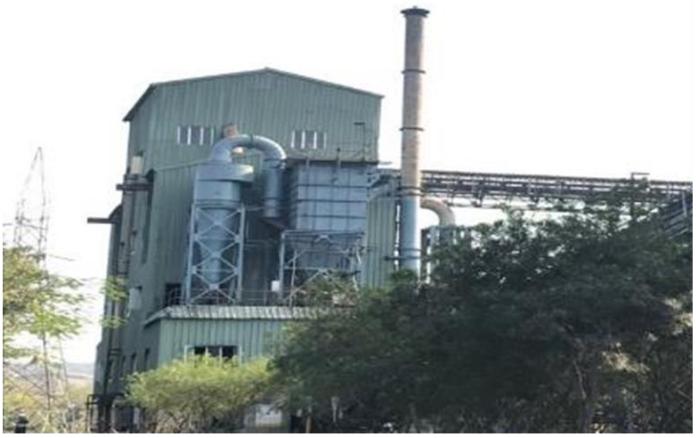


Concrete roads in Plant

Mist sprinkling system in coal yard



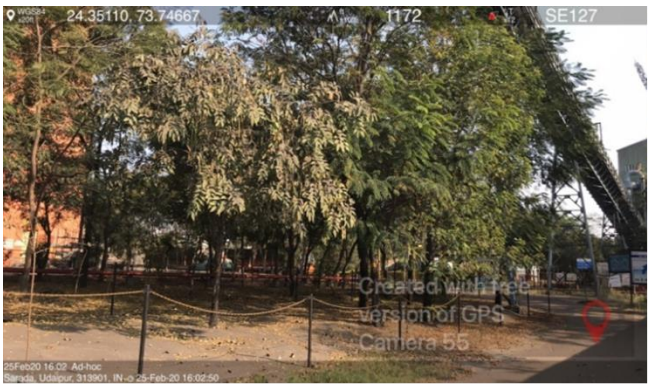
Water sprinkling system at coal yard



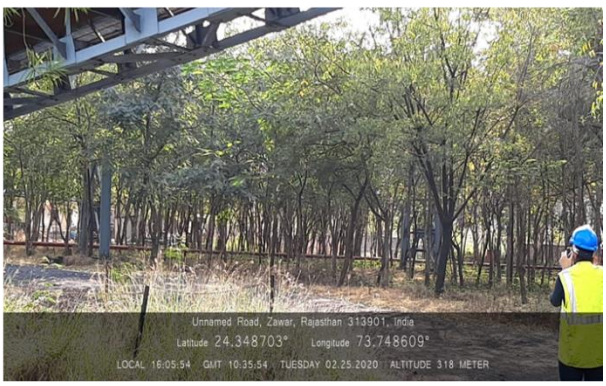
Coal Crusher Building

CAAQMS

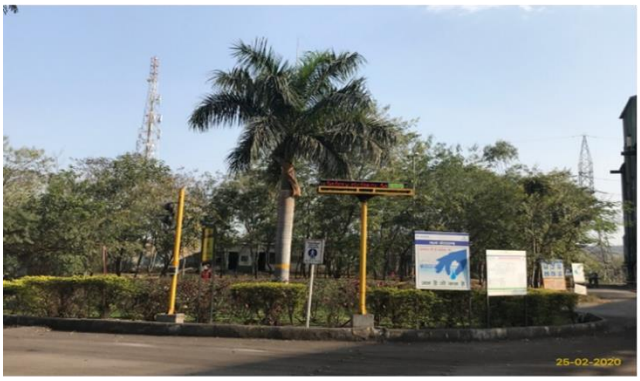
Acoustic Enclosure for Turbine



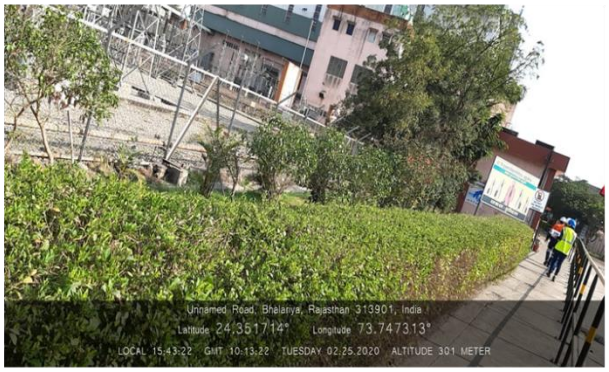
Plantation Near Boiler Plant



Plantation Near Crusher House



Plantation Near DM Plant



Plantation Near Switch Yard

PART – H

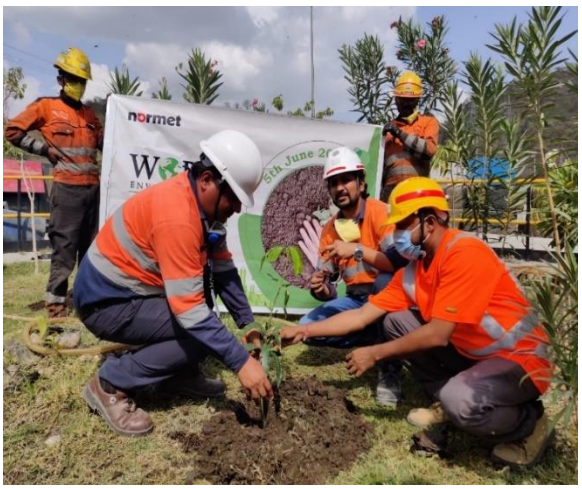
Additional measures/investment for environmental protection including abatement of pollution,

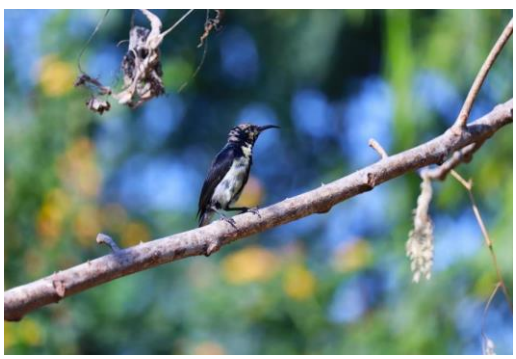
1. Water spraying on approach roads to minimize fugitive dust outside the plant.
2. Monitoring of ambient air quality on regular basis at four locations, monitoring of both the stacks as well as water sample analysis
3. Proper training given to employees on various environment aspects like waste management, 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), OHSAS-45001:2018 (OHSMS) and SA-8000:2014 (Social Accountability)**

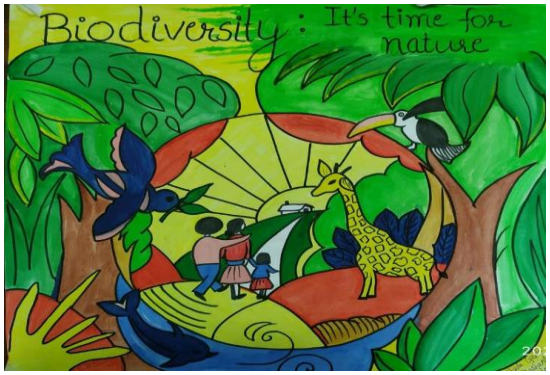
PART – I

Any other information on Environmental Protection and Pollution Control.

1. World Environment day was celebrated on **5thJune'2020.** 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.







HINDUSTAN ZINC LIMITED					
STACK MONITORING (in mg/Nm3), CPP ZAWAR					
Stacks	**ESP**				**Coal Crusher**
Parameters	**PM**	**SOx**	**Nox**	**Hg**	**PM**
Limits	**50**	**600**	**300**	**0.03**	**50**
Jun-20	26.52	528	241	BDL (<0.001)	15.84
Jul-20	35.27	502	240	BDL (<0.001)	26.46
Aug-20	25.52	490	236	BDL (<0.001)	23.62
Sep-20	30.13	541	255	BDL (<0.001)	19.92
Oct-20	Plant Under Shutdown	Plant Under Shutdown	Plant Under Shutdown	Plant Under Shutdown	Plant Under Shutdown
Nov-20	28.30	522	210	BDL (<0.001)	43.10
Dec-20	28.50	521	201	BDL (<0.001)	24.29
Jan-21	28.02	522	248	BDL (<0.001)	18.44
Feb-21	31.95	526	237	BDL (<0.001)	21.93
Mar-21	35.60	326.0	295.0	Not Detected	45.40

Ambient Air average values (in µg/m3) for 2020-21

Location	Parameters	Limits	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
Ashok Nagar	PM 10	100	71.51	58.61	46.75	66.26	72.17	68.42	66.53	73.55	71.20	60.60
	PM 2.5	60	26.99	25.32	21.67	28.04	32.45	36.35	33.71	33.77	30.32	35.00
	SOx	80	5.85	4.232	4.42	4.58	4.39	4.36	3.75	5.08	3.50	6.60
	NOx	80	13.37	12.48	12.58	12.67	16.36	14.80	14.80	15.77	14.12	13.00
	CO	4000	327.50	241.25	253.75	222.50	272.50	283.75	280.0	303.75	302.50	802.00
Weigh Bridge	PM 10	100	67.84	57.91	47.56	63.39	72.17	75.92	73.45	76.36	71.99	75.60
	PM 2.5	60	26.93	25.56	19.79	30.52	33.57	36.41	34.57	37.16	31.66	45.80
	SOx	80	6.12	5.16	4.32	4.97	4.71	4.45	3.99	5.19	3.23	12.90
	NOx	80	12.75	13.12	12.83	12.26	15.90	14.57	15.03	15.52	13.50	26.00
	CO	4000	331.25	251.25	268.75	221.25	277.50	272.50	271.25	327.50	317.50	916.00
Main Gate	PM 10	100	72.32	62.13	49.79	62.75	73.99	73.11	73.32	75.31	75.84	67.20
	PM 2.5	60	27.17	27.76	19.05	28.72	33.56	36.48	32.03	31.43	27.55	40.50
	SOx	80	5.68	4.83	4.25	4.35	4.99	4.31	3.67	5.93	3.61	8.50
	NOx	80	13.24	13.96	12.97	12.47	15.38	15.69	15.49	14.81	13.59	17.00
	CO	4000	312.50	273.75	255	212.50	275.00	286.25	283.75	313.75	312.50	802.00
MAS Office	PM 10	100	68.53	60.38	51.36	68.32	72.32	75.04	70.90	76.28	73.29	70.10
	PM 2.5	60	28.53	26.44	21.87	28.07	34.93	36.82	35.01	35.33	31.47	41.30
	SOx	80	6.11	4.30	4.73	5.30	4.05	4.33	3.61	5.60	3.87	8.60
	NOx	80	12.83	11.71	12.85	12.35	15.28	15.18	15.10	15.49	13.78	18.00
	CO	4000	293.75	250	266.25	221.25	262.50	292.50	287.50	311.25	322.50	802.00

Day time Noise Levels [in dB(A)] for 2020-21

Location	Jun-20	Aug-20	Sep-20	Oct-20	Dec-20	Mar-21
Near Main Gate	62.0	60.8	61.3	61.6	60.9	60.2
Near STP	58.8	56.0	57.8	58.2	59.1	60.7
Near Weigh Bridge	63.9	64.7	63.8	62.4	64.5	64.3
Mass Office	63.8	62.7	64.4	63.7	64.9	62.4
Permissible Limit	**75**					

Night time Noise Levels [in dB(A)] for 2020-21

Location	Jun-20	Aug-20	Sep-20	Oct-20	Dec-20	Mar-21
Near Main Gate	54.2	53.9	52.8	53.5	50.6	54.6
Near STP	52.1	52.7	54.2	53.7	49.0	53.2
Near Weigh Bridge	57.6	55.2	56.3	55.8	56.1	58.1
Mass Office	56.7	58.5	56.7	54.5	57.9	55.9
Permissible Limit	**70**					

Final Treated Water Analysis Report for 2020-21

Parameters	Limits	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
TSS mg/lt	100	28	10	6	7	7	5	10	9	12	10
BOD mg/lt	30	8.23	6.5	3	4.5	5.5	5	5	10	7	6
COD mg/lt	250	30.07	25.84	21.28	12.54	23.3	27.36	26.78	42.85	22.40	19.0
pH	6.0-8.5	8.12	7.90	7.85	7.91	8.13	8.20	8.02	7.88	7.96	7.70
Phosphate as P mg/lt	5	2.54	BDL <(0.1)	BDL <(0.1)	BDL <(0.1)	BDL (<0.1)	0.61	<0.1	0.61	0.53	0.64
Oil & Grease mg/lt	10	3	3	<1	3	3	<1.0	<1.0	3	<1.0	<0.5
Free Available Chlorine mg/lt	0.5	BDL <(0.1)	BDL <(0.1)	BDL <(0.01)	BDL <(0.1)	BDL (<0.1)	BDL (<0.1)	BDL (<0.1)	BDL (<0.1)	BDL (<0.1)	BDL (<0.1)
Copper mg/lt	1	0.05	0.04	BDL <(0.01)	0.03	0.03	BDL (<0.01)	0.06	0.06	BDL (<0.01)	BDL (<0.01)
Iron mg/lt	1	0.07	0.02	BDL <(0.01)	BDL <(0.1)	BDL (<0.01)	BDL (<0.01)	0.12	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
Total Chromium Cr+6 mg/lt	0.2	BDL <(0.01)	BDL <(0.01)	BDL <(0.01)	BDL <(0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
Zinc mg/lt	1	0.15	0.13	0.04	0.13	0.13	BDL (<0.01)	0.21	0.23	BDL (<0.01)	BDL (<0.01)
Sulphide mg/lt	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 (<0.5)
Temperture℃ Not more than 10℃ higher than the intake water temperature		31	28.4	28.6	29	27.3	26	20.5	28	28	28

Ashok Nagar STP Analysis Report for 2020-21

Except pH all values are in mg/lt

Parameters	Limits	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
pH	5.5-9.0	7.45	7.82	7.56	7.33	7.40	7.53	7.56	7.85	6.93	7.36
Total Suspended Solids	100	19	45	19	23	19	13	28	11	12	36
Oil & Grease	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5	<1.0	3.0	6.0
Biochemical Oxygen Demand (3 days at 27^0C)	30	13	10	12	13	16	13	16.4	2.0	6.0	10.0
Chemical Oxygen Demand	250	85	60	89	85	151	142	87.34	13.54	48.96	83.02
Total Residual Chlorine	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total kjeldahl Nitrogen (as N)	100	26	2.52	6.10	13.5	15.2	12.0	7.07	2.80	4.87	25.48
Amonical Nitrogen (as N)	50	8	<5.0	<5.0	6.3	7.5	7.2	4.87	2.24	2.25	19.88
Sulphide (as S)	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.62	<0.1	<0.1	0.62
Nitrate Nitrogen	10	4.3	3.94	5.12	4.15	6.7	5.2	9.15	9.1	4.01	7.78
Chlorides	1000	153.9	89.97	95.97	81.06	143.9	149.9	223.96	88.91	122.30	126.27
Sulphates	1000	235.6	26.01	31.05	41.32	89.2	77.3	158	45.65	43.0	66.44

Total Expenses for 2020-21

Particulars	Amount in Rs.
Plantation/Monitoring/Ash/RSPCB/Other Env Exp	**1505291**