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HINDUSTAN ZINC
Zinc & Silver of India

Reg. A/D

HZL/CLZS/ENV/33/2025-26 **31.05.2025**

To,
The Deputy Director(S)/Scientist-C
Ministry of Environment Forest & Climate Change,
Integrated Regional Office, A-209 & 218, Aranya Bhawan,
Jhalana Institutional Area, Jaipur - 302004

Sub: Six Monthly EC compliance report of Chanderiya Lead Zinc Smelter's Hydro smelter phase I & II, Pyro smelter, Ausmelt & Captive Power Plant (290 MW)

Ref:

EC Letter No. IA-J-11011/279/2006-IA-II(IND-I) dated, 29.12.2023

Sir,

With reference to aforesaid subject and cited references, it is to inform that we ae herewith submitting six-monthly compliance report for the conditions stipulated in the Environmental Clearance of Hydro smelter phase I & II, Pyro smelter, Ausmelt & Captive Power Plant (290 MW) of Chanderiya Lead Zinc Smelter for the period from **01.10.2024 to 31.03.2025** with all the enclosures and annexures.

Thanking you,

For Hindustan Zinc Limited

Yours faithfully,

Manisha Bhati

[Manisha Bhati]

Associate General Manager - Environment

Chanderiya Lead Zinc Smelter

Enclosures: Six monthly EC compliance report with Annexure

Annexure I	Work Zone (8 Hours) Environment Monitoring Results
Annexure II	Work Zone (15 Minutes) Environment Monitoring Results
Annexure III	Stack Details
Annexure IV	Stack Monitoring Results
Annexure V	Treated Water Monitoring Results
Annexure VI	River Water Monitoring Results
Annexure VII	Piezometer Borewell Results
Annexure VIII	Acid Plant Stack Monitoring Results
Annexure IX	Continuous Ambient Air Quality (CAAQM) Results
Annexure X	Ambient Air Quality Monitoring (AAQM) Results
Annexure XI	Ambient Noise Monitoring Results
Annexure XII	Online Emission Monitoring Average Report
Annexure XIII	Online Effluent Monitoring Average Report
Annexure XIV	GHG Emission Inventory
Annexure- XV	Green Cover Assessment Report
Annexure- XVI	Environmental Policy
Annexure- XVII	EC ad in News paper
Annexure- XVIII	EC copy to local bodies
Annexure- XIX	Single Use Plastic Awareness
Annexure- XX	Mineralogical Study Report
Annexure- XXI	Soil Monitoring Report
Annexure- XXII	Amended EC of CLZS
Annexure- XXIII	Noise monitoring inside the plant report

CC:

- The Regional Officer,
  Rajasthan State Pollution Control Board, Near FCI Godown, Chanderiya, Chittorgarh – 312001

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

- In-Charge (Zonal Officer)
  Central Pollution Control Board, Vithal Market, Paryavaran Parisar, E-5, Arera Colony,
  Bhopal – 462016 (MP)

- Office Copy

HINDUSTAN ZINC

Zinc & Silver of India

Six Monthly Compliance Report

to

Environmental Clearance Conditions

Of

Chanderiya Lead Zinc Smelter

M/s Hindustan Zinc Limited

Village – Putholi, District- Chittorgarh 312021,

Rajasthan

For the period: October-2024 to March-2025

EC Letter No. IA-J-11011/279/2006-IA-II(IND-I) dated. 29.12.2023

May - 2025

[HYDRO, PYRO, AUSMELT & 290 MW CPP]

S.No.	CONDITION	STATUS
A. SPECIFIC CONDITIONS:		
i.	**This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.**	Noted for compliance.
ii.	The project proponent shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.	Noted & complied.
iii.	The project proponent shall utilize modern technologies for capturing of carbon emitted and shall also develop carbon sink/carbon sequestration resources capable of capturing more than emitted. The implementation report shall be submitted to the IRO, MoEF&CC in this regard.	CCUS Capturing of carbon emitted and storage is not relevant to its utilization in Smelter Operations request to remove this condition. HZL has committed for NET ZERO by 2050. HZL is 1st metal and mining company in INDIA which has approved SBTi targets in alignment of 1.5^0 Centigrade Scenario. We have already started the work to achieve our short-term target of "reduction in Scope 1 & Scope 2 emissions by 50% by 2030" and long term target of "Net Zero by 2050". The Smelting process is an energy intensive process and around 90% of energy mix is electricity. We have already signed the agreement for captive utilization of 450 MW RE RTC power to reduce GHG emissions. As per the current planning, the remaining GHG emissions process will be shifted on electricity or Hydrogen based on availability of technology in upcoming years. The residual GHG emission will be offset by Carbon Capture Utilization & Sequestration techniques. These techniques will be used after 2040 for residual emission only. Remark: Detailed carbon Management Plan along with HZL de-carbonization strategy was part of Final EIA/EMP report of CLZS EC . HZL Commit to comply with General \Condition (GC-VII (ii).

iv.	The water requirement of 38570 KLD (existing) shall be sourced from Gosunda Dam (Fresh Water) & Proposed STP Chittorgarh/ Udaipur/ other proposed STP's (Recycled Water) and 500 KLD additional water for the Minor Metal Unit shall be sourced from RO permeate water from ETP. No ground water abstraction is permitted. PP shall maximize the usage of treated water.	Noted & is been complied.
v.	Following additional arrangements to control fugitive dust shall be provided: a) Fog / Mist Sprinklers at all conveyors point and on bulk raw material storage area (at the transfer points) like Iron Ore, Coal and for Fly Ash and similar solid waste storage areas. b) Proper covered vehicle shall be used while transport of materials. c) Wheel Washing mechanism shall be provided in entry and exit gates with complete recirculation system.	1) To minimize fugitive emissions Zn Concentrate containing 8-10% moisture is being handled. 2) Provision of water spraying at Zn concentrate stock yard has been provided and working satisfactorily. 3) Dust control system has been provided at material transfer points. 4) Mobile Vacuum dust sweeping system on industrial roads and vacuum dust cleaning system for plant area are exist at smelter to control airborne dust due to the vehicles movement. 5) Regular road washing is being done on industrial roads. 6) Truck & tyre washing system has been provided and working satisfactorily. 7) All roads are cemented/concreted. 8) Proper covered vehicles are used for the transportation of materials. 9) Bag filters are installed in the Roaster, Calcine handling & storage section, Zinc atomizing unit, Dross milling section to control fugitive emissions.  **Mobile Vaccum sweeper**

		 **Road washing**
vi.	All internal road and connecting road from project site to main highway shall be developed and maintained with suitable Million Axle Standard (MSA) as per the traffic load due to proposed project as per the action plan submitted.	All roads are cemented/concreted.
vii.	All stockyards shall be having impervious flooring and shall be equipped with water spray system for dust suppression. Stock yards shall also have garland drains to trap the run off material.	All stockyards have impervious flooring and also equipped with water spray system for dust suppression. Stockyards also have garland drains to trap the runoff material.
viii.	Performance test shall be conducted on all pollution control systems every year and report shall be submitted to Regional Office of the MoEF&CC.	Complied. Performance test is being carried out on Pollution control systems and results are attached as Stack emission monitoring reports.
ix.	Particulate matter levels from Hydro I & II Stacks shall be less than 30mg/Nm3, Pyro Metallurgical Smelter and Ausmelt shall achieve 30 mg/Nm3 by December 2026 and Captive Power Plant Stacks PM emission shall be less than 50mg/Nm3. Action plan submitted to limit the dust emission shall be strictly implemented. The PP shall periodically conduct Mineralogical composition study of the PM10 and shall ensure the constituents are well within the permissible limits. The reports shall be submitted to MoEFCC and uploaded in their six-monthly EC compliance report.	Complied. Mineralogical composition study report is being attached as ***Annexure-XX***
x.	CEMS shall be provided on all process stacks and the signal shall be received in	1) CEMS have provided on all process stacks.

	plant control room for central control of APCDs installed in the plant.	2) Pollution control systems are interlocked with process; and it is being ensured that emission levels are well below prescribed limit at any time. 3) In the event of failure of any pollution control system adopted by the unit, the respective unit is restarted until the control measures are rectified to achieve the desired efficiency.
xi.	Risk assessment and Disaster Management Plan shall be strictly implemented as per the action plan submitted to the Ministry.	We will ensure the implementation of Disaster Management Plan strictly as per Onsite Emergency Response Control Plan of the Location.
xii.	SO2 emissions from H2SO4 Plant shall be less than 1kg/t from Hydro Zinc Smelters. SO2 emissions from H2SO4 Plant of pyro & Ausmelt plant shall be achieved less than 1kg/t by December 2026.	Complied.
xiii.	Acid mist from H2SO4 plant at Hydro units shall be maintained at <30 mg/Nm3, and Acid mist from pyro and Ausmelt shall be achieved less than 30 mg/Nm3 by December 2026.	Complied.
xiv.	Particulate matter levels from Hydro I & II Stacks shall be less than 30mg/Nm3, Pyro Metallurgical Smelter and Ausmelt shall achieve 30 mg/Nm3 by December 2026 and Captive Power Plant Stacks PM emission shall be less than 50mg/Nm3.	Complied.
xv.	100% Solid waste generated shall be utilised/ properly disposed. The PP shall explore and implement the principles of 'Circular Economy'. The PP shall periodically conduct study for the presence of Heavy metals/ metalloids contamination and leaching in the soil within 2 kms of the Project and shall take all remedial measures in this respect. The reports shall be submitted to MoEF&CC and uploaded in their six-monthly EC compliance report.	HZL at its CLZS Unit is disposing 100% of its generated solid waste through Third Party Vendor. Study to conduct Heavy metals/ metalloids contamination and leaching in the soil within 2 kms of the Project has conducted and reports annexed as ***Annexure- XXI***. HZL is ensuring and implementing principles of 'Circular Economy' by its existing Waste to Wealth and waste to recovery Initiatives.
xvi.	Putholi Nala is passing through the plant site and Berach River is flowing adjacent to the project site in the East direction. Also, Gambhir Nadi(~4.0 km, S), Nagdi ka Nala (~8.5 km, NNE) and Canal (~8 km, WNW) are flowing within 10 Km. radius of the plant site. As submitted, a robust and full proof Drainage Conservation scheme to protect the natural drainage and its flow	Noted. A study by Expert institute /Consultant will be carried out to prepare robust and full proof Drainage Conservation scheme to protect the natural drainage and its flow parameters, along with Soil conservation scheme and multiple Erosion control measures for implementation by December 2025.

	parameters; along with Soil conservation scheme and multiple Erosion control measures shall be strictly implemented.	
xvii.	The proposed project shall be designed as "Zero Liquid Discharge" Plant. ETP shall be installed and there shall be no discharge of effluent from the plant. Domestic effluent shall be treated in Sewage Treatment Plant. MSW waste shall be treated in digester and recovered gas shall be used in the canteen.	The Existing Smelter is designed as a "Zero Liquid Discharge" Plant. 2 ETP viz 8400 KLD & 4200 KLD are already present at site along with RO's , MEE /MVR to ensure and maintain Zero Liquid Discharge from site. Domestic effluent is been treated in existing 1000 KLD Sewage Treatment Plant. Organic waste is treated in Organic Waste Composter already present at Plant and Township and manure is used in horticulture activities.
xviii.	Existing ETP shall be strengthened to recycle additional effluent by installing MEE for RO rejects.	(1) All effluent is treated in ETP followed by RO and MEE. (2) Zero discharge is being maintained at our plant. Treated water monitoring results are annexed as ***Annexure-V.***
xix.	The company shall also undertake rain water harvesting measures as per the plan submitted in the EIA/EMP report and reduce water dependence from the outside source.	We have constructed a dam having capacity very larger than our requirement. Further we have constructed Ponds/Anicuts. Apart from these HZL has constructed many rainwater harvesting structures (comprising of check dams, Weirs, Earthen check dams, cemented check dams etc).
xx.	The nearest habitation to plant are Putholi (~0.5 km in SW), Ajoliya Ka Khera (~ 1 km in West) and Biliya (~ Adjacent in North) from plant site. There are approx. 75 villages and 1 city in 10 km radius study area. Project Proponent shall take appropriate environmental safeguard measures to minimise the impact on the habitation of the locals. The company shall also include these locations in its environmental monitoring program.	Complied and added in the environment monitoring program.
xxi.	Solar Energy shall be generated at the roof tops of the plant and office buildings.	Is being complied at site. Solar Power is generated at Hydro 2 CDSS /Lab building, Hydro 1 leaching office, Switchyard control room building, Zinc School & Boy's Hostel/Utility Building at Zinc Nagar, Pyro Offices.

		 **Solar Panel at roof top**
xxii.	A proper action plan must be implemented to dispose of the electronic waste generated in the industry.	E-Waste is disposed as per CLZS Waste Management Plan and is being send to the register recycler.
xxiii.	The PP shall implement the recommendations of the root cause analysis report on accident occurred in the Unit to prevent the future accident in the industry.	Noted & is been complied at site. All the recommendations are closed.
xxiv.	Three tier Green Belt shall be developed in at least 37% of the project area and shall be completed by 2023-24 all along the periphery of the project site of adequate width and tree density shall not be less than 2500 per ha. Gap filling shall be undertaken and survival rate of green belt developed shall be monitored on periodic basis to ensure that damaged plants are replaced with new plants in the subsequent years. Further, greenbelt shall also be developed in the form of shelter belt comprising of total of 6 rows of 2x2 m plantation with tall trees & broad leaves with thick canopy along with windshield to act as green barrier for air pollution & noise levels towards the Putholi, Ajoliya Ka Khera and Biliya villages inside the plant premises. All the plantation work should be done in consultation with Arid Forest Research Institute, Jodhpur. Compliance status in this regard, shall be submitted to concerned Regional Office of the MoEF&CC.	HZL Chanderiya has covered more than 37% Green Belt at project area. We are working in the development of tree density up to 2500 per ha by 2025. Miyawaki plantation is developed at project site and plantation is being done at Jarofix-II dump yard.  

		Percentage Green-cover Green-cover Category / Chanderiya Lead Zinc Smelter Land / New Acquired Land / Combined Land Dense Green-cover: 31.56% / 26.61% / 30.41% Sparse Green-cover / New Plantation: 05.66% / 28.59% / 10.98% Total Green-cover: 37.21% / 55.20% / 41.39% **Kappa Accuracy of Assessment: 0.83** *Results derived from: ESA-Sentinel-2 imagery (10 m spatial resolution)* *Reference data: IRS-Cartosat 2E-MX imagery (2 m spatial resolution) and ground-truth field photographs*
xxv.	Greening and Paving shall be implemented in the plant area to arrest soil erosion and dust pollution from exposed soil surface.	Noted & been Complied.
xxvi.	Air Cooled condensers shall be used in the captive power plant.	It has been removed as per amendment in EC dated 03/04/2025. Attached as ***Annexure-XXII.***
xxvii.	During operational phase at Captive Power Plant, PP shall measure coal dust exposures and to maintain coal dust exposures within stipulated standards at coal handling areas. PP shall identify extreme hot areas through heat stress survey as well as noise monitoring within process plants to ensure that workers not exposed above 90 dBA levels as per Factories Act, 1948.	We are ensuring coal dust exposures and maintain it within stipulated standards at coal handling areas. Annexed in ***Annexure-II.*** Heat stress analysis for the workmen is carried out and PPE'S given to workers as per site condition, SOP & nature of work. Noise monitoring within process plants has been conducted and report attached as ***Annexure-XXIII.***
xxviii.	As committed by the PP to adopt the five revenue villages namely Ajoliya Ka Khera, Biliya, Moonga Ka Khera, Nagri and Putholi, as a part of model village development plan, project proponent shall strictly implement the submitted plan for socio-economic development to develop them into model villages. PP shall extend the occupational health monitoring to the villagers on a random basis to establish any health disorders due to the project's operations. PP shall also construct and maintain Rainwater harvesting pits in the adjacent village and school. The PP shall develop avenue plantation along the roads, villages and schools and other suitable places.	We have identified projects based on community priorities and with significant local contributions. We are implementing the submitted plan for socio-economic development to develop them into model villages. We will conduct occupational health monitoring to the villagers on a random basis to establish any health disorders due to the project's operations. Rainwater harvesting pits are constructed in the adjacent village and school. Plantation along the roads, villages and schools and other suitable places has already developed.
xxix.	All the commitments made to the public during the Public Hearing/Public Consultation shall be satisfactorily implemented. The action plan based on the social impact assessment study of the project as per the EMP in accordance to the Ministry's OM dated 30.09.2020 shall be	We will ensure the satisfactory implementation of all the commitments made to the public during the public hearing. The action plan based on the social impact assessment study of the project as per the EMP in accordance to the Ministry's OM dated 30.09.2020 will be implemented and progress will be submitted to the Regional office of MoEF&CC.

	strictly implemented and progress shall be submitted to the Regional Office of MoEF&CC.	
xxx.	The recommendations of the approved Site-Specific Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report to the concerned Regional Office of the MoEF&CC.	Wild Life conservation plan is approved by PCCF Jaipur and will be implemented as submitted.
xxxi.	The Plastic Waste Management Rules 2016, inter-alia, mandated banning of identified Single Use Plastic (SUP) items with effect from 01/07/2022. In this regard, CPCB has issued a direction to all the State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs) on 30/06/2022 to ensure the compliance of Notification published by Ministry on 12/08/2021. The technical guidelines issued by the CPCB in this regard is available at https://cpcb.nic.in/technicalguidelines-3/. All the project proponents are hereby requested to sensitize and create awareness among people working within the Project area as well as its surrounding area on the ban of SUP in order to ensure the compliance of Notification published by this Ministry on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report being submitted by the project proponents.	We have conducted awareness programs on the ban of SUP for the workers and people of nearby areas. Also distributed 1000 nos of cloth bags on behalf of world environment day-2024. SUP is banned at site. Commitment policy along with Bidder undertaking which is being ensured at site is  attached as *Annexure-XIX*. 
xxxii.	The project proponent shall adopt the Clean Air practices like mechanical collectors, wet scrubbers, fabric filters (bag houses), electrostatic precipitators, combustion systems (thermal oxidizers), condensers, absorbers, adsorbers, and biological degradation. Controlling emissions related to transportation shall include emission	To adopt clean air practices pollution control equipments like mechanical collectors, wet scrubbers, fabric filter etc have been provided. Sufficient numbers of trucks mounted with Fog/Mist water cannons have been operated inside the project premises regularly and also in surrounding villages to arrest suspended dust in the atmosphere.

	controls on vehicles as well as use of cleaner fuels. Sufficient numbers of additional truck mounted Fog/Mist water cannons shall be procured and operated regularly inside the project premises and also in the surrounding villages to arrest suspended dust in the atmosphere.	 Road washing
B. GENERAL CONDITIONS:		
I.	**Statutory compliance:**	
i.	The Environment Clearance (EC) granted to the project/ activity is strictly under the provisions of the EIA Notification, 2006 and its amendments issued from time to time. It does not tantamount/ construe to approvals/ consent/ permissions etc., required to be obtained or standards/conditions to be followed under any other Acts/Rules/Subordinate legislations, etc., as may be applicable to the project.	Noted
II.	**Air quality monitoring and preservation**	
i.	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission as well as four Continuous Ambient Air Quality Station (CAAQS) one within and three outside the plant area at an angle of 120° each for monitoring AAQ parameters with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time. The CEMS and CAAQMS shall be connected to SPCB and CPCB online servers and calibrate these systems from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	Installed 24X7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and these systems are being calibrated according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.

ii.	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	Fugitive emission monitoring is done by labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories. Report annexed as ***Annexure-I.***
iii.	The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality / fugitive emission to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.	Stacks are connected with PCB server and data is being transferred regularly. Air quality monitoring, manual stack monitoring and manual air quality/fugitive emission reports are submitted to Regional Office of MoEF & CC, Zonal Office of CPCB and Regional Office to SPCB along with six monthly monitoring report. Manual stack monitoring report from **Oct'24 to Mar'25** is attached as ***Annexure-IV.*** Continuous ambient air quality report from **Oct'24 to Mar'25** is attached as ***Annexure-IX.*** Manual ambient air quality report is attached as ***Annexure-X.*** Continuous stack emission monitoring report is attached as ***Annexure-XII.***
iv.	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.	Appropriate Air Pollution Control (APC) system is provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.
v.	The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.	Bag filter and differential pressure monitoring in place with periodic inspection system.
vi.	Pollution control system in the plant shall be provided as per the CREP Guidelines of CPCB.	CREP guidelines are strictly followed.
vii.	The project proponent shall ensure covered transportation and conveying of ore, coal and other raw material to prevent spillage and dust generation.	Transportation is being done in covered manner by wagons and trucks. 

		 **Covered conveyers**
viii.	Provide covered sheds for raw materials like coal, etc.	Raw material & Coal is being stored in covered shed, some coal in transit state is in open.  **Coal storage under the shed**
ix.	Practice use if low-sulphur tars for baking anodes.	We are not using low sulphur tars for baking anodes.
x.	Plant internal roads shall be concreted and sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly. shall be used to regularly clean the roads.	Plant internal roads are concreted. Mobile Vacuum dust sweeping system on industrial roads and vacuum dust cleaning system for plant area are exist at smelter to control airborne dust due to the vehicles movement.  **Mobile Vaccum sweeper**
xi.	Design the ventilation system for adequate air changes as per prevailing norms for all tunnels, motor houses, Oil Cellars.	Not Applicable

III.	**Water quality monitoring and preservation**	
i.	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 (G.S.R 414 (E) dated 30th May 2008; as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.	The industry has already installed 24X7 continuous effluent monitoring system. Industry is 100% utilizing its wastewater through ETP, RO and MEE and maintaining Zero Liquid discharge & no effluent is discharged at any stage on the ground.
ii.	The project proponent shall monitor regularly ground water quality at least twice a year (preand post-monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.	Ground water quality monitoring is being done and report is being submitted along with six monthly compliance report. Ground water quality monitoring report is attached as ***Annexure-VII.***
iii.	The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual stack monitoring and manual monitoring of air quality / fugitive emission to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.	CLZS plant is maintaining zero liquid Discharge & no effluent is discharged at any stage on the ground. Ground water quality is monitored & report is being submitted along with six monthly monitoring report. Monthly summary report of continuous effluent monitoring is attached as ***Annexure-XII.***
iv.	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.	Sewage water is being treated in STP plant at CLZS plant and Zinc Nagar.  **STP**
v.	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.	Garland drains are available and merging with collection pits to arrest the run-off.

vi.	The project proponent shall make efforts to minimise water consumption in the plant complex by segregation of used water, practicing cascade use and by recycling treated water.	Industry is 100% recycling its wastewater through ETP, RO and MEE. Treated wastewater is being utilized in the process.
IV.	**Noise monitoring and prevention**	
i.	Noise quality shall be monitored as per the prescribed Noise Pollution (Regulation and Control) Rules, 2000 and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.	Noise quality monitoring is done and report is annexed herewith six-monthly compliance report. Report is attached as ***Annexure-XI.***
ii.	The ambient noise levels should conform to the standards prescribed under E(P) A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.	The ambient noise levels are always within the standards prescribed under EPA Rules,1986 viz. 75 dBA (day time) and 70 dBA (night time).
V.	**Energy Conservation measures**	
i.	The project proponent shall provide waste heat recovery system (pre-heating of combustion air) at the flue gases.	Waste heat recovery system is in place.
ii.	Energy conservation measures may be adopted such as adoption of solar energy and provision of LED lights etc., to minimize the energy consumption.	Energy conservation measures are adopted: 1.In Offices and residential area LED lights available & also under replacement as per requirement. 2. Solar Power is generated at Hydro 2 CDSS /Lab building, Hydro 1 leaching office, Switchyard control room building, Zinc School & Boy's Hostel/Utility Building at Zinc Nagar, Pyro Offices. 3. Many energy conservation projects are also taken. Detailed information mentioned in ECMP.
VI.	**Waste management**	
i.	100% utilisation of fly ash shall be ensured. All the fly ash shall be provided to cement and cement brick manufacturers for further utilisation and Memorandum of Understanding in this regard shall be submitted to the Ministry's Regional Office.	Presently 100 % utilization is being done and fly ash is being sold to cement and brick manufactures.
ii.	Oily scum and metallic sludge recovered from rolling mills ETP shall be mixed, dried, and briquetted and reused in melting Furnaces.	No oily scum generated, inorganic ETP sludge is disposed off in SLF in scientific manner after stabilization.
iii.	The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous & Other waste (Management & transboundary Movement) Rules, 2016 and amendment thereof.	Waste and Used oil are being sold to registered recyclers.

iv.	Kitchen waste shall be composted or converted to biogas for further use.	Kitchen waste is being compost through OWC.
VII.	**Green Belt**	
i.	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.	GHG emissions inventory and reduction plan is attached as ***Annexure-XIV***.
ii.	Project proponent shall submit a study report on Decarbonisation program, which would essentially consist of company's carbon emissions, carbon budgeting/ balancing, carbon sequestration activities and carbon offsetting strategies. Further, the report shall also contain time bound action plan to reduce its carbon intensity of its operations and supply chains, energy transition pathway from fossil fuels to Renewable energy etc. All these activities/ assessments should be measurable and monitorable with defined time frames", when PP comes for EC proposal. This study shall be formulated keeping in view of India's Net-zero commitment at the COP-26 Climate Summit.	Study report is attached as ***Annexure-XIV***.
VIII.	**Public hearing and Human health issues**	
i.	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	Emergency preparedness plan is prepared and implemented at site.
ii.	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE).	Heat stress analysis for the workmen is carried out and PPE'S given to workers as per site condition, SOP & nature of work.
iii.	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP. Safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	All project related labours are local & from near by area, No stay arrangement required. We have site facility of medical, safe drinking water, wash/rest house.
iv.	Occupational health surveillance of the workers shall be done on a regular basis and records maintained.	PME is being done of workers on regular basis and record is being maintained.
IX.	**Environment Management**	

i.	The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 30/09/2020.	Noted & will be complied
ii.	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.	Company has environment policy duly approved by Board of Director. Annexed as ***Annexure-XVI.***
iii.	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel already set up under the control of Associate General Manager, he directly reports to the head of the organization.
X.	**Miscellaneous**	
i.	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.	Environment clearance granted for this project published in two local newspapers of District or state and this EC is displayed in company website permanently. Refer ***Annexure- XVII-A & B.***
ii.	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.	Copies of EC submitted to local bodies /panchayat & RSPCB office of Chittorgarh. Refer ***Annexure-XVIII.***
iii.	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions,	Compliance of environment clearance conditions including results of monitored data is uploaded on company website and updated on half yearly basis.

	including results of monitored data on their website and update the same on half-yearly basis.	
iv.	The project proponent shall monitor the criteria pollutants level namely; PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.	Ambient levels as well as stack emission is displayed at company outer gate and put on the website of the company along with half yearly compliance report.
v.	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.	Six monthly Environment Clearance compliance report submitted on regular basis. Here we are submitting report for the period of **October'2024 to March'2025.**
vi.	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.	Environment statement for each financial year is being submitted in Form V to State Pollution Control Board as prescribed under the Environment (Protection) Rules,1986 as amended subsequently and put on the website of the company.
vii.	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.	Agreed. All the details of plant activities is informed to RO & MoEF.
viii.	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.	Noted & is been complied.
ix.	The PP shall put all the environment related expenditure, expenditure related to Action Plan on the PH issues, and other commitments made in the EIA/EMP Report etc. in the company web site for the information to public/public domain. The PP shall also put the information on the left over funds allocated to EMP and PH as committed in the earlier ECs and shall be	Noted & is been complied.

	carried out and spent in next three years, in the company web site for the information to public/public domain.	
x.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	Agreed. No further expansion or modifications in the plant is carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF & CC).
xi.	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.	Agreed and we extend full cooperation of the officer (S) of the Regional Office by furnishing the requisite data/information/monitoring reports.

Annexure - I

HINDUSTAN ZINC LIMITED

CHANDERIA LEAD ZINC SMELTER

Work Zone (8 - Hours) Monitoring Results

[Oct'24 - Mar'25]

Month Location	Parameters/ Unit	Prescribed Standards*	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
Pyro Plant								
Pyro RMH	SPM mg/m³	10	0.68	0.75	0.82	0.86	0.78	2.19
	SO_2mg/m³	5	NIL	NIL	NIL	NIL	NIL	0.8
	Zn mg/m³	5	0.064	0.079	0.075	0.060	0.053	1.6
	Pb mg/m³	0.15	BDL	BDL	BDL	BDL	BDL	0.05
	Cd mg/m³	0.05	BDL	BDL	BDL	BDL	BDL	< 0.01
Pyro Sinter Area	SPM mg/m³	10	0.5	0.71	0.495	0.55	0.68	2.35
	SO_2mg/m³	5	NIL	NIL	0.012	NIL	NIL	0.7
	Zn mg/m³	5	0.053	0.084	BDL	0.049	0.048	1.3
	Pb mg/m³	0.15	BDL	BDL	< 0.05	BDL	BDL	0.04
	Cd mg/m³	0.05	BDL	BDL	BDL	BDL	BDL	< 0.01
LRP Casting Area	SPM mg/m³	10	0.70	0.79	0.519	0.87	0.87	2.80
	SO_2mg/m³	5	NIL	NIL	0.014	NIL	NIL	0.3
	Zn mg/m³	5	0.02	0.024	BDL	0.033	0.061	1.9
	Pb mg/m³	0.15	BDL	BDL	< 0.05	BDL	BDL	0.04
	Cd mg/m³	0.05	BDL	BDL	BDL	BDL	BDL	< 0.01
LRP K-5 Dross Area	SPM mg/m³	10	0.68	0.78	0.80	0.92	0.74	2.27
	SO_2mg/m³	5	NIL	NIL	NIL	NIL	NIL	0.8
	Zn mg/m³	5	0.015	0.024	0.084	0.038	0.040	1.2
	Pb mg/m³	0.15	BDL	BDL	BDL	BDL	BDL	0.05
	Cd mg/m³	0.05	BDL	BDL	BDL	BDL	BDL	< 0.01

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - I

HINDUSTAN ZINC LIMITED

CHANDERIA LEAD ZINC SMELTER

Work Zone (8 - Hours) Monitoring Results

[Oct'24 - Mar'25]

Month Location	Parameters/ Unit	Prescribed Standards*	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
CPP, H-1 & H-2 Plant								
H-1 Purification	**SPM mg/m³**	**10**	0.54	0.40	0.451	0.38	0.40	1.44
	SO_2mg/m³	**5**	NIL	NIL	0.014	NIL	NIL	0.7
	Zn mg/m³	**5**	0.103	0.074	BDL	0.065	0.071	1.2
	Pb mg/m³	**0.15**	BDL	BDL	BDL	BDL	BDL	0.04
	Cd mg/m³	**0.05**	BDL	BDL	BDL	BDL	BDL	< 0.01
H-1 Cell House	**SPM mg/m³**	**10**	0.15	0.21	0.461	0.15	0.18	1.03
	SO_2mg/m³	**5**	NIL	NIL	0.011	0.196	0.146	0.4
	Zn mg/m³	**5**	BDL	BDL	BDL	BDL	BDL	0.6
	Pb mg/m³	**0.15**	BDL	BDL	BDL	BDL	BDL	0.02
	Cd mg/m³	**0.05**	BDL	BDL	BDL	BDL	BDL	< 0.01
H-2 Purification	**SPM mg/m³**	**10**	0.34	0.41	0.42	0.55	0.41	1.33
	SO_2mg/m³	**5**	NIL	NIL	NIL	NIL	NIL	0.9
	Zn mg/m³	**5**	0.062	0.073	0.083	0.10	0.067	0.8
	Pb mg/m³	**0.15**	BDL	BDL	BDL	BDL	BDL	0.03
	Cd mg/m³	**0.05**	BDL	BDL	BDL	BDL	BDL	< 0.01
H-2 Cell House	**SPM mg/m³**	**10**	0.19	0.16	0.495	0.16	0.20	0.88
	SO_2mg/m³	**5**	NIL	NIL	0.015	0.147	0.126	0.9
	Zn mg/m³	**5**	BDL	BDL	BDL	BDL	BDL	0.6
	Pb mg/m³	**0.15**	BDL	BDL	BDL	BDL	BDL	0.03
	Cd mg/m³	**0.05**	BDL	BDL	BDL	BDL	BDL	< 0.01
CPP Coal Yard	**SPM mg/m³**	**10**	0.62	0.72	0.458	0.738	0.90	2.98
	SO_2mg/m³	**5**	NIL	NIL	0.015	NIL	NIL	< 0.10
	Zn mg/m³	**5**	BDL	BDL	BDL	BDL	BDL	< 0.01
	Pb mg/m³	**0.15**	BDL	BDL	< 0.05	BDL	BDL	< 0.01
	Cd mg/m³	**0.05**	BDL	BDL	BDL	BDL	BDL	< 0.01

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - II

HINDUSTAN ZINC LIMITED

CHANDERIA LEAD ZINC SMELTER

Work Zone (15 – Minute) Monitoring Results

[Oct'24 - Mar'25]

Month Location	Parameters/ Unit	Prescribed Standards*	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
Pyro Plant								
Pyro RMH	SPM mg/m³	-	4.00	4.33	2.66	4.66	4.00	3.00
	SO_2mg/m³	10	NIL	NIL	NIL	NIL	NIL	NIL
	Zn mg/m³	10	0.051	0.060	0.036	0.086	0.053	0.046
	Pb mg/m³	0.45	BDL	BDL	BDL	BDL	BDL	BDL
	Cd mg/m³	0.2	BDL	BDL	BDL	BDL	BDL	BDL
Pyro Sinter Area	SPM mg/m³	-	3.66	4.33	3.00	4.00	3.66	5.66
	SO_2mg/m³	10	NIL	NIL	NIL	NIL	NIL	NIL
	Zn mg/m³	10	0.056	0.071	0.038	0.056	0.043	0.068
	Pb mg/m³	0.45	BDL	BDL	BDL	BDL	BDL	BDL
	Cd mg/m³	0.2	BDL	BDL	BDL	BDL	BDL	BDL
LRP Casting Area	SPM mg/m³	-	2.66	4.00	3.00	2.66	4.33	3.00
	SO_2mg/m³	10	NIL	NIL	NIL	NIL	NIL	NIL
	Zn mg/m³	10	0.036	0.053	0.041	0.036	0.062	0.035
	Pb mg/m³	0.45	BDL	BDL	BDL	BDL	BDL	BDL
	Cd mg/m³	0.2	BDL	BDL	BDL	BDL	BDL	BDL
LRP K-5 Dross Area	SPM mg/m³	-	5.66	3.66	5.00	4.66	4.00	5.66
	SO_2mg/m³	10	NIL	NIL	NIL	NIL	NIL	NIL
	Zn mg/m³	10	0.089	0.061	0.067	0.063	0.050	0.083
	Pb mg/m³	0.45	BDL	BDL	BDL	BDL	BDL	BDL
	Cd mg/m³	0.2	BDL	BDL	BDL	BDL	BDL	BDL

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - II

HINDUSTAN ZINC LIMITED

CHANDERIA LEAD ZINC SMELTER

Work Zone (15 – Minute) Monitoring Results

[Oct'24 - Mar'25]

Month Location	Parameters/ Unit	Prescribed Standards*	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
CPP, H-1 & H-2 Plant								
H-1 Purification	SPM mg/m³	-	2.66	3.66	2.33	3.00	2.00	1.66
	SO_2mg/m³	10	NIL	NIL	NIL	NIL	NIL	NIL
	Zn mg/m³	10	0.039	0.050	0.026	0.039	0.033	0.025
	Pb mg/m³	0.45	BDL	BDL	BDL	BDL	BDL	BDL
	Cd mg/m³	0.2	BDL	BDL	BDL	BDL	BDL	BDL
H-1 Roaster Area	SPM mg/m³	-	4.33	6.33	5.66	6.66	5.33	4.00
	SO_2mg/m³	10	NIL	NIL	NIL	NIL	NIL	NIL
	Zn mg/m³	10	0.068	0.075	0.083	0.084	0.061	0.070
	Pb mg/m³	0.45	BDL	BDL	BDL	BDL	BDL	BDL
	Cd mg/m³	0.2	BDL	BDL	BDL	BDL	BDL	BDL
H-2 Purification	SPM mg/m³	-	3.00	4.66	2.33	2.00	1.66	3.33
	SO_2mg/m³	10	NIL	NIL	NIL	NIL	NIL	NIL
	Zn mg/m³	10	0.035	0.064	0.035	0.024	0.020	0.040
	Pb mg/m³	0.45	BDL	BDL	BDL	BDL	BDL	BDL
	Cd mg/m³	0.2	BDL	BDL	BDL	BDL	BDL	BDL
H-2 Roaster Area	SPM mg/m³	-	3.33	4.33	3.66	5.00	5.33	4.33
	SO_2mg/m³	10	NIL	NIL	NIL	NIL	NIL	NIL
	Zn mg/m³	10	0.048	0.056	0.060	0.068	0.073	0.059
	Pb mg/m³	0.45	BDL	BDL	BDL	BDL	BDL	BDL
	Cd mg/m³	0.2	BDL	BDL	BDL	BDL	BDL	BDL
CPP Coal Yard	SPM mg/m³	-	1.66	4.33	4.00	3.66	4.33	6.00
	SO_2mg/m³	10	NIL	NIL	NIL	NIL	NIL	NIL
	Zn mg/m³	10	BDL	BDL	BDL	BDL	BDL	BDL
	Pb mg/m³	0.45	BDL	BDL	BDL	BDL	BDL	BDL
	Cd mg/m³	0.2	BDL	BDL	BDL	BDL	BDL	BDL

BDL- Below Detection Limit (The measurement of uncertainty at 95% confidence level is 0.004 Abs. in AAS)

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Chanderia Lead Zinc Smelter

Annexure - III

HINDUSTAN ZINC LIMITED

CHANDERIA LEAD ZINC SMELTER

STACK HEIGHT DETAILS

S. No.	Stack Attached to	Height (m)
Pyro		
1	Sinter Main	75
2	Sinter Venturi	45
3	Crusher Main	75
4	Crusher Venturi	75
5	ISF slagging floor	75
6	Zinc Refinery Plant (ZRP Main) ventilation stack	60
7	Zinc Refinery Plant (ZRP) fume extraction	35
8	LRP Main	75
9	Copper Recovery Plant	30
10	LRP Copper Drossing	34
11	PYRO Acid Plant (TGT)	75
Ausmelt		
1	Dust extraction system of feed handling (RMH)	35
2	Hygiene and ventilation system	30
3	Ausmelt furnace	52
4	SO_2 absorption tower (Cansolve acid)	55
Hydro 1		
1	Zinc dross milling bag filter	30
2	Zinc atomizing bag filter(Zinc Dust)	30
3	Zinc melting furnace bag filter (1st stack)	30
4	Zinc melting furnace bag filter (2nd stack)	30
5	Acid plant	100
Hydro 2		
1	Zinc Melting Furnace bag filter – 1	30
2	Zinc Melting Furnace bag filter - 2	30
3	Zinc Dross Milling bag filter	30
4	Zinc atomizing bag filter(Zinc Dust)	30
5	Acid plant	100
Fumer		
1	Off Gases	80
2	Fuming Furnace	75
CPP		
1	Captive power plant 154 MW	165
2	Captive power plant 100 MW	165
3	Coal Crusher	20

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - IV

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Stack Monitoring Results (PM & LEAD)

(Oct'24 - Mar'25)

Location	Parameters	Limit	Unit	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
Sinter Main	PM	150	Mg/Nm^3	35.9	48.7	36.2	36.8	54.4	28.4
	Lead	10	Mg/Nm^3	7.06	6.84	2.32	4.34	6.56	0.75
Sinter Venturi	PM	150	Mg/Nm^3	17.0	19.5	34.9	28.8	16.7	29.2
	Lead	10	Mg/Nm^3	1.71	2.45	2.78	3.87	2.51	0.33
Crusher Main	PM	150	Mg/Nm^3	46.8	55.9	34.2	41.9	21.9	30.2
	Lead	10	Mg/Nm^3	2.06	2.76	3.02	1.44	4.85	2.4
Crusher Venturi	PM	150	Mg/Nm^3	9.3	13.1	37.2	16.1	10.3	17.7
	Lead	10	Mg/Nm^3	0.66	1.16	2.03	1.75	1.03	1.5
LRP Main	PM	150	Mg/Nm^3	10.6	17.5	35.8	10.1	15.1	24.5
	Lead	10	Mg/Nm^3	3.27	5.78	1.69	0.37	0.59	0.53
ZRP Main	PM	150	Mg/Nm^3	PSD	11.5	36.2	10.1	12.7	16.2
	Lead	10	Mg/Nm^3	PSD	BDL	<1.0	BDL	BDL	0.38
ZRP Fume	PM	150	Mg/Nm^3	PSD	24.7	39.3	16.7	14.2	22.0
	Lead	10	Mg/Nm^3	PSD	BDL	<1.0	BDL	BDL	0.59

*PSD – Plant Under Shut Down *

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Chanderia Lead Zinc Smelter

Annexure - IV

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Stack Monitoring Results (PM & LEAD)

[Oct'24 - Mar'25]

Location	Parameters	Limit	Unit	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
LRP Copper Drossing	PM	150	Mg/Nm^3	13.0	14.5	36.9	8.0	8.3	22.4
	Lead	10	Mg/Nm^3	4.80	4.43	2.21	2.43	2.09	0.37
ISF Slagging Floor	PM	150	Mg/Nm^3	63.2	55.6	33.9	31.4	36.7	27.9
	Lead	10	Mg/Nm^3	5.46	8.01	2.15	4.94	6.28	1.4
CRP Milling	PM	150	Mg/Nm^3	CRP Milling plant is not in operation					
	Lead	10	Mg/Nm^3						
Ausmelt RMH	PM	30	Mg/Nm^3	15.7	21.4	27.3	18.5	19.4	15.1
	Lead	10	Mg/Nm^3	2.39	2.93	2.06	2.68	2.43	0.25
Ausmelt Hygiene	PM	30	Mg/Nm^3	11.1	9.6	28.6	11.7	8.2	8.5
	Lead	10	Mg/Nm^3	0.39	0.20	2.41	0.35	0.24	< 0.05

Ausmelt Furnace stack is not in regular operation

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - IV

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Stack Monitoring Results (PM)

[Oct'24 - Mar'25]

Location	Parameters	Limit	Unit	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
H-1 ZMC – 1	PM	30	Mg/Nm^3	19.1	13.4	21.3	9.4	12.5	17.6
H-1 ZMC – 2	PM	30	Mg/Nm^3	20.6	14.8	22.5	17.5	14.6	12.0
H-1 Zinc Dust	PM	30	Mg/Nm^3	12.7	9.7	20.3	13.8	11.1	12.8
H-1 Zinc Dross	PM	30	Mg/Nm^3	18.2	18.6	18.2	18.9	16.5	13.4
H-2 ZMC -1	PM	30	Mg/Nm^3	12.7	15.6	21.6	14.5	15.6	10.8
H-2 ZMC-2	PM	30	Mg/Nm^3	15.9	17.5	18.9	17.4	16.9	14.8
H-2 Zinc Dross	PM	30	Mg/Nm^3	16.3	10.7	20.6	12.2	10.5	15.9
H-2 Zinc Dust	PM	30	Mg/Nm^3	8.2	8.8	19.3	12.6	7.1	14.8
Fumer- Off Gases	PM	50	Mg/Nm^3	18.75	15.09	28.6	15.29	10.37	11.9
Coal Crusher	PM	50	Mg/Nm^3	10.4	7.2	24.5	7.3	9.8	29.6

NA – Not Analyzed

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - IV

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Stack Monitoring Results (PM, SO2, NOx, Hg)

[Oct'24 - Mar'25]

Location	Parameters	Limit	Unit	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
Fumer- Fuming Furnace	PM	50	Mg/Nm^3	12.27	9.86	27.6	8.46	8.70	28.3
	SO_2	600	Mg/Nm^3	106.9	94.4	178	22.8	138.8	65.2
	NO_x	450	Mg/Nm^3	NA	NA	126	NA	NA	78.7
CPP (154 MW) Unit - 1 & 2	PM	50	Mg/Nm^3	29.2	21.6	35.6	41.2	38.6	41.5
	SO_2	600	Mg/Nm^3	1685.8	577.5	920.4	1373.6	1318.6	1250.0
	NO_x	450	Mg/Nm^3	NA	NA	340.9	NA	NA	419.8
	Hg	0.03	Mg/Nm^3	NA	NA	<0.01	NA	NA	0.02
CPP (100 MW) Unit – 3	PM	50	Mg/Nm^3	19.8	33.8	33.2	29.6	33.6	39.4
	SO_2	600	Mg/Nm^3	1360.3	636.9	970.5	1516.4	1530.4	983.0
	NO_x	450	Mg/Nm^3	NA	NA	360.2	NA	NA	299.0
	Hg	0.03	Mg/Nm^3	NA	NA	<0.01	NA	NA	0.02

NA – Not Analyzed

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - V

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Treated Water Monitoring Results

[Oct'24 - Mar'25]

ETP Outlet– (Hydro – 2)

S.NO.	Parameter	Unit	Limit	Result Oct-Dec'24	Result Jan-Mar'25
1	pH	-	5.5-9.0	7.29	7.93
2	Chloride	Mg/l	1000	78.5	313.9
3	Oil & Grease	Mg/l	10.0	BLQ(LOQ-4.0)	< 5.0
4	Total Residual Chlorine	Mg/l	1.0	0.52	< 0.2
5	Ammonical Nitrogen (as N)	Mg/l	50.0	BLQ(LOQ-1.0)	5.4
6	Nitrate (as NO_3)	Mg/l	10.0	4.95	6.3
7	BOD	Mg/l	30	21.0	6
8	COD	Mg/l	250	120.5	20
9	TSS	Mg/l	100	57.0	10
10	Fluoride (as F)	Mg/l	2.0	0.85	0.57
11	Sulphate	Mg/l	1000	140.2	562.3

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - V

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Treated Water Monitoring Results

[Oct'24 - Mar'25]

ETP Outlet – (Hydro – 2)

S.NO.	Parameter	Unit	Limit	Result Oct-Dec'24	Result Jan-Mar'25
12	Phosphate (as P)	Mg/l	5.0	0.82	< 0.50
13	Cyanide	Mg/l	0.2	Absent	< 0.02
14	Hexavalent Chromium	Mg/l	0.1	BLQ(LOQ-0.05)	< 0.01
15	Cadmium	Mg/l	2.0	BLQ(LOQ-0.001)	< 0.01
16	Total Chromium	Mg/l	2.0	BLQ(LOQ-0.005)	< 0.01
17	Copper (as Cu)	Mg/l	1.0	0.062	< 0.01
18	Iron (as Fe)	Mg/l	1.0	0.51	< 0.01
19	Lead (as Pb)	Mg/l	0.1	BLQ(LOQ-0.005)	< 0.01
20	Nickel (as Ni)	Mg/l	3.0	BLQ(LOQ-0.01)	< 0.01
21	Zinc (as Zn)	Mg/l	1.0	0.68	0.42

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - V

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Treated Water Monitoring Results

[Oct'24 - Mar'25]

ETP Outlet – (PYRO)

S.NO.	Parameter	Unit	Limit	Result Oct-Dec'24	Result Jan-Mar'25
1	pH	-	5.5-9.0	7.36	7.92
2	Chloride	Mg/l	1000	82.6	173.9
3	Oil & Grease	Mg/l	10.0	BLQ(LOQ-4.0)	< 5.0
4	Total Residual Chlorine	Mg/l	1.0	0.39	< 0.2
5	Ammonical Nitrogen (as N)	Mg/l	50.0	BLQ(LOQ-1.0)	6.2
6	Nitrate (as NO_3)	Mg/l	10.0	4.96	7.4
7	BOD	Mg/l	30	20.0	9
8	COD	Mg/l	250	122.6	40
9	TSS	Mg/l	100	58.0	15
10	Fluoride (as F)	Mg/l	2.0	0.73	0.8
11	Sulphate	Mg/l	1000	156.5	496.7

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Chanderia Lead Zinc Smelter

Annexure - V

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Treated Water Monitoring Results

[Oct'24 - Mar'25]

ETP Outlet – (PYRO)

S.NO.	Parameter	Unit	Limit	Result Oct-Dec'24	Result Jan-Mar'25
12	Phosphate (as P)	Mg/l	5.0	0.75	< 0.50
13	Cyanide	Mg/l	0.2	Absent	< 0.02
14	Hexavalent Chromium	Mg/l	0.1	BLQ(LOQ-0.05)	< 0.01
15	Cadmium	Mg/l	2.0	BLQ(LOQ-0.001)	< 0.01
16	Total Chromium	Mg/l	2.0	BLQ(LOQ-0.005)	< 0.01
17	Copper (as Cu)	Mg/l	1.0	0.052	< 0.01
18	Iron (as Fe)	Mg/l	1.0	0.31	< 0.01
19	Lead (as Pb)	Mg/l	0.1	BLQ(LOQ-0.005)	< 0.01
20	Nickel (as Ni)	Mg/l	3.0	BLQ(LOQ-0.01)	< 0.01
21	Zinc (as Zn)	Mg/l	1.0	0.51	0.35

Manisha Bhati

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Chanderia Lead Zinc Smelter

Annexure - VI

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

River Water Monitoring Results

[Oct'24 - Mar'25]

Bearach River Up Stream Report

Parameter	Unit	Limit	Result Oct-Dec'24	Result Jan-Mar'25
pH	-	6.5 – 8.5	8.10	8.13
Zinc	Mg/l	15.0	0.309	0.327
Lead	Mg/l	0.1	BDL	BDL
Cadmium	Mg/l	0.01	BDL	BDL
Copper	Mg/l	1.5	BDL	BDL
Iron	Mg/l	5.0	BDL	BDL
Hardness	Mg/l	600	258	275
Chloride	Mg/l	600	97.5	88.1
Sulphate	Mg/l	1000	80.3	72.5
TDS	Mg/l	1500	1147	1212

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Chanderia Lead Zinc Smelter

Annexure - VI

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

River Water Monitoring Results

[Oct'24 - Mar'25]

Bearach River Down Stream Report

Parameter	Unit	Limit	Result Oct-Dec'24	Result Jan-Mar'25
pH	-	6.5 – 8.5	7.96	8.01
Zinc	Mg/l	15.0	0.187	0.225
Lead	Mg/l	0.1	BDL	BDL
Cadmium	Mg/l	0.01	BDL	BDL
Copper	Mg/l	1.5	BDL	BDL
Iron	Mg/l	5.0	BDL	BDL
Hardness	Mg/l	600	274	248
Chloride	Mg/l	600	65.3	76.3
Sulphate	Mg/l	1000	75.8	96.8
TDS	Mg/l	1500	964	1033

BDL- Below Detection Limit (The measurement of uncertainty at 95% confidence level is 0.004 Abs. in AAS)

Manisha Bhati

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Chanderia Lead Zinc Smelter

Annexure - VII

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Piezometer Borewell Results

[Oct'24 – Dec'24]

S. NO.	Location	pH	Zn	Pb	Cd	Hardness	Chloride	Sulphate	TDS
	Limit(IS: 10500)	**6.5-8.5**	**5.0-15.0**	**0.01**	**0.003**	**200-600**	**250-1000**	**200-400**	**500-2000**
1	Piezo Borewell-1	7.26	0.114	< 0.005	< 0.001	412.0	85.5	96.0	690.0
2	Piezo Borewell-2	7.16	0.198	< 0.005	< 0.001	435.0	70.5	82.0	760.0
3	Piezo Borewell-3	7.26	0.154	< 0.005	< 0.001	460.0	80.5	92.0	675.0
4	Piezo Borewell-4	7.29	0.126	< 0.005	< 0.001	372.0	122.5	205.6	998.0
5	Piezo Borewell-5	7.29	0.126	< 0.005	< 0.001	429.0	86.0	135.0	970.0
6	Piezo Borewell-6	7.26	0.128	< 0.005	< 0.001	516.0	130.5	310.5	1062.0
7	Piezo Borewell-7	7.31	0.115	< 0.005	< 0.001	482.0	92.6	165.9	1035.0
8	Piezo Borewell-8	7.21	01.26	< 0.005	< 0.001	498.0	90.5	165.9	1045.0
9	Piezo Borewell-9	7.21	0.114	< 0.005	< 0.001	516.0	90.5	185.6	1005.0
10	Piezo Borewell-10	7.31	0.119	< 0.005	< 0.001	477.0	108.6	230.9	1050.0
11	Piezo Borewell-11	7.22	0.121	< 0.005	< 0.001	420.0	91.6	156.9	956.0
12	Piezo Borewell-12	7.25	0.113	< 0.005	< 0.001	512.0	143.5	230.5	1140.0
13	Piezo Borewell-13	7.25	0.102	< 0.005	< 0.001	526.0	133.0	218.0	1125.0
14	Piezo Borewell-14	7.26	0.126	< 0.005	< 0.001	452.0	98.0	142.6	1058.0
15	Piezo Borewell-15	7.23	0.125	< 0.005	< 0.001	498.0	115.5	215.5	1070.0
16	Piezo Borewell-16	7.36	0.131	< 0.005	< 0.001	540.0	182.5	282.5	1265.0
17	Piezo Borewell-17	7.23	0.127	< 0.005	< 0.001	489.0	115.6	245.9	1052.0
18	Piezo Borewell-18	7.26	0.119	< 0.005	< 0.001	425.0	118.6	275.9	1052.0
19	Piezo Near Fumer	7.32	0.072	< 0.005	< 0.001	530.0	182.5	214.0	1136.0
20	Piezo Near Borrow pit	7.15	0.098	< 0.005	< 0.001	490.0	210.5	218.6	1418
21	Piezo Near RO Reject Pond	6.95	0.122	< 0.005	< 0.001	612.0	198.5	185.5	1965.0

Manisha Bhati

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Chanderia Lead Zinc Smelter

Annexure - VII

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Piezometer Borewell Results

[Jan'25 – Mar'25]

S. NO.	Location	pH	Zn	Pb	Cd	Hardness	Chloride	Sulphate	TDS
	Limit (IS: 10500)	**6.5-8.5**	**5.0-15.0**	**0.01**	**0.003**	**200-600**	**250-1000**	**200-400**	**500-2000**
1	Piezo Borewell-1	7.37	0.06	<0.01	< 0.003	596.0	269.9	342.1	1181
2	Piezo Borewell-2	7.30	0.08	<0.01	< 0.003	588.0	153.9	236.4	922
3	Piezo Borewell-3	DRY							
4	Piezo Borewell-4	7.62	0.05	<0.01	< 0.003	448.0	173.9	327.0	941
5	Piezo Borewell-5	7.34	0.06	<0.01	< 0.003	548.0	149.9	244.2	1302
6	Piezo Borewell-6	7.36	0.06	<0.01	< 0.003	488.0	199.9	27.8	945
7	Piezo Borewell-7	7.25	0.05	<0.01	< 0.003	528.0	159.9	271.8	1485
8	Piezo Borewell-8	7.23	0.06	<0.01	< 0.003	448.0	59.9	174.5	1067
9	Piezo Borewell-9	7.39	0.40	<0.01	< 0.003	488.0	349.9	305.0	1058
10	Piezo Borewell-10	7.60	0.62	<0.01	< 0.003	364.0	179.9	180.7	973
11	Piezo Borewell-11	7.28	0.07	<0.01	< 0.003	360.0	267.9	175.4	928
12	Piezo Borewell-12	7.59	0.06	<0.01	< 0.003	432.0	83.9	370.2	1052
13	Piezo Borewell-13	7.09	0.07	<0.01	< 0.003	240.0	115.9	295.7	945
14	Piezo Borewell-14	7.13	0.05	<0.01	< 0.003	572.0	231.9	311.8	572
15	Piezo Borewell-15	7.11	0.08	<0.01	< 0.003	428.0	139.9	140.7	1025
16	Piezo Borewell-16	7.02	0.09	<0.01	< 0.003	476.0	125.9	145.2	1062
17	Piezo Borewell-17	7.07	0.12	<0.01	< 0.003	576.0	479.8	371.1	1334
18	Piezo Borewell-18	7.38	0.07	<0.01	< 0.003	492.0	99.9	358.8	955
19	Piezo Near Fumer	8.04	0.08	<0.01	< 0.003	584.0	411.9	368.2	1634
20	Piezo Near Borrow pit	8.06	0.72	<0.01	< 0.003	580.0	471.9	344.6	1650
21	Piezo Near RO Reject Pond	8.10	0.10	<0.01	< 0.003	592.0	381.9	374.1	1745

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure – VIII

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

ACID PLANT MONITORING

[Oct'24 – Mar'25]

Month → Location ↓	Parameters	Prescribed Limits	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
Acid Plant (Hydro -1)	SO_2 (1Kg/T of H_2SO_4Production) =135 PPM	135 ppm	107.1	93.7	73.9	92.9	99.3	102.29
	Acid Mist	30 (mg/Nm^3)	29.7	28.3	15.5	28.0	28.3	18.2
Acid Plant (Hydro-2)	SO_2 (1Kg/T of H_2SO_4Production) =135 PPM	135 ppm	117.2	110.6	67.3	96.2	103.6	113.37
	Acid Mist	30 (mg/Nm^3)	26.5	26.5	11.9	27.8	27.9	15.1
Acid Plant TGT (Pyro)	SO_2 (2 Kg/T of H_2SO_4Production) =224 PPM	224 ppm	70.7	76.3	78.3	46.4	38.5	108.9
	Acid Mist	50 (mg/Nm^3)	23.4	26.7	19.5	26.2	24.9	12.5
Cansolve acid plant (Ausmelt)	SO_2 (1 Kg/T of H_2SO_4Production) =111 PPM	111 ppm	96.8	89.7	87.2	86.0	86.4	74.2
	Acid Mist	30 (mg/Nm^3)	27.2	28.1	19.3	28.2	28.1	7.6

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Chanderia Lead Zinc Smelter

Annexure - IX

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Ambient Air Quality (CAAQM) Report

Direction West

CAAQMS NO.1 (Near C1 Office)							
LOCATION							
Parameter	Standard of AAQ [24 hrs.]	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
PM 2.5	60	24.15	34.54	38.58	34.93	48.93	42.93
PM 10	100	67.13	94.22	101.23	100.97	155.27	127.08
SO_X	80	16.45	26.2	17.86	22.51	14.28	13.23
NO_X	80	25.05	15.78	13.26	13.36	27.96	43.78
CO	4	0.72	0.91	1.05	1.14	0.86	0.81
Remarks		PM-10 exceeds due to project activities near C1					

Direction East

CAAQMS NO.2 (DM Plant – CPP)							
LOCATION							
Parameter	Standard of AAQ [24 hrs.]	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
PM 2.5	60	33.07	28.35	34.76	28.75	31.01	28.35
PM 10	100	63.49	67.08	62.82	53.54	78.7	82.23
SO_X	80	17.08	20	24.01	16.47	14.48	12.03
NO_X	80	26.65	38.37	28.07	27.08	47.92	38.41
CO	4	1.52	1.4	1.49	0.63	0.91	0.94
Remarks							

Direction South

CAAQMS NO.3 (Chittorgarh Fort)							
LOCATION							
Parameter	Standard of AAQ [24 hrs.]	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
PM 10	100	57	71	67	69	73	67
SO_X	80	4.8	5.9	6.5	6.6	6.4	8.5
NO_X	80	16.3	17.8	17.8	16.0	15.1	17.3

Direction
North

CAAQMS NO.4 (Pond No 1)							
LOCATION							
Parameter	Standard of AAQ [24 hrs.]	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
PM 2.5	60	31.61	36.01	45.42	23.97	24.35	15.96
PM 10	100	81.58	74.19	62.88	83.18	95.24	98.13
SO_X	80	24.23	42.27	23.56	13.07	11.58	9.59
NO_X	80	26.22	26.41	25.37	19.23	31.08	21.06
CO	4	0.96	0.75	0.84	0.96	1.01	0.95
Remarks							

Direction
North

CAAQMS NO.5 (Railway Yard)							
LOCATION							
Parameter	Standard of AAQ [24 hrs.]	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
PM 2.5	60	42.29	31.35	32.82	24.86	26	29.43
PM 10	100	69.12	55.81	52.71	60.07	56.69	70.98
SO_X	80	11.37	16.74	12.97	12.9	17.49	23.7
NO_X	80	22.43	18.92	18.39	20.38	22.64	21.63
CO	4	1.24	1.23	1.09	1.2	1.4	0.89

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure – X

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Ambient Air Quality Monitoring Results (Inside Plant)

Quarterly Monitoring [Oct'24 - Dec'24]

Name of Monitoring Station	Parameters					
	PM (2.5)	PM (10)	Lead (Pb)	CO	NO_2	SO_2
Limit	60 µg/m³	100 µg/m³	1.0 µg/m³	4 mg/m³	80 µg/m³	80 µg/m³
Near CISF Colony C1	52.7	84.5	0.19	1.12	28.6	11.8
Near LOCO Shed C2	54.6	85.9	0.17	0.92	32.4	11.9
Near Slag Gate	57.4	90.8	0.98	0.82	30.6	13.1
Near CPP DM Plant	50.2	84.6	0.14	0.92	32.6	12.4

Ambient Air Quality Monitoring Results

Quarterly Monitoring [Jan'25 - Mar'25]

Name of Monitoring Station	Parameters					
	PM (2.5)	PM (10)	Lead (Pb)	CO	NO_2	SO_2
Limit	60 µg/m³	100 µg/m³	1.0 µg/m³	4 mg/m³	80 µg/m³	80 µg/m³
Near CISF Colony C1	38.4	66.2	0.20	0.916	16.5	9.6
Near LOCO Shed C2	52.0	85.5	0.37	1.374	25.0	15.0
Near Slag Gate	53.0	88.6	0.45	1.145	28.4	15.9
Near CPP DM Plant	42.0	71.6	0.36	1.031	17.6	10.2

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Chanderia Lead Zinc Smelter

HINDUSTAN ZINC LIMITED

CHANDERIA LEAD ZINC SMELTER

Ambient Air Quality Monitoring Report (Outside Plant)

Quarterly Monitoring [Oct'24 - Dec'24]

Name of Monitoring Station	Parameters					
	PM (2.5)	PM (10)	Lead (Pb)	CO	NO_2	SO_2
Limit	60 µg/m³	100 µg/m³	1.0µg/m³	4 mg/m³	80 µg/m³	80 µg/m³
Putholi	56.8	82.0	< 0.1	1.05	27.2	10.8
Munga Ka Khera	46.9	82.0	< 0.1	1.18	28.4	13.2
Nagari	54.0	88.0	< 0.1	0.98	28.6	11.2
Billiya	52.8	88.0	< 0.1	1.18	28.2	13.4
Ajoliya Ka Khera	56.0	85.0	< 0.1	1.08	28.0	12.2
Anwalhera	55.2	78.0	< 0.1	1.18	24.8	10.8
Zinc Nagar	52.0	88.0	< 0.1	1.22	30.1	13.8

Quarterly Monitoring [Jan'25 - Mar'25]

Name of Monitoring Station	Parameters					
	PM (2.5)	PM (10)	Lead (Pb)	CO	NO_2	SO_2
Limit	60 µg/m³	100 µg/m³	1.0 µg/m³	4 mg/m³	80 µg/m³	80 µg/m³
Putholi	39.3	66.5	0.15	0.916	12.0	7.4
Munga Ka Khera	34.0	57.3	< 0.1	0.687	13.1	7.8
Nagari	37.4	63.0	< 0.1	0.802	11.6	7.4
Billiya	41.7	68.0	< 0.1	0.916	12.0	7.0
Ajoliya Ka Khera	30.8	61.3	< 0.1	0.802	10.7	6.9
Anwalhera	33.5	57.2	< 0.1	0.687	11.4	7.3
Zinc Nagar	44.0	74.5	0.19	1.031	16.7	9.4

Manisha Bhati

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - XI

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Ambient Noise Monitoring Results

[Oct'24 - Dec'24]

S.No.	Testing Protocol	Parameters/ Unit	Point of Collection	Observed Value (L eq)	Observed Value (L eq)
			Noise Standard(dB)	**Day – 75**	**Night – 70**
1	IS 9989-1981 (RA 2014)	Noise Level (dB)	Near CISF Colony C1	69.8	57.2
2	IS 9989-1981 (RA 2014)	Noise Level (dB)	Near Loco shed C2	71.3	56.8
3	IS 9989-1981 (RA 2014)	Noise Level (dB)	Near Slag gate	70.3	52.6
4	IS 9989-1981 (RA 2014)	Noise Level (dB)	Near CPP DM Plant	68.7	56.3

[Jan'25 - Dec'25]

S.No.	Testing Protocol	Parameters	Point of Collection	Observed Value (L eq)	Observed Value (L eq)
			Noise Standard(dB)	**Day– 75**	**Night – 70**
1	IS 9989-1981 (RA 2014)	Noise Level (dB)	Near CISF Colony C1	58.4	46.9
2	IS 9989-1981 (RA 2014)	Noise Level (dB)	Near Loco shed C2	68.6	55.0
3	IS 9989-1981 (RA 2014)	Noise Level (dB)	Near Slag gate	64.7	53.2
4	IS 9989-1981 (RA 2014)	Noise Level (dB)	Near CPP DM Plant	72.5	68.0

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure-XII

Hindustan Zinc Limited

Chanderiya Lead Zinc Smelter

Online emission monitoring report [Monthly average]

S.NO	Month	Pyro Sinter-Main- PM (mg/Nm^3)	Pyro Sinter-Venturi- PM (mg/Nm^3)	Pyro Crusher-Main- PM (mg/Nm^3)	Pyro Crusher-Venturi- PM (mg/Nm^3)	Pyro ISF-PM (mg/Nm^3)
1	October-2024	49.11	22.24	17.78	19.11	37.51
2	November-2024	18.01	14.18	17.33	23.56	32.84
3	December-2024	13.33	22.07	21.79	16.68	33.9
4	January-2025	13.12	26.08	28.33	6.2	47.69
5	February-2025	11.35	20.78	25.04	9.01	47.41
6	March-2025	21.06	25.45	12.23	6.16	37.07
7	Prescribed Standards	0-150	0-150	0-150	0-150	0-150

S.NO	Month	Pyro ZRP Main-PM (mg/Nm3)	Pyro ZRP Fume-PM (mg/Nm3)	Pyro LRP Main-PM (mg/Nm3)	Pyro LRP Cu Dross-PM (mg/Nm3)	Pyro TGT-SO2(ppm)
1	October-2024	16.72	12.83	9.67	18.04	81.4
2	November-2024	18.42	6.14	13.84	23.34	67.68
3	December-2024	22.08	13.23	23.67	24.58	73.78
4	January-2025	21.77	14.97	14.41	19.88	77.09
5	February-2025	21.24	5.44	9.76	9.08	76.62
6	March-2025	18.67	10.23	33.48	8.06	83.36
7	Prescribed Standards	0 - 150	0 - 150	0 - 150	0 - 150	0 – 224

**Pyro CRP Milling is not in operation.

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Chanderia Lead Zinc Smelter

Annexure-XII

Hindustan Zinc Limited

Chanderiya Lead Zinc Smelter

Online emission monitoring report [Monthly average]

S.NO	Month	H1-ZD- PM (mg/Nm^3)	H1-ZA- PM (mg/Nm^3)	H1-ZMF 1- PM (mg/Nm^3)	H1-ZMF 2- PM (mg/Nm^3)	H1-AP-SO_2 (ppm)
1	October-2024	7.57	7.36	4.07	11.28	61.98
2	November-2024	11.94	7.52	5.41	13.28	76.19
3	December-2024	14.08	8.31	5.17	12.41	78.07
4	January-2025	3.77	7.05	6.98	11.95	83.23
5	February-2025	19.42	7.3	5.72	14.44	68.87
6	March-2025	10.31	6.77	6.84	7.33	85.78
7	Prescribed Standards	0 - 30	0 - 30	0 - 30	0 - 30	0 - 135

S.NO	Month	H2-ZD-PM (mg/Nm^3)	H2-ZA-PM (mg/Nm^3)	H2-ZMF-1-PM (mg/Nm^3)	H2-ZMF-2-PM (mg/Nm^3)	H2-AP-SO_2 (ppm)	CPP Coal Crusher-PM (mg/Nm^3)
1	October-2024	0.8	5.25	39.31	5.7	66.19	40.31
2	November-2024	0.77	2.93	6.4	6.16	82.09	2.82
3	December-2024	0.79	3.31	8.5	4.86	76.2	1.21
4	January-2025	0.74	4.21	34.46	4.3	77.55	5.38
5	February-2025	0.64	4.42	14.06	5.57	69.89	18.36
6	March-2025	0.37	4.55	22.26	16.52	62.84	1.15
7	Prescribed Standards	0 - 30	0 - 30	0 - 30	0 – 30	0 - 135	0 - 50
8	Remarks			Limit exceeds due to maintenance			

Manisha Bhati

Manisha Bhati

AGM- Environment

Chanderia Lead Zinc Smelter

Annexure-XII

Hindustan Zinc Limited

Chanderiya Lead Zinc Smelter

Online emission monitoring report [Monthly average]

S.NO	Month	CPP_UNIT-1&2-PM (mg/Nm^3)	CPP_UNIT 1&2-SO_2 (mg/Nm^3)	CPP_UNIT-1&2-NOx (mg/Nm^3)	CPP_UNIT-3-PM (mg/Nm^3)	CPP_UNIT-3-SO_2 (mg/Nm^3)	CPP_UNIT-3-NOx (mg/Nm^3)
1	October-2024	52.65	1707.67	429.4	29.94	1045.65	232.98
2	November-2024	40.63	1237.07	427.42	39.1	721.9	219.79
3	December-2024	57.97	1222.22	416.89	51.02	857.9	215.35
4	January-2025	32.42	1868.97	421.81	40.03	965.69	175.74
5	February-2025	32.9	1572.27	374.25	38.01	741.24	178.12
6	March-2025	36.07	1233.97	344.76	35.21	617.62	138.28
7	Prescribed Standards	0 - 50	0-600	0 - 450	0 - 50	0 - 600	0 - 450
8	Remarks	Limit exceeds due to maintenance			Limit exceeds due to maintenance		

S.NO	Month	CPP UNIT_1_2-Mercury (ug/m^3)	CPP UNIT_3-Mercury (ug/m^3)
1	October-2024	8.07	4.95
2	November-2024	4.83	10.1
3	December-2024	2.68	15.7
4	January-2025	5.82	17.83
5	February-2025	5.34	18.75
6	March-2025	3.08	18.64
7	Prescribed Standards	0 - 30	0 - 30

Manisha Bhati

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure-XIII

Hindustan Zinc Limited

Chanderiya Lead Zinc Smelter

Online effluent monitoring report [Monthly average]

S. No	Month	ETP1-Flow (m^3/hr)	ETP1-TSS (ppm)	ETP1-pH (pH)	ETP2-Flow (m^3/hr)	ETP2-TSS (ppm)	ETP2-pH (pH)	FDD-Flow Meter (m)
1	October-2024	0	0.76	7.37	0	25.89	6.24	0
2	November-2024	0	13.44	6.64	0	35.39	6.24	0
3	December-2024	0	25.68	7.29	0	36.47	6.33	0
4	January-2025	0	31.07	7.21	0	21.75	6.49	0
5	February-2025	0	18.51	7.2	0	14.26	6.45	0
6	March-2025	0	26.52	6.68	0	6.26	6.2	0
7	Prescribed Standards	0 - 100	0 - 100	6.5 - 9	0 - 100	0 - 100	6.5 - 9	0 - 100

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - XX

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Mineralogical composition study of PM-10

Parameters	Units	Monitoring location			
		Near CISF colony C1	Near Loco shed C2	Near Slag gate	Near CPP DM plant
PM 10	$\mu g/m^3$	66.2	85.5	88.6	71.6
Calcium as Ca	$\mu g/m^3$	4.13	7.56	10.5	5.38
Magnesium as Mg	$\mu g/m^3$	1.52	3.09	4.53	2.41
Sodium as Na	$\mu g/m^3$	0.32	0.55	0.80	0.47
Silica as SiO_2	$\mu g/m^3$	33.0	48.0	54.7	43.0
Potassium as K	$\mu g/m^3$	<0.01	<0.01	<0.01	<0.01
Chromium as Cr	$\mu g/m^3$	<0.01	<0.01	<0.01	<0.01
Aluminium as Al	$\mu g/m^3$	<0.01	<0.01	<0.01	<0.01
Lead as Pb	$\mu g/m^3$	0.2	0.37	0.45	0.36
Zinc as Zn	$\mu g/m^3$	<0.01	<0.01	<0.01	<0.01
Iron as Fe	$\mu g/m^3$	<0.01	<0.01	<0.01	<0.01
Nickel as Ni	$\mu g/m^3$	0.97	4.70	3.90	2.57
Barium as Ba	$\mu g/m^3$	<0.01	<0.01	<0.01	<0.01
Cadmium as Cd	$\mu g/m^3$	<0.01	<0.01	<0.01	<0.01
Mercury as Hg	$\mu g/m^3$	<0.001	<0.001	<0.001	<0.001
Arsenic as As	$\mu g/m^3$	<0.01	<0.01	<0.01	<0.01

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - XXI

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Soil analysis report (Oct'24 to Mar'25)

Parameters	Units	Name of the location						
		Biliya	Ajoliya Ka Khera	Putholi	Munga Ka Khera	Nagari	Anwalhera	Plant site
pH	-	7.52	7.83	7.13	7.52	7.54	8.13	6.98
EC	µS/cm	219	240	256	196	289	182	150
Potassium as K	%	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sodium as Na	%	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bulk density	gm/cc	1.46	1.49	1.53	1.42	1.55	1.40	1.62
Total soluble chloride	Mg/kg	183	173	216	96	183	123	75
Available Phosphorous as P	Kg/Ha	34	53	46	14	35	16	13
Total Kjeldhal's Nitrogen	%	0.003	0.002	0.002	0.002	0.002	0.002	0.001
Zinc as Zn	Mg/kg	19	16	56	19	15	16	45
Lead as Pb	Mg/kg	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Cadmium as Cd	Mg/kg	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Copper as Cu	Mg/kg	8	6	16	13	7	6	21
Iron as Fe	Mg/kg	32	20	75	38	18	24	87
Sulphate	Mg/kg	563.2	196.5	415.2	316.6	157.8	145.2	562.3
Nickel as Ni	Mg/kg	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Arsenic as As	Mg/kg	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Organic Carbon	%	0.53	0.62	0.71	0.74	0.68	0.75	0.56
Antimony as Sb	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bismuth as Bi	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - XXI

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Soil analysis report (Oct'24 to Mar'25)

Parameters	Units	Name of the location						
		Biliya	Ajoliya Ka Khera	Putholi	Munga Ka Khera	Nagari	Anwalhera	Plant site
TCLP test								
Arsenic as As	mg/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Copper as Cu	mg/L	6.0	2.1	10.0	9.6	6.6	< 5	13.6
Nickel as Ni	mg/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Lead as Pb	mg/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Zinc as Zn	mg/L	7.4	12.0	35.4	15.9	12.8	13.1	40.9
Cadmium as Cd	mg/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Iron as Fe	mg/L	12.9	14.4	50.7	32.0	16.0	21.0	82.4

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AGM- Environment

Chanderia Lead Zinc Smelter

Annexure - XXIII

HINDUSTAN ZINC LIMITED

Chanderia Lead Zinc Smelter

Noise Monitoring Results (Inside plant)

[Oct'24 - Mar'25]

S.No.	Testing Protocol	Parameters/ Unit	Point of Collection	Observed Value (L eq)
			Noise Standard 8 hrs. (dB)	**85**
1.	IS 9989	Noise Level (dB)	Pyro SO_2 Blower (Acid plant)	71.4
2.	IS 9989	Noise Level (dB)	Pyro LRP Casting area	69.8
3.	IS 9989	Noise Level (dB)	Ausmelt compressor area	76.4
4.	IS 9989	Noise Level (dB)	Hydro-1 SO_2 Blower (Acid plant-1)	69.3
5.	IS 9989	Noise Level (dB)	Hydro-1 RAB Motor (Roaster-1)	75.6
6.	IS 9989	Noise Level (dB)	Hydro-1 Zinc dust plant-1	73.4
7.	IS 9989	Noise Level (dB)	Hydro-1 DM plant compressor area	73.6
8.	IS 9989	Noise Level (dB)	Hydro-1 Roaster Compressor area	75.8
9.	IS 9989	Noise Level (dB)	Hydro-1 CBTS (Cell House-1)	69.4
10.	IS 9989	Noise Level (dB)	Hydro-2 SO_2 Blower (Acid plant-2)	69.2
11.	IS 9989	Noise Level (dB)	Hydro-2 RAB Motor (Roaster-2)	71.2
12.	IS 9989	Noise Level (dB)	Hydro-2 Zinc dust plant-2	72.7
13.	IS 9989	Noise Level (dB)	Hydro-2 Roaster Compressor area	73.8
14.	IS 9989	Noise Level (dB)	Hydro-2 CBTS (Cell House-2)	71.9
15.	IS 9989	Noise Level (dB)	Fumer BHP Compressor area	73.9
16.	IS 9989	Noise Level (dB)	Fumer RKD Killen area	68.4
17.	IS 9989	Noise Level (dB)	Fumer FFP area GF	68.3
18.	IS 9989	Noise Level (dB)	CPP Turbine Floor (Unit-1)	73.7
19.	IS 9989	Noise Level (dB)	CPP Turbine Floor (Unit-3)	71.2
20.	IS 9989	Noise Level (dB)	CPP Near condenser extension pump	74.8

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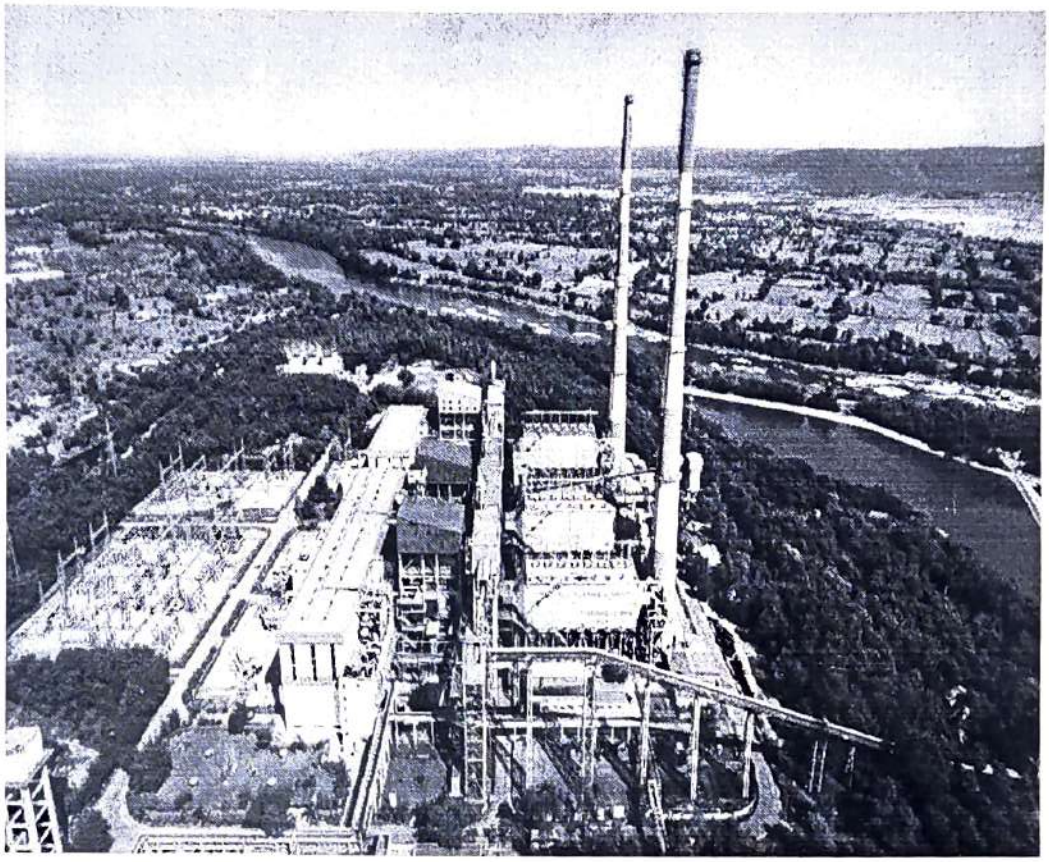
AGM- Environment

Chanderia Lead Zinc Smelter



Energy Carbon Management Plan

Chanderiya Smelting Complex

Document published on: 5th Aug 2024.

CHANDERIYA SMELTING COMPLEX

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HINDUSTAN ZINC
Zinc & Silver of India

Contents

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HINDUSTAN ZINC
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Foreword to 2024 CSC Energy Carbon Management Plan

Chanderiya Smelting Complex is the largest Zinc producing plant in India where zinc can be produced using pyro metallurgical or hydrometallurgical processes, depending on the type of concentrate used as charge. Coke and power are the main inputs which are responsible for GHG emissions. A lot of amounts of heat and flue gases are generated in different processes of zinc manufacturing. There is high scope in utilizing the heat and flue gases to reduce the energy consumption in turn GHG gas emissions. Lot of work has been done and many projects have been completed in last few years for Energy saving, utilization of heat of gases. Still there is lot of scope in utilizing heat and reduction in energy consumption. In 2022-23 the total emissions were 2145900 tCO2e and specific emissions 3.44 tCO2e per ton of metal. In 2023-24 the total emissions were decreased to 2331303 tCO2e and specific emissions decrease 3.72 tCO2e per ton of metal. In the financial year FY'24 total emission and specific emission increased due to higher reliance on CPPs during FY 2023-24

CSC has taken a target of reduction in scope 1 and 2 emissions against its 2016-17 baseline by 14% by 2026-27 in terms of absolute emissions. This is a reduction of tCO2e against the baseline 20,78,464 tCO2e. CSC will be able to achieve this target well before the target completion date.

We will also seek to further reduction in our scope 3 emissions.

CHANDERIYA SMELTING COMPLEX

1. INTRODUCTION OF CSC PLANT

HZL manufactures zinc as its main product at its Chanderiya smelting unit in Rajasthan. Zinc smelting is the process of converting zinc concentrates into pure zinc. Zinc can be produced using pyro metallurgical or hydrometallurgical processes, depending on the type of concentrate used as a charge. HZL had only a pyro process-based manufacturing unit (commissioned in 1991) till 2005 - when a unit based on the hydrometallurgical process was commissioned.

The facility went through another capacity addition with the commissioning of another unit in 2007, a zinc smelter (based on hydro process). The total installed capacity at Chanderiya smelting unit is 6,09,000 tons per annum (TPA) of refined zinc. The refined Lead capacity is 95,000 tons per annum.

The total 290 MW capacity coal base thermal power plant,22.3 MW WHRB and 0.91MW solar plants installed to fulfill the requirement of the in-house demand.

2. Greenhouse Gas Management

2.1 Context and drivers

We are focussed on accelerating actions to lower carbon emissions generated during our operations. Our environment conservation efforts are driven by a strategic thrust on minimising and mitigating our impact on water, land, air quality, climate, and biodiversity. We are also committed to building harmonious relations with our stakeholders, to reduce the environmental footprint of our operations by deploying resource management systems and controls.

GHG management plan identifies the organization's current carbon emissions and a logical series of technical and managerial steps that must be taken to arrive at the required reduction target.

Avoiding use of fossil fuels and reducing dependency on them shall play a vital role in our net zero journey, substituting the conventional energy use by renewable energy and offsetting the greenhouse gas being emitted by sequestering techniques such as afforestation.

- A wide range of INDIA programs, regulation and guidance now exist that encourage all sectors of society to reduce carbon emissions like REC, RPO, PAT incentives for the renewable energy plants and efficiency improvement.

- We believe in creating long term value for our stakeholders and with stakeholders and communities we work with becoming climate conscious, responsible business becomes our priority.

- In line with becoming a sustainable business organization we have to reduce our energy consumption and move away from conventional energy sources to renewable energy sources. It has to be noted that carbon management shall yield financial savings too and can be achieved by using techniques such as utilizing waste heat.

- This would also help reduce CLZS's financial liability to purchase REC under the RPO regulation of state government of Rajasthan.

- We believe that measures aimed at reduction of GHG emissions have the potential for Climate Change reduction and CSC acts as a leader for other units of HZL in delivering carbon emission reductions.

- We understand the reputational risk associated with climate change and GHG emissions and hence we are determined to reduce our emissions and strive towards a net zero journey by 2050 as envisaged by HZL.

- A target is set for the HZL to reduce Scope 1 and 2 total emissions 14 % by 2026-27 against a 2016-17 baseline, all units of HZL are required to produce an Energy Carbon Management Plan showing how it will contribute to achieving this Target.

- Long term rises in utility costs would increase CLZS's operating costs. Thus, it is important to analyze opportunities for increased efficiency in the use of energy.

- CSC should discharge it corporate responsibility, in part by contributing to HZL targets to reduce Green House Gas emissions.

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Energy & Climate Change Policy

Purpose

Hindustan Zinc Limited is committed to minimizing the impact of climate change on its own business as well as on the environment and society. We aim to collaborate with stakeholders to drive timely, meaningful action on climate change.

This Energy & Climate Change policy shall help us to define, strategize, plan, and implement essential roadmap, towards achieving climate goals. This policy is forward looking and sets an energy and climate vision for businesses across the Hindustan Zinc Limited.

Scope

This policy is applicable to all Hindustan Zinc Limited business units, including subsidiaries, joint ventures, and acquisitions, managed sites, licensees, outsourcing partners, corporate offices, and research facilities. This policy is also applicable to all Hindustan Zinc Limited employees, contractor employees, business partners, suppliers, and others with whom Hindustan Zinc does business.

In addition, this policy is applicable throughout the operational lifecycle of the projects and mines, covering stages from exploration and planning to evaluation, operation, and closure. Furthermore, it extends to upstream and operations, including the distribution, logistics, and sale of products and services up to the customer.

Objectives of the Energy & Climate Change Policy

Hindustan Zinc will strive to:

- Adopt and maintain global best practices on climate and energy management and minimizing greenhouse gas (GHG) emissions throughout our operations, including:
  - comply with local and national regulations
  - aligning with the overall objectives of the Paris Agreement.
  - measuring energy usage and greenhouse gas emissions (Scope 1&2) across all operations and geographies and maintain year-on-year efforts to reduce energy consumption and GHG emissions through introducing renewable energy wherever possible.
  - measuring and disclosing greenhouse gases emissions (Scope 3) across the entire value chain-including upstream and downstream emissions.
  - defining energy and GHG reduction roadmap in alignment with Hindustan Zinc's commitment to become a net zero carbon business by 2050.
- Conduct risk assessments to understand the impact of climate change on the business under different scenarios and time periods.
- Integrate climate change considerations into our strategic approach, financial planning and analyzing the climate-related risks and opportunities (both physical and transition).
- Adapt and futureproof our facilities to the physical risks of climate change and to achieve an orderly transition to a world in which GHG emissions are constrained.
- Include the adoption of carbon pricing or similar mechanisms into our investment decision-making.
- Promote, engage, and invest in energy consumption reduction projects including energy conservation, energy efficiency, fuel switch and clean energy and maximize benefits from energy by waste recovery.
- Foster research and innovation techniques within our operations leading to optimal utilization of resources which continuously improve the efficiency of operations, minimizing energy consumption and resource use.
- Report GHG emissions, climate trajectory scenario analysis and climate change risk analysis on yearly basis in alignment with internationally recognized protocols (like Taskforce on Climate Financial Disclosure – TCFD and CDP) and work closely with other stakeholders to reduce energy consumption and carbon intensity.
- Communicate our approach and achievements actively to stakeholders, and work closely with national and global policy makers to encourage effective and equitable abatement policies within the sectors of our operation.
- Support joint efforts by the private and public sectors to reduce the impacts of climate change.
- Collaborate with our employees, wider communities, business partners, customers, and other stakeholders to achieve our commitment to energy and greenhouse gas emission reduction.
- Engage with relevant stakeholders in building capacity and capability to identify and proactively manage climate related risk and opportunity.
- Encourage and influence our business partners including supply chain to adopt energy conservation practices, set energy and climate targets and report on their practices.
- Review the performance against the policy on a periodic basis to ensure management of energy & climate change as per our objectives including the sharing of good practices throughout the organization and stakeholders.

Responsibility & Review

This policy is part of the Vedanta Sustainability Framework, and each Hindustan Zinc Limited business unit shall implement this policy. Our CEO will be accountable for controlling and setting the policy, and the Executive Committee are responsible for the full implementation of the policy and associated standards. The Board ESG committee will review this policy annually and recommend appropriate revisions to the Board as may deem necessary.

Related additional policies: Environmental Policy, Biodiversity Policy, Water Policy.

Arun Misra

Arun Misra
CEO & Whole Time Director, HZL

Date: 06th August, 2024

2.2 VISION:

The vision will be achieved through implementation of the measures outlined in the Carbon Management Plan. We envisage a low-carbon environment in which:

- Adopt and maintain global approaches on carbon and energy management to reduce our specific greenhouse gas emissions throughout our operations, including:
  - Measuring our direct energy usage and carbon emissions and maintaining our year-on-year efforts to reduce energy consumption across our operations.
  - Defining specific energy and carbon reduction targets, seeking to achieve substantial decarbonization of our business by 2050.
  - Maximising the benefits of process improvements and technology advancements.
  - integrating climate change considerations into our strategic approach, including the adaptation of carbon pricing or similar mechanisms into our investment decision-making.
- Extend our approach to reporting carbon emissions in compliance with internationally recognised protocols.
- Invest in clean energy and energy recovery projects.
- Engage with stakeholder and provide for adaption to future-proof our business.
- Communicate our approach and achievements actively to stakeholders and work closely with policymakers to encourage effective and equitable abatement policies within our sectors of operation.
- Consider carbon emissions for our project and R&D investments in line with Vedanta's sustainable development commitments.

2.3 Objectives and strategy

This Energy and Carbon Management Plan is prepared for achieving the targeted emission reduction at CSC. The ECMP is also made in line with Energy and Climate Change Management policy of HZL. energy and carbon assessment being carried out once a year.

The strategic objectives of the ECMP are to:

- Evaluate opportunities to improve energy efficiencies or implement lower emissions sources.
- Achieve science based GHG emission targets through impactful actions.
- Reduce carbon footprint by enhancing renewable energy portfolio.
- Set challenging but achievable carbon reduction targets over the medium and long term.
- Develop systems to ensure that accurate data and reporting tools are available.
- Measure the Company's performance against milestones and report to all stakeholders.
- Sonority of approach with the HZL's policy framework, particularly the Energy and Climate change management policy.

- Plays important role in achieving HZL's targets.
- Achieve reduction in cost of product.

Net Zero Strategy

- Our net zero strategy is in line with Reducing fossil fuel-based energy use in our operations by using innovative energy efficiency technologies and process optimization.
- Shifting to renewables and/ or low-carbon solutions where possible.
- Replace diesel fueled transportation vehicles with Electric vehicles, Turbine revamping of all the CPPs, install Hydrogen or Electric/ Induction Furnaces, enhance our carbon Capture, Storage and Utilization capacity etc.
- Climate Change risk assessment based on TCFD guidelines.

CSC Scope 1 , 2 and 3 emissions contributing factors (source) are as follows:

Scope 1 – Direct emissions
Fuels burnt (Coal, Biomass, LDO, HSD) at CPP for generation of electricity
Fuels burnt (Coke) at PYRO – for Process
Propane/PNG at Pyro, Hydro-1 and Hydro-2
LDO/HSD/LSHS at Pyro, Hydro-1 and Hydro-2
Diesel at DG sets (production of electricity), pyro, H1, H2 and CPP
Scope 2 – Emissions associated with the use of electricity
Electricity purchased from AVVNL, IEX
Scope 3 – Indirect emissions
Transport of material – cathodes, finished, goods, coal, concentrate
Bus travel of employees
End-of-Life Treatment of Sold products
Fuel & Energy related
Purchased Goods & Services

Scope 1 & 2 Emissions Baseline and Projections

3.1 Scope

CSC's initial Carbon Management Strategy and Implementation Plan focused on energy, Fossil fuel and coal used, Utilization of waste heat and flue gases, reduction in energy of Cell house, Sinter and Refinery. However, this new plan extends the scope to include all areas of CSC complex.

3.2 Baseline

We have calculated that our Scope 1 and 2 emissions in 2016-17 as

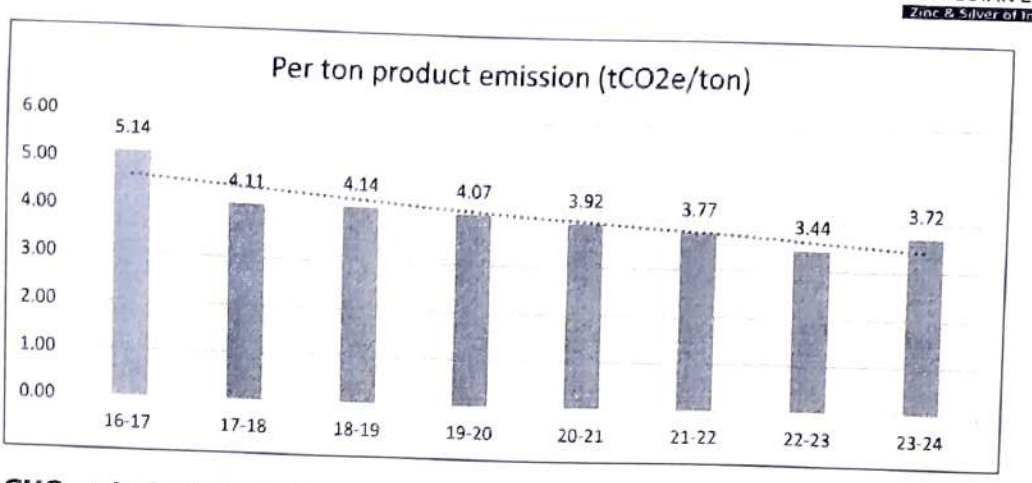
Scope	2016-17	
Scope 1 (tCO2e)	2056034	98.92%
Scope 2 (tCO2e)	22430	1.08%
Total emission (tCO2e)	2078464	
Production (MT)	403980	

CSC's carbon emissions in FY 2016-17 had reported 2056034 tones CO_2e in scope1 and 22430 tons CO2e in Scope 2. This had been taken as base line.

3.3 Emissions from FY 2016-17

The table below indicates the Scope 1 and 2 emissions being produced across the entire CSC. The emissions have been calculated on a power and fuel consumption basis.

Scope	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Scope 1 (tCO2e)	2056034	2372170	2217235	2206921	2217395	2040810	1757142	2285384
Scope 2 (tCO2e)	22430	32885	32292	42054	65145	186152	388758	45919
Total emission (tCO2e)	2078464	2405055	2249527	2248975	2282540	2226962	2145900	2331303
Production (MT)	403980	584758	543713	552049	581814	590635	623910	627473
Per ton product emission (tCO2e/ton)	5.14	4.11	4.14	4.07	3.92	3.77	3.44	3.72



GHG emission Plant wise: -

Plant	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
CPP (tCO2e)	153387	166575	161040	160463	162555	144285	121844	154048
Hydro 1 (tCO2e)	740568	857623	834159	843749	928337	880423	855555	893164
Hydro 2 (tCO2e)	764556	909301	877494	870731	921012	892316	853908	930031
Pyro (tCO2e)	113626	457844	343487	333464	283820	343633	395138	391952
Total (tCO2e)	2078464	2405055	2249527	2248975	2282540	2226962	2145900	2331303

GHG Emission as per Fuel Consumption: -

Fuel	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Coal (tCO2e)	1752027	2054214	1995777	1993426	2047435	1810693	1477346	2004368
HSD (tCO2e)	10466	20299	47296	40934	23326	39886	45507	49099
Propane/LPG (tCO2e)	16157	16691	9922	5213	422	0	20497	23443
Coke (tCO2e)	250641	258136	164239	165886	136710	171718	206610	208474
FO (tCO2e)	26744	22831	0	0	0	0	0	0
PNG(tCO2e)	-	-	-	1462	9502	18513	7182	0
Purchased Electricity (tCO2e)	22430	32885	32292	42054	65145	186152	388758	45919
Total (tCO2e)	2078464	2405055	2249527	2248975	2282540	2226962	2145900	2331303

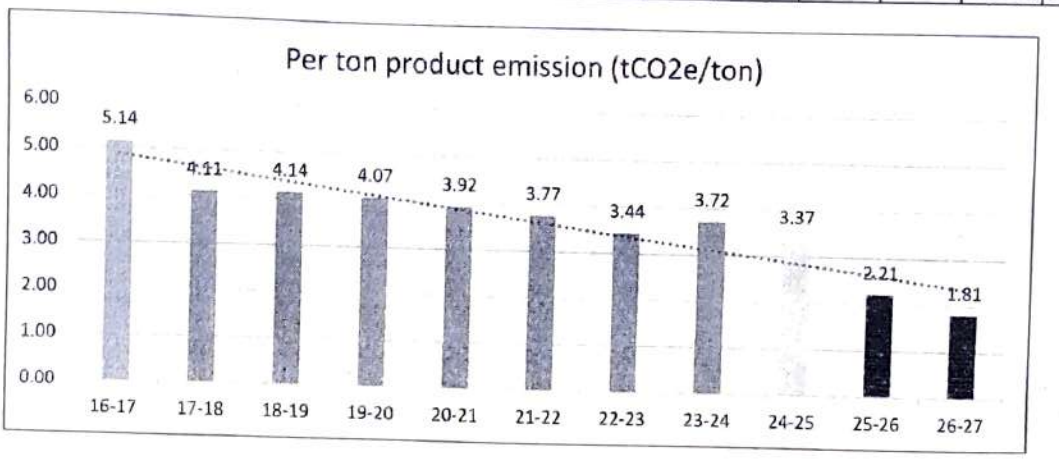
3.4 Targets

A target is set for HZL to reduce scope 1 and 2 absolute emissions by 14 % by 2026-27 against 2016-17 baseline. In line with the same the target of CSC is set to reduce the Scope 1 and 2 absolute emissions by 14 % by 2026-27 against 2016-17 baseline

Scope	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Scope 1 (tCO2e)	2056034	2027249	1998465	1969680	1940896	1912111	1883327	1854542	1825758	1796973	1768189
Scope 2 (tCO2e)	22430	22116	21802	21488	21174	20860	20546	20232	19918	19604	19290
Total emission (tCO2e)	2078464	2049365	2020267	1991168	1962070	1932971	1903873	1874774	1845676	1816577	1787479

Now we have taken revise emission targets for the coming year but aggregate emission target by FY 2026-27 is less as per previous.

Scope	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Total emission (tCO2e)	2078464	2405055	2249527	2248975	2282540	2226962	2145900	2331303	2382731	1565104	1276914



Achievement till 2023-24: -

In FY 23-24 the total emissions have increased by 7.95% and we have increased specific emission from 3.44 tCO2e/MT to 3.72 tCO2e/MT. Now we need to put more focus on reduction of emission to achieve the set target. We will also seek to further assess and reduce our scope 3 emissions.

In calculating progress towards this target on an annual basis, benchmarking will need to consider the following statistics for each year: Emissions from the following sections:

CPP
Hydro 1
Hydro 2
PYRO
Logistic
Administration

Changes in these statistics will need to be considered in the calculation of percentage change in CO2 emissions. It is considered that growth in these areas is likely to result in an increase in energy consumption and carbon emissions.

Scope 3 Emissions

The calculation of the Scope 3 emission is not possible unit wise due to constraint of the double counting. As materials are inbound for some units could be outbound for some other units. The calculation of the Scope 3 Emission is being done at the company level.

4. Implementation Plan

4.1 Emission Reduction Opportunities

The purpose of this section of the plan is to list and priorities all the opportunities identified for carbon emissions savings and sustainable practices which have been collected from suggestions made at brainstorming sessions/research & innovation was tailored to producing project opportunities that would either directly or indirectly reduce the carbon emissions from CSC.

4.2 Energy and fuel saving projects past and ongoing

CSC has been very active in the field of utility conservation for a long time. Many energy conservation and fuel saving projects have been done and are in progress too.

Following carbon and energy emission reduction project, we have implemented on site in FY 2023-24

S.NO.	Project Details	Actual Energy saving (GJ)	Actual GHG reduction (Tonnes)
1	U3 MV ABB VFDs Availability Improvement	6280	1675
2	Reduce M&C Power Norms from 142 to 135 Units/MT	3675	980
3	Reduction in Specific LDO consumption from 93Ltr/MT to 86Ltr/MT	10043	744
4	CH Auxiliary specific to be reduce by 5%	2715	724
5	MC norms to be reduce by 5 Units/MT of Ingots	2118	565
6	Fills Pack Replacement	1110	296
7	Reduction in sinter plant fresh air fan Power consumption	818	218
8	ACWP VFD Installation in Unit-3	612	163
9	Reduce Power Consumption in Cooling Towers (Hydro 2)	522	139
10	Feed water pump power consumption reduction (17.25KWh/Hr)	267	71
11	CT Fan-4 VFD Installation	262	70
12	HMT Conventional Lights to be replaced with LED Lights	209	56
13	Centac Power Consumption reduction by 2% (Hydro 1)	171	45
14	Furnace CT pump power reduction (11.5KWh/Hr)	146	39
15	Occupancy Sensor Installation in MCCs	76	20
16	Occupancy based Automation of Airconditioning Units in Offices	66	18
17	All seal pot pumps to be run with LT interlock	45	12
18	Reduction in propane consumption	6	2
19	Installation of Solar (pole mounted) lights at boundary wall area	5	1
	Total	**29145**	**5838**

5. GHG Reduction measures

Few of the things which could be done to reduce GHG emissions at CSC are categorized under the following heads i.e., Behavioral Measure, Efficiency Measures, Fuel Replacement Measures and Long-Term Measures.

Governance

We have established Energy and carbon management community, who looks after governance for energy conservation, energy and carbon risk assessment, mitigation strategies and continual improvement in energy and carbon management. The committee plays a strategic role in all business decisions to ensure workplace safety, eliminating any potential damage to the environment, enhancing a commitment towards stakeholders, and maintaining our reputation etc.

Behavioral Measures

Behavioral changes are certain to be an important component in reducing greenhouse gas emissions (GHG) and combating climate change. There are few measures which could be circulated to employee through various engagement modes.

- Switch off appliances – lights, fans, Air conditioners etc. when not in use.
- If leaving the computer for a while, put it on standby. You'll be able to restart it quickly, and it'll take less energy than shutting it down and then restarting it.
- Awareness and training programs: Employee awareness trainings and workshops conducted to let everyone know that they're making changes to reduce your impact on the environment.
- Switch to public transportation, carpooling, biking, telecommuting and other innovative ways to save energy and reduce greenhouse gas emissions on your way to and from work.
- Annual maintenance of refrigerators, ACs, removal of blockages from air vents, replacing older light bulbs with energy-saving fluorescent bulbs.

Efficiency Measures

- Undertake energy audit (Internal Energy audit/brainstorming session – once in year & External energy audit – once in three year) on a regular basis to highlight major energy consuming sections and equipment's including. A well-conducted energy audit would reveal the areas of wastage of energy, and it would lead to suggestions for possible energy savings in all sectors. All operating units are certified ISO 50001 - Energy Management System
- Maintenance of air conditioners and similar equipment's should be done on a regular basis across corporate offices, units and guest houses. Outdated equipment's should be replaced with energy – efficient ones (Star rating).
- Turbine revamp was carried out at CPP to increase the process efficiency.

Innovation

Innovative technologies such as SAP are being implemented to automate and reduce manual errors in a process. This would improve collection of data and increase accuracy. This would help establish a regular and up-to-date monitoring programme for air emissions (point and fugitive) arising from the operations. Across the business, we continue to pursue improvements to air quality management, focusing on emissions of particulate matter, SO2, NOx etc emitted by our operational activities.

➢ Lighting Management

- Replace dated air conditioners and fans.
- Replacing existing lights with CFL and LED.
- Installation of auto transformers and operating all lighting feeders at 210 V.
- Use of voltage controllers on lighting feeders.
- Maximizing the use of natural daylight, wherever possible.
- Use of sensor-based lighting controls at selected locations i.e., washrooms and passageways.

➢ Motor Management

- Avoid using motors at part loads (and avoid over-sized motors)
- Use of soft starters
- Replacement of old motors with high efficiency ones
- Sizing the motor to variable load
- Improving the input power quality
- Power factor correction by installing capacitors.
- Speed control of induction motor
    I. Multi-speed motors
    II. Variable speed drives
    III. New Direct current drives
    IV. Wound rotor AC motor drives (slip ring induction motors)

➢ Employee Commute & Business Travel

- Strategies for reduction
    i. Increase % of employees using Mass Transit
    ii. Encourage Carpooling/Bus Pooling
    iii. Use of cleaner fuels for Buses and compliance to Euro 2 standards
    iv. Onsite emission and tyre pressure tests.
    v. Encourage the use of net meetings, Video Conferencing and Telepresence

➢ Green Computing

- Conversion of building as green building for the optimum utilization of natural resources
- Optimum utilization of the IT infrastructure through Server Consolidation and virtualization

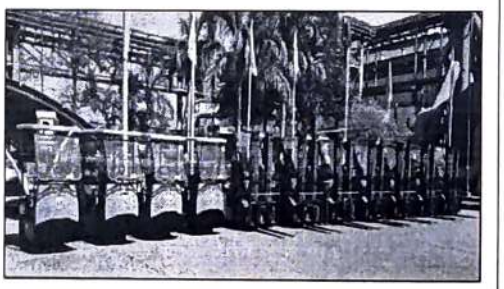
vi. Desktop level virtualization

- All CRT monitors to be replaced with LCD.
- Green Procurement: All equipment to be energy star certified.
- Green Data Centers
  - vii. Evaluating the performance of all our current data centers.
  - viii. New data centers as per the latest technology and HVAC systems.

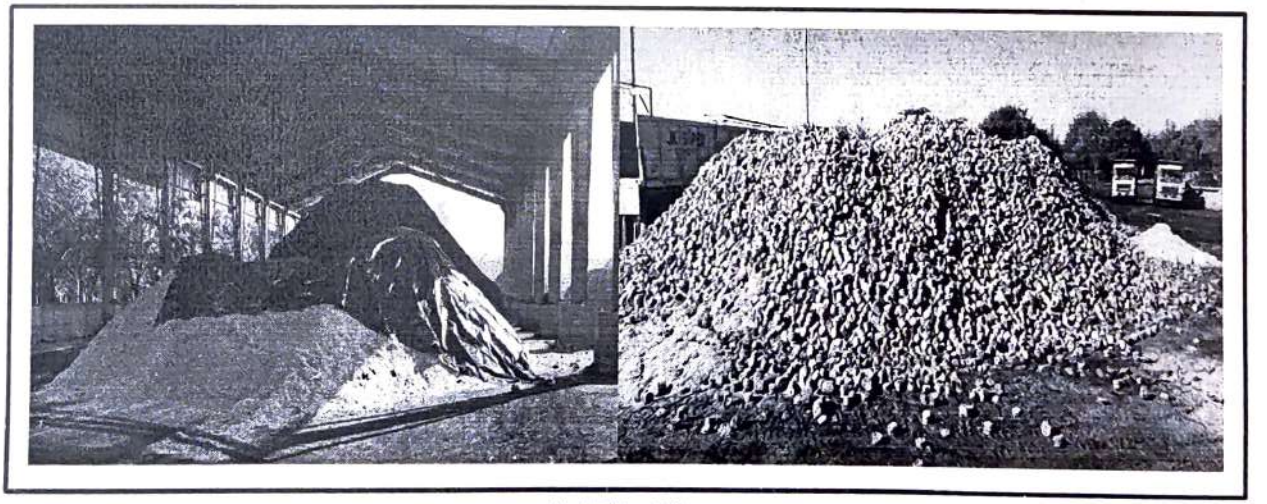
Fuel Switch/Replacement Measures

Switching to Cleaner Fuels

As evident from the analysis of data analysis, we can reduce emissions by substituting PNG from propane gas in Pyro, Hydro1 and Hydro 2 plant. However, an assessment of materiality of emissions at the plant is required before evaluating reduction measures. The second way of reducing the emissions in this category is using solar heaters for preheating the water. This technology is well established and is being used in other companies across India. Electric forklifts, two trucks and golf carts have introduced by business partners to reduce emissions. Till 15 vehicles deployed in CLZS.

	
Golfcarts	Forklifts & Tow-trucks

Biomass substitution in Coal Fuel



Biomass used in CLZS CPP which helped reduce use of coal and reduced GHG emissions.

Reducing the amount of fuel combusted

With the huge number of emissions generated by stationary combustion sources, reducing the amount of fuel that needs to be combusted even marginally can result in substantial reduction of CO_2e emissions. This can be achieved in the following ways:

- Implementing Waste Heat Recovery.
- Maximum Energy Utilization from Steam Generated.
- Revamping of turbine to increase energy efficiency.
- Improving the efficiency of combustion in boilers and CPPs.

Long Term Measures

- A new independent vertical to be created for the overall Climate Change Management & Sustainability Framework so that all the activities under this could be monitored, implemented and tracked.
- Investing in renewable i.e., solar, hydrogen, wind, bio – fuels. Separate assessment needs to be done for respective technologies for their technical and financial viability.
- Replacing conventional techniques of energy generation with new clean technology options i.e., gas base power
- Developing a low carbon strategy focusing on maximization of renewable energy use and ensuing optimum utilization of energy use during product manufacturing and distribution

Renewable Energy

We have installed 582.24 kW capacity Solar Roof Top Project at different locations of CLZS plant, 319.59 KW capacity solar roof top project at different locations of Zinc Nagar Chittorgarh and 1000 LPD solar water Heater at Guest House. **PDA signed for 250 MW RE-RTC for CLZS. It will reduce more than 70% emission by 2026.**

6. Knowledge, Awareness and Communication

Knowledge: -

Training for all staff will be carried out through the HR dept. according to the training calendar. This will include.

- Presentations to department management teams across CSC.
- A series on short training sessions for existing staff to start the program.
- The inclusion of a climate change session within the CSC.
- Inclusion of low carbon driving within the driver training program.
- Showing video films on GHG emissions etc.
- One pager provided on mail, quiz release.

- Senior management of each unit connected with business partners on Energy conservation day.
- Training is provided to school students on how to conserve energy.

Awareness: -

General awareness raising will be carried out on rolling program. This will include.

- Development of a carbon management web page on the Intranet, including a carbon foot printing tool for staff.
- An annual awareness events.
- Poster campaign.
- Development of Environmental Management Notice Boards within main Buildings.
- Displaying of video clippings on GHG emission and Climate change.
- Displaying the posters and slogans for the GHG emissions.
- Reporting of carbon management to the carbon and energy Committee on a monthly basis.

In line with the communication and awareness programs related to energy and climate change training to employees and business partners were provided across HZL, the topics included,

- Awareness session on Climate Change & roadmap to net zero.
- GHG accounting, current status of GHG emissions
- GHG reporting at different standard (CDP, SBTi etc.)

Communication: -

Communication to Stakeholder

CSC has defined Key Stakeholders as those individuals in the organization who can influence and motivate staff within their respective area of responsibility to ensure the program objectives are successfully delivered.
Those key stakeholders are generally senior members of staff responsible for significant teams and budgets but may also be individuals with specialist knowledge. The support and commitment of the key stakeholders is critical to the success of the program.

- Provision of data and expertise relating to sources of emissions for monitoring progress in future years.

- Identification of emissions reduction opportunities including project life cycle assessments and conformity with HZL's financial procedures.

CSC also believes in communicating with relevant stakeholders especially local community in case of any potential impact on air quality and generate awareness on significant pollutants emitted from the operation (including their concentration and distribution).

Communicating this Carbon Management Plan

For this Carbon Management Plan to be effective it is essential that all stakeholders understand its strategic objectives, which are:

- To reduce the consumption of utilities, primarily electricity, fuel, gas and water
- To understand and quantify the potential to reduce consumption and waste
- To embed the principles of carbon management into the culture of CSC route map and resourcing plan which will ensure that the strategy fully
- Establish a clear shared understanding of the Carbon Management Plan's vision and goals

Carbon Disclosure Project: - HZL is submitting the emission details with future mitigation strategy to Carbon Disclosure Project since 2008 and published since 2012. The CDP has disclosed the score based on the details submitted by other company's worldwide, achieved emission reduction, projects implemented, Projects under implementation and future strategy.

The trend of score shows our commitment towards sustainability and reduction in emission from our plants.

In 2019 HZL was awarded a **B** grade, in 2020 **A** grade, in 2021 B grade, in 2022 A grade, in 2023 A grade (in climate change category).

Sustainability report/ Annual reports: - We are communicating the details of our sustainable development through our sustainability report and annual report of company and group.

Sustainability policies (HZL) https://www.hzlindia.com/sustainability/sustainability-policies/

Integrated Annual report (HZL) https://www.hzlindia.com/wp-content/uploads/Integrated-Annual-Report-2023-24.pdf

Environment management (HZL) https://www.hzlindia.com/sustainability-management/environment-management.html

Energy and climate change management policy (HZL) https://www.hzlindia.com/wp-content/uploads/Energy-and-Climate-Change-Management-Policy-English.pdf

Energy and climate change strategy (HZL) HZL_Energy_and_Climate_Strategy_2022.pdf (hzlindia.com)

World Earth Hour: - Earth Day is an annual event, celebrated on April 23, on which events are held worldwide in order to increase awareness among people about the environment and to demonstrate support for environmental protection. It was first celebrated in 1970.

On this occasion, we appeal to all to conserve natural resources like water, energy & others wherever possible and reduce individual consumption.

CHANDERIYA SMELTING COMPLEX

We also organize the candle march to increase awareness among people about the environment.

IGBC Platinum Ranking Hind Zinc School: - Hind Zinc School Chittorgarh has received **Global Leadership** recognition by the Indian Green Building Council (IGBC) and is the **top scorer** out of the only two "**Platinum certified**" Green schools in Rajasthan.
The IGBC has awarded **92 points** and a Platinum Rating.

7. Legal and other requirement

Regulatory Requirements

In wake of the increasing concerns regarding climate change the governments all over the world are coming up with a number of regulations to promote the development of products which promote emissions reduction.

As the impacts of climate change become more direct, we are likely to see government resort to prescriptive regulation and statutory controls to ensure that mining companies take appropriate action on adaptation.

In line of the same Govt. of India has launched the RPO (renewable purchase obligations) and PAT scheme now forced all companies for the achieving the target required as per scheme.

The Details of the RPO obligation on the company for FY 23-24 is as: -

Total Obligated Energy on the company	: 368813.2MWh
Solar Obligation	: 0
Non-Solar Obligation	: 0

After fulfillment of the RPO obligation with Generation from WHRB and solar generation.

8. Risk Management

The climate-related risks and opportunities the organization has identified over the short, medium, and long term. HZL identifies and assesses climate change risk through a formal monitoring process at the unit level and at the corporate level, which identifies and categorizes existing and emerging climate-related risks and opportunities with respect to both Physical and Transitions risks. We have identified climate change associated risks and opportunities and its impact on employee health, the existing infrastructure, including the impact of on HZL's ecosystem and the business model. Climate Change risks management approach consists of an observation at present times and predicting the changes in the future.

8.1 Risk/Opportunity Assessment

Managing risk and identifying opportunities – How business is affected and in which ways?
Failure to comply with emission norms could lead to negative/inevitable long-term impact on the environment and society, with imposition of levies/ fines, escalation in costs related to monitoring and reporting, among others. Large-scale air emissions can cause serious impact on the environment and local communities. We continuously work towards reducing air emissions.
Progressiveness of companies in managing climate change impacts would determine their leadership position in industry. It's very important for organizations like CSC to create a detailed plan for risk assessment & mitigation and opportunities identification. This would include.

1. Hidden risks.
2. Opportunities in terms of new market or products, reduced costs of compliance etc.

Identification of Hidden Risks

The risks that company is facing due to climate change are as follow:

Physical Risks: As per our physical risk assessment for year 2020-2039, Hindustan Zinc is likely to face natural disasters like droughts, heat waves and increase in extreme weather conditions. These would impose challenges to mining operations. Climate change may cause or result in increase in extreme weather events and subsequent resource shortages, impacting overall cost of acquisition of resources from alternative sources.
The rising challenges of climate change and resource scarcity have put us on a path of transformation to a low carbon economy. Shifting to renewables and/ or low-carbon solutions where possible.

Physical risks as identified in Task Force for financial disclosures,

SCENARIO 1 : RCP 4.5 (CLIMATE CHANGE KNOWLEDGE PORTAL)

Expected Climate Change: Time Period- (2020-2039)

Asset Locations	Average Temperature (Projected Change in Hot Day; max>40^c), Ensemble Median Range	Heat Wave(Heat Index 35, Ensemble Median Range)	Drought (Ensemble Median Range(Projected change in Annual Mean Drought Index; SPEI))	Severe Drought (Ensemble Median Range(Probability)	Annual flooding (Projected Change in Days with Rainfall> 50mm)	Cyclones
Chanderia Lead Zinc Smelter (CLZS)	Low	Very High	Low	Low	Low	No direct impact of Cyclones

Expected Climate Change: Time Period- (2040-2059)

Asset Locations	Average Temperature (Projected Change in Hot Day; max>40^c), Ensemble Median Range	Heat Wave(Heat Index 35, Ensemble Median Range)	Drought (Ensemble Median Range(Projected change in Annual Mean Drought Index; SPEI))	Severe Drought (Ensemble Median Range(Probability)	Annual flooding (Projected Change in Days with Rainfall> 50mm)	Cyclones
Chandena Lead Zinc Smelter (CLZS)	Very High	Very High	High	Medium	Low	No direct impact of Cyclones

HZL has identified and categorized climate-related risks and opportunities over the short, medium, and long term with respect to both Physical (Increase in temperature, Drought, Floods, Extreme weather, Cyclonic pattern, wind speed etc) and Transitions risks (risks due to change in policy change, technological change, market change, financial resource raising, reputational etc).

Several medium to high vulnerabilities have also been identified as a part of TCFD related scenario analysis which are related to smelting operations, like increased electricity cost due to installation of cooling devices which would lead to increased operational costs and shall impact the upstream and downstream suppliers as well.

Transitional risks such as policy & technological changes, market & consumer behavior, financial sources and reputational risks will also result in the organization moving towards clean energy over conventional energy use.

Risk from Investors: Foreign Institutional Investors are seeking companies to disclose their carbon risks through Carbon Disclosure Project (CDP) and are increasingly becoming climate conscious and companies that do not work to reduce their emissions and contribute to climate change shall fail to attract investments. Given international nature as well as widely growing acceptability the disclosure through CDP, it is becoming a norm for progressive companies.

Reputational Risks

It is acknowledged that threats to reputation – whether real or perceived – can damage an image or brand. On the balance sheet, reputation value is considered as an intangible asset and is accounted for under 'goodwill' or 'intellectual capital'.

Policy & Regulatory Risk

We consume large amounts of energy due to the nature of our operational activities, logistics and transportation processes. That is why we seek new technologies and progress regarding sustainable energy generation. This can impact the overall market value of the products in the geographies with restrictions, thus impacting our revenues. As a result, we keep track of all transition risks and changes in regional Climate Change Policy.

Conclusion

Risk mitigation would be pivotal for climate leaders in any industrial sector. The lead in this area of climate change mitigation would be able to give significant competitive advantage. Not only it will reduce our exposure to these regulations but also provide a chance to turn this risk into opportunities which is discussed next.

8.2 Opportunities Assessment

Climate change provides significant revenue generation opportunities. Contrary to conventional wisdom, these opportunities are beyond only carbon credit generation. Proactive actions towards climate leadership will surely be able to reap benefits from such opportunities.

Some upcoming Projects: -

1. 250 MW RE-RTC project.
2. Installation of VFD in PA and FD Fans in Unit-1&2.
3. HMT Conventional Lights to be replaced with LED Lights

Benefits Management

There will be several indicators to measure both the quantitative and qualitative benefits of the Carbon Management Program.

Firstly, progress of project implementation will be reported to the Environmental Sustainability Steering committee.

Relating to environmental sustainability these include:

1) % Energy generated
2) % Low carbon fuels used
3) Energy consumption per ton of metal
4) CO2 emissions (Scope 1&2)

Reporting and Evaluation

During the years following the formal adoption of the Carbon Management Plan in which carbon reduction projects will be put into operation, there will be regular updates on the Program targets and evaluation of the Program status. This will: -

- Ensure that carbon management is being implemented effectively
- Enable management to be improved and optimized where appropriate
- Provide data that can be used to update the emissions targets and program scheduling

References: -

1 World Business Council for Sustainable Development
2 TS 16- Energy and Carbon Management (VSF)
3 Intergovernmental Panel on Climate Change
4 carbon disclosure project- Driving sustainable economies

9. REVIEW

This Carbon Management Plan shall be periodically reviewed to determine its accuracy and relevance with regards to legislation, education, training, and technological changes. In all other circumstances, it shall be reviewed no later than 12 months since the previous review.

ANNEXURE-XI

STATE REMOTE SENSING APPLICATION CENTRE
DEPARTMENT OF SCIENCE & TECHNOLOGY
GOVERNMENT OF RAJASTHAN

F( )DST/SRSAC/CHANDERIYA-GREEN-COVER/2021 / 754 Date: 25 Mar 2021

To,

Mrs. Manisha Bhati
Deputy Manager – Environment,
HZL, CLZS Complex,
P.O.: Putholi-312021, Dist.: Chittorgarh (Raj.)
Vedanta Resources Pvt. Ltd.
e-mail: manisha.bhati@vedanta.co.in
Mobile: +91-9116134090

SUB.: Final Report for Green Cover Study of Chanderiya Lead Zinc Smelter Complex at Chittorgarh Rajasthan.

REF.: Purchase Order 4500006323 dated 19 Jan 2021

Ma'am,

With the above reference, please find enclosed the final report of green cover assessment for the study area with the results derived using IRS-Cartosat-2E and ESA-Sentinel-2 satellite imageries.

With regards,

O/C
Project Director
cum Deputy Secretary
SRSAC, DST, Jodhpur

F( )DST/SRSAC/CHANDERIYA-GREEN-COVER/2021 / 754-55 Date: 25 Mar 2021

Copy to:

PS to Secretary, DST, GOR, Japur

O/C
Project Director
cum Deputy Secretary
SRSAC, DST, Jodhpur

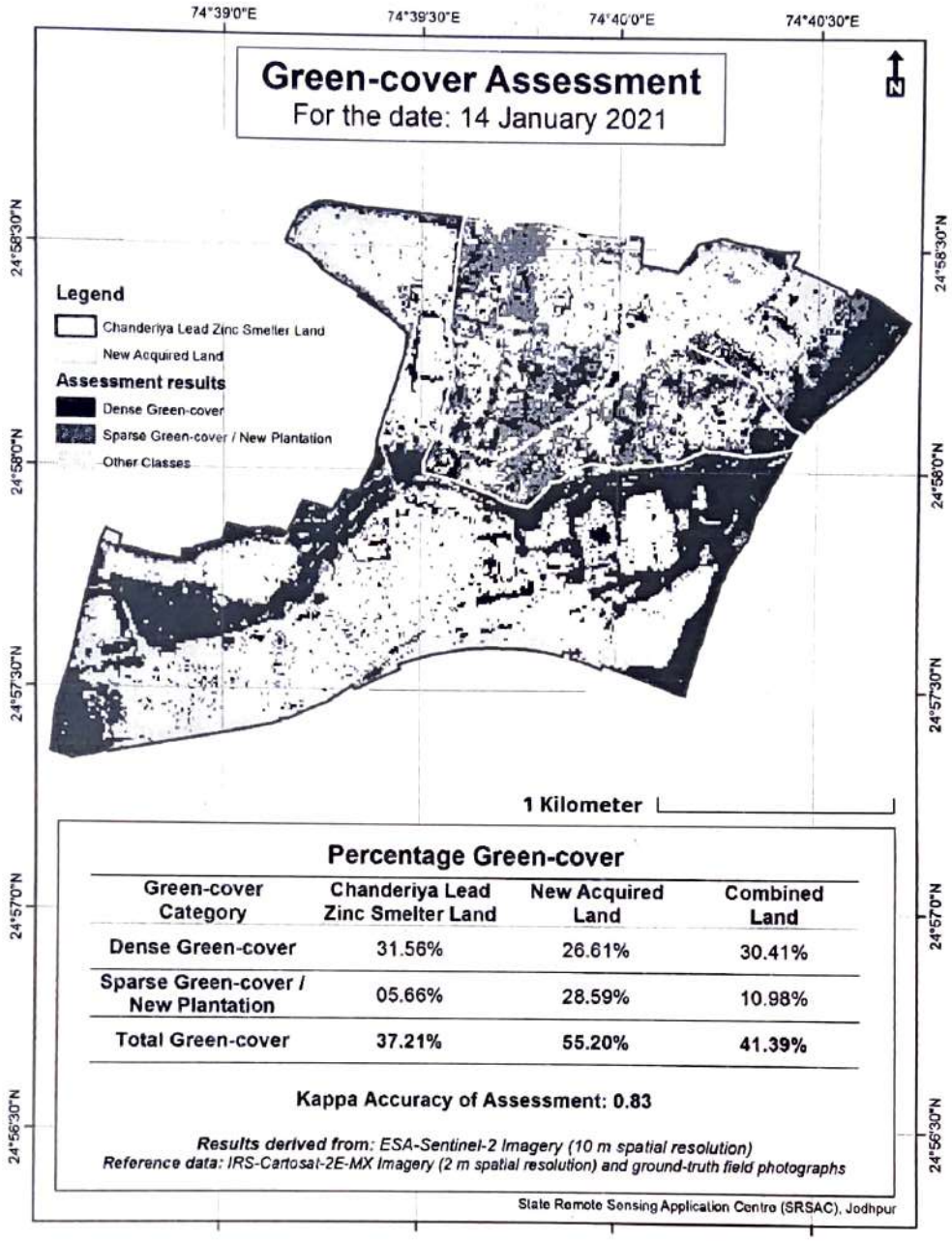


Figure 6: Assessment results

ANNEXURE – XVI

vedanta
transforming for good

HINDUSTAN ZINC
Zinc & Silver of India

HINDUSTAN ZINC

Environmental Policy

Purpose

Hindustan Zinc Limited is committed to achieving excellence in environmental management. Our goal is to minimise environmental impacts of our business across the entire lifecycle by implementing pollution-prevention and natural resource conservation actions either on site or off site.

This policy is forward looking and sets a vision for businesses across the Hindustan Zinc Limited.

Scope

This policy is applicable to all Hindustan Zinc Limited business units, including subsidiaries, joint ventures, and acquisitions, managed sites, licensees, outsourcing partners, corporate offices, and research facilities. This policy is also applicable to all Hindustan Zinc Limited employees, contractor employees, business partners, suppliers, and others with whom Hindustan Zinc does business.

In addition, this policy is applicable throughout the operational lifecycle of the projects and mines, covering stages from exploration and planning to evaluation, operation, and closure. Furthermore, it extends to activities in our upstream and downstream value chain, limited to distribution, logistics, and sale of products and services to the customer.

Objectives of the Environmental Policy

Hindustan Zinc will strive to:

- Comply with applicable national, regional, and local environmental regulations and statutory obligations. In the absence (or lack) of appropriate legislation, industry best practices and applicable international standards will be used.
- Develop, implement, and improve environmental management systems, consistent with world-class standards.
- Set targets and objectives to avoid, reduce or mitigate Environmental impacts on people and planet.
- Consistently assess our environmental risks, manage our impacts, take appropriate mitigation and adaptation measures, and communicate our environmental strategy to our stakeholders.
- Incorporate appropriate environmental criteria for all business decisions including the planning, operationalization, and closure of the projects.
- Conduct regular environmental review and due diligence of the projects (including for mergers & acquisitions) to identify, prioritize, assess, and take effective actions for mitigating the potential environmental risks.
- Drive continuous environmental performance improvement by implementing appropriate available practices and technology.
- Conserve natural resources by adopting environment-friendly and energy-efficient technologies through process improvements.
- Apply mitigation hierarchy (avoid, reduce, reuse, recycle, disposal) to environmental impacts and adopt the principles of circular economy.
- Manage impacts related to energy, carbon emissions, waste, nature, air emissions, land-use & biodiversity, and water.
- Raise awareness of internal and internal stakeholders including business partners, suppliers, and other stakeholders on adoption of practices in alignment with our policies, thereby fostering a collective commitment to managing environmental impacts.
- Provide appropriate training to all employees and emphasise the importance of minimising risks to environment, while also understanding the impacts of their work activities on the environment.
- Engage with relevant stakeholders in building capacity and capability to identify and proactively manage environmental related issues.
- Communicate with all our stakeholders on the progress and performance of Environment management.
- Review the performance against the policy on a periodic basis to ensure management of environmental impacts as per our objectives including the sharing of good practices throughout the organization and stakeholders.

Responsibility & Review

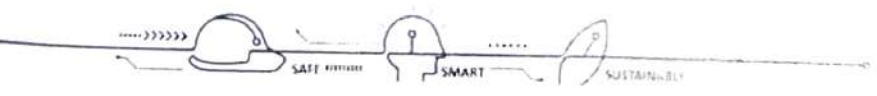
This policy is part of the Vedanta Sustainability Framework, and each Hindustan Zinc Limited business unit shall implement this policy. Our CEO will be accountable for controlling and setting the policy, and the Executive Committee are responsible for the full implementation of the policy and associated standards. The Board ESG committee will review this policy annually and recommend appropriate revisions to the Board as may deem necessary.

Related additional policies: Energy & Climate Change Policy, Biodiversity Policy, Water Policy, Tailing Management Policy.

Arun Misra

Date: 06th August, 2024

Arun Misra
CEO & Whole Time Director, HZL



ANNEXURE-XVII-A

2024 के पहले
कर लोगों को

डूंगरपुर। बिछीवाड़ा कस्बे में सर्व समाज ओर विभिन्न संगठनों की बैठक आशापुरा धाम पर आयोजित हुई। बैठक में 22 जनवरी को अयोध्या में होने वाले विशाल कार्यक्रम में बिछीवाड़ा में भी कई कार्यक्रम आयोजित कर इसे भव्य रूप में मनाया जाएगा इस बारे में जानकारी देते हुए सर्व समाज ने बताया कि इस अवसर पर सर्व प्रथम आशापुरा धाम से एक विशाल शोभायात्रा निकाली जाएगी। जो कस्बे के विभिन्न भागों से गुजरती हुई बिछीवाड़ा में स्थित राम मंदिर जाएगी जहां मंदिर एक विशाल पताका चढ़ाई जाएगी और फिर विभिन्न विधि विधान के बाद अयोध्या में मूर्ति प्रतिष्ठान के बाद 521 दीपक की एक सामूहिक आरती एवं हनुमान चालीसा का पाठ पढ़ा जाएगा। इसके पश्चात महाप्रसाद का वितरण किया जाएगा। ग्रामीणों ने बताया कि प्रत्येक घर पे भगवान राम कि पटाका चढ़ाई जाएगी एवं आंगन में रंगोली सजाई जायेगी वही हर घर पे 21 दीपक प्रज्वलित किए जायेंगे वही कस्बे में स्थित प्रत्येक मंदिर पे 501दीप प्रज्वलित किए जायेंगे। करणीराज सिंह, महंत महेंद्र सिंह, राजेंद्र सिंह, गणेश कलाल, ताराचंद पांचाल, बाबूलाल लबाना,वीएचपी के डॉक्टर कश्यपनाथ, दिनेश शाह, बसंत टेलर एवं विभिन्न समाज के प्रतिनिधि मौजूद थे एवं कार्यक्रम को सफल बनाने के लिए सभी ने अपनी राय दी कार्यक्रम में महिलाओं कि भागीदारी पर भी चर्चा की।

पूरन श्रीमाली, श्याम सोनी, गोविन्द प्रजापत, राहुल पंडित जी, गोविन्द पुरोहित, धनराज मीणा, अविनाश, रवि सोनी, मुनिराज, नारायण, शिवराज, देवराज कमलेश पालीवाल सहित अन्य मौजूद रहे।

सूचना

सर्व साधारण को सूचित किया जाता है कि भारत सरकार के पर्यावरण,वन और जलवायु परिवर्तन मंत्रालय के पत्र क्रमांक IA-J-11011/279/2006-IA-II(IND-I) दिनांक 29.12.2023 के द्वारा मैसर्स हिंदुस्तान जिंक लिमिटेड ग्राम पुठोली, आजोलिया का खेड़ा और बिलिया तहसील - गंगरार और चित्तौड़गढ़ , जिला - चित्तौड़गढ़ में मौजूदा चंदेरिया लेड जिंक स्मेल्टर के भीतर विस्तार (हाइड्रो प्लांट में इंडक्शन फर्नेस , 1 स्लेब कास्टिंग लाइन और हाइड्रो -II में आरजेडओ यूनिट के एकीकरण , कुल धातु के आधार पर पायरो यूनिट में उत्पादन मिश्रण में बदलाव और 1 लेड रिफाइनरी की स्थापना, आधुनिकरण और स्थापना के माधयम से सी.पी.पी. का विस्तार , 1 बैक प्रेशर टरबाइन जनरेटर , माइनर मेटल्स की रिकवरी और 5 डी जी सेट की स्थापना) हेतु पर्यावरण स्वीकृति (क्लीयरेंस) प्रदान की गई है। उक्त स्वीकृति को पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की वेबसाइट www.moef.gov.in पर देखा जा सकता है एवं इसकी प्रतिलिपि राजस्थान राज्य प्रदुषण नियंत्रण मंडल /कमेटी के पास भी उपलब्ध है।

सी चंद्र
CEO Smelters ,HZL

मोचन

प्रा -धरणेन्द्र जैन

खरीद फाईनेंस

ला

दिनों बाद सुभाष की शादी है, वह निपटाने के बाद दिसम्बर में वापस यहां सडा गांव आ जाएंगे। गोविन्दराम यहां से जाने के बाद भी उससे कुछ दिनों तक सम्पर्क में रहा और गाड़ी कि किश्ते समय पर जमा करवाने का आश्वासन देता रहा। आरोपी ने दो किश्ते जमा करवाई और इसके बाद किश्त जमा नहीं करवाई। इस पर कंपनी की ओर से उसके फोन आया और उससने आरोपियों से सम्पर्क करना चाहा तो आरोपी ने उसे फोन पर धमकाया तथा पैसे एवं गाडी भूल जाने के लिए कहा। साथ ही धमकाया कि अगर सीकर में पैसे लेने या गाडी लेने के लिए आया तो उसे जान से मारने की धमकी दी। कंपनी की ओर से उसे लगातार लीगल नोटिस मिल रहे है।

मुख्यमंत्री भजनलाल शर्मा का सीकर व नागौर जिले का दौरा

'कांग्रेस राज में बेरोजगारों को दर्द देने वालों को अब बख्शा नहीं जाएगा'

पत्रिका न्यूज नेटवर्क
patrika.com

सीकर. मुख्यमंत्री भजनलाल शर्मा ने कहा कि कांग्रेस के राज में राजस्थान के मान-सम्मान और स्वाभिमान को गिराने के काम हुए। प्रदेश में भाजपा की सरकार के आते ही प्रदेश की जनता के स्वाभिमान और सम्मान लौटाने का काम शुरू हो गया है। कांग्रेस राज में प्रदेश के बेरोजगारों को दर्द देने वालों को अब बख्शा नहीं जाएगा। पहले प्रदेश दूसरे राज्यों के बदमाशों की शरणस्थली बन गया था। अब अपराधियों पर शिकंजा कसना शुरू हो गया है। आने वाले समय में कोई भी अपराधी राजस्थान आने की सोच भी नहीं सकेगा। मुख्यमंत्री बुधवार को धोद इलाके के बोसाणा गांव में विकसित भारत संकल्प यात्रा के शिविर में बोल रहे थे।

मुख्यमंत्री ने कहा कि कांग्रेस राज में 19 में 17 पेपर लीक हो गए। इसमें बेरोजगारों के साथ उनके परिजन का भी सिस्टम से विश्वास उठ गया था। भाजपा ने चुनाव के दौरान एसआईटी का वादा किया था।

बोसाणा गांव में आयोजित शिविर में जानकारी लेते सीएम भजनलाल।

खत्म होगा नकल माफिया और गुंडाराज

मुख्यमंत्री ने नागौर जिले के खियाला गांव में विकसित भारत संकल्प यात्रा को पंडित दीनदयाल उपाध्याय के अंत्योदय से जोड़ते हुए कहा कि अब प्रदेश अपराध मुक्त होगा, क्योंकि मोदी की गारंटी की सरकार बन गई। पहले अपराधी बेखौफ थे, लेकिन अब अपराधियों पर नकेल कसने के लिए भी एसआइटी गठित कर दी है, अब आमजन बेखौफ रहें। प्रदेश में नकल माफिया और गुंडाराज खत्म कर देंगे।

...हैं सेबी को अन्य दो मामलों में तीन महीने के भीतर जांच पूरी करने का निर्देश देते हैं। इस मामले में सुनवाई पूरी होने के बाद पीठ ने 24 नवंबर को फैसला सुरक्षित रख लिया था।

रिपोर्ट...

रिपोर्ट के मुताबिक अदानी ने अपने शेयरों की कीमतों को बढ़ा-चढ़ाकर बताया। अदानी समूह ने रिपोर्ट को खारिज कर दिया था। हालांकि रिपोर्ट आने के बाद समूह के शेयरों में बड़ी गिरावट देखने को मिली। पिछले महीने इस मामले में कई याचिकाओं पर सुनवाई करते हुए शीर्ष अदालत ने कहा था कि हिंडनबर्ग रिपोर्ट में जो कुछ कहा गया है, उसे पूरी तरह सही नहीं माना जा सकता।

अब...

पहली बार आवेदनों की संख्या दस लाख के पार गई है। अप्रेल के सेशन में यह गिनती और बढ़ने की संभावना है। पहली बार यह परीक्षा छत्तीसगढ़ के बस्तर और मेघालय के तुरा में भी आयोजित की जाएगी। परीक्षा 24 जनवरी से एक

...जांच एजेंसी ने इसे गंभीरता से लिया है और दोषियों तक पहुंचने ... माध्यमिक शिक्षा बोर्ड अजमेर।

ANNEXURE-XVIII

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HINDUSTAN ZINC
Zinc & Silver of India

Ref. HZL/CLZS/ENV/43/2024-25

Date: 18.01.2024

To,

Sarpanch
P.S. Putholi
Chittorgarh (Rajasthan)

Subject: Environmental Clearance for **"Expansion within the existing Chanderiya Lead Zinc Smelter Complex at villages: Putholi, Ajoliya Ka Khera & Biliya, Tehsil: Gangrar & Chittorgarh, District: Chittorgarh (Rajasthan)"** by M/s. Hindustan Zinc Limited – Regarding issuance of Environment Clearance .

Sir,

With reference to the aforesaid subject, we would like to inform you that the "Expansion within the existing Chanderiya Lead Zinc Smelter Complex [Expansion in Hydro Plant by adding 1 Induction Furnace, 1 Slab Casting Line &Integration of RZO Unit in Hydro-II, Change in Product Mix in Pyro Unit on total metal basis & Installation of 1 Lead Refinery, Expansion of CPP through Modernization and Installation of 1 BPTG, Recovery of Minor Metals & Installation of 5 DG Set] at villages: Putholi, Ajoliya Ka Khera & Biliya, Tehsil: Gangrar & Chittorgarh, District: Chittorgarh (Rajasthan)" by M/s. Hindustan Zinc Limited Project is been granted Environment Clearance MoEF&CC, New Delhi on 29.12.2023. vide File no. IA-J-11011/279/2006-IA II(IND-I) on 29.12.2023 . EC letter has been annexed herewith for your records and reference .

Thanking you & with regards,

For Hindustan Zinc Limited

Tarun Kumar Meghwal 18/01/24
AGM – Environment
Chanderiya Lead Zinc Smelter Unit

Received Copy
(महिपाल सिंह शक्तावत) 30/01/2024
सरपंच
ग्राम पंचायत पुठोली
पं.स. गंगरार, (चित्तौड़गढ़)

Encl.: As above

→ O/C

P Manojkumar

ANNEXURE - XIX

From: Anoop Kumar
Sent: Saturday, August 31, 2024 5:22 PM
To: ALL HZL EMPLOYEES OF CSC LOCATION
Cc: Manas Tyagi; Kamod Singh; Tarun Meghwal; Manisha Bhati; TC Khatri; Tannu Mittal
Subject: Addressing Plastic Pollution at Zinc Nagar Residential Campus
Attachments: SUP Alternative English.pdf; WhatsApp Audio 2022-06-22 at 4.23.13 PM (1).mpeg

Dear All,

We would like to bring to your attention a serious matter that affects all of us and that is the harmful impact of plastic on our environment. Single-use plastics in particular have become a significant threat to the well-being of our earth/planet.

In an effort to reduce plastic waste and promote sustainability, we would like to inform you that single-use plastics (including plastic/polythene carry bags etc.) are now banned in our colony (Zinc Nagar) w.e.f. 1st Sept 2024. All Shop owners in Zinc Nagar have been intimated by Admin team in writing and there shall be penal consequences as well in case of violations.

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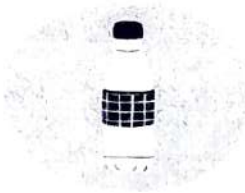
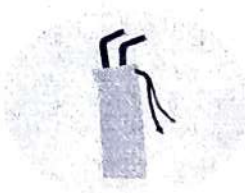
Plastic: useful for minutes, harmful for decades.

Ban on usage of single use plastic in zinc colony from 1st september

Plastic toothbrush: 500 years to break down.



Plastic bottles: 450 years to break down.



Plastic straws: 200 years to break down.

Coffee cups: 30 years to break down.

Plastic bag: 20 years to break down.

Therefore, we appeal you to please carry a non-plastic carry bag with you when you go for shopping. This simple act will significantly reduce the amount of plastic waste generated in our community.
Let's work together to protect our environment and create a cleaner, greener future for ourselves and future generations.

Thank you for your cooperation and support.

Many Jingles and video available on RSPCB Website Videos – link
https://environment.rajasthan.gov.in/content/environment/en/rajasthan-state-pollution-control-board/information/WasteManagement/PlasticWasteManagement/EliminationOfSUP/Creatives.html

Regards,

List of Single Use Plastic Items to be banned w.e.f. 01.07.2022 and its alternative

S.No	Banned Single Use Plastic Items	Alternative to banned Single Use Plastic Items
1.	Ear buds with plastic sticks	Ear buds with wooden/Bamboo sticks
2.	Plastic sticks for balloons	Wooden/Bamboo sticks for balloons
3.	Plastic flags	Cloth/Paper flags
4.	Candy sticks	Wooden/Bamboo sticks
5.	Ice-cream sticks	Wooden/Bamboo sticks
6.	Polystyrene [Thermocol] for decoration	Paper/Cloth/Tree leaves for decoration
7.	Plates, cups, glasses	Steel/Ceramic/glass plates, cups, glass, Compostable/Biodegradable plastic items, Cutlery made of tree leaves
8.	Forks	Steel/Bamboo/Sugarcane fiber(Bagasse) based Compostable/ Biodegradable plastic forks
9.	Spoons	Steel / Bamboo/Ceramic/ Sugarcane fiber(Bagasse) based Compostable/ Biodegradable plastic spoons
10.	Knives	Wood/Steel knives and knives made from Compostable/Biodegradable plastic
11.	Straw	Paper/Bamboo/Compostable/Biodegradable plastic Straw
12.	Trays	Steel/Glass/ Compostable/Biodegradable plastic Trays
13.	Wrapping or packing films around sweet boxes, invitation card, and cigarette packets	Films made of Compostable/Biodegradable plastic
14.	Plastic or PVC banners less than 100 micron	Banner made from Cloth/paper and Plastic or PVC banners more than 100 micron
15.	Stirrers	Wood/Steel Stirrers

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Commitment to Reduce Single Use Plastic in HZL

HINDUSTAN ZINC
Zinc & Silver of India

Dear All,

In compliance with the Advisory from Ministry of Environment, Forest and Climate Change (MoEFCC) on 11th Sept'19 to curb the use of Single-Use Plastic, HZL is also committed to reduce the use of below mentioned Single Use Plastic from 2nd October 2019, and shift to other environmental friendly materials. This advisory is applicable to all the Units, Offices and Township of HZL and we expect all employees and contract employees to comply the same.

- All plastic carry bags, with or without handles, irrespective of thickness and size
- Plastic cutlery including plates, plastic cups, straws, stirrers etc., Cutlery and other decorative items made of Styrofoam (Thermocol).
- Artificial flowers, banners, flags, flower pots
- PET plastic water bottles
- Plastic stationary items like folders, etc.
- Food packages and containers

Plastic being non-biodegradable appears to be a hazard for safe and clean environment and we are aware of the harmful effects of littered plastic that is accumulated over time which poses serious threat to our ecosystem.

This is our time to stand up together and contribute in reducing per capita consumption of plastic.

All are suggested to make the changes accordingly at your work place and at home so that we can successfully reach the **Target of elimination of Single-Use Plastic by 2022.**

Units are suggested to organize awareness sessions for Employees, Contractor Employees, Families at township and to our Suppliers to raise awareness on reducing Single Use Plastic. Various campaigns and drives to be initiated at all the locations, visual displays, cloth bags distributions , vending machines installation at prominent places etc. can contribute to the advisory. Encourage source segregation of waste, standardized Waste collection and transportation systems and other best practices should be inculcated.

We look forward to all of us implementing the plan with innovation and creativity and lead by example in the industry for introducing best environment-friendly sustainable practices.

Sunil Duggal
CEO & Whole Time Director

स्वच्छता ही सेवा...

Bidder's Undertaking to Comply with Plastic Waste Management (Amendment) Rules, 2021 on Prohibition of Single Use Plastic (SUP) items

To,

CCO, Hindustan Zinc Limited

Subject: Acknowledgement and Undertaking to comply with the Plastic Waste Management (Amendment) Rules, 2021 on Prohibition of Single Use Plastic (SUP) items at Hindustan Zinc Limited premises.

Tender Ref: _____

Contract Ref: _____

I, acknowledge and understand the responsibilities as a Supplier/ Service provider/ Aggregator/ Contractor/ Sub- Contractor/ Consultant/ or as an individual/entity (Bidder) engaged by Hindustan Zinc Limited (HZL) and undertake to comply with the Plastic Waste Management (Amendment Rules) 2021 and accept to operate and undertake all activities in such a manner as to meet Vedanta's Environment Social Governance (ESG) commitments. I understand, acknowledge and accept that the responsibilities and obligations mentioned below including but not limited to, are mandatory criterion, to qualify for the tender.

Following responsibilities and obligations including but not limited to as enumerated below, are agreed to be complied upon by the Bidder to qualify for a successful Bid, for the tendered Services/ Supplies/ EPC/ Consulting/ or any other work of any nature whatsoever for which the Company has proposed to engage the Bidder:

- That the identified Single Use Plastics (SUPs) shall not be used by any means while delivering services/ materials in any form.
- That they shall provide the details and information of the possible SUP items which they shall be using as a part of the contractual requirements. Whereas the Bidder must propose to be adopting alternative materials to replace SUPs to deliver Scope of the Work of the Contract.
- That the packaging of any Chemicals, Materials, Goods, Consumables, or any other Commodities shall not use Single Use Plastics (SUPs).
- That the Bidder shall not use any Single Use Plastic items either for packaging, distribution, storage or otherwise for any materials, goods, supplies or for rendering of any services.
- That no manpower of the Bidder shall use or carry any prohibited SUPs items within the HZL Premises. Refer Annexure-1 Guidance Document on Prohibited of Single Use Plastics (SUPs)
- That in case any SUPs are required to be used for any unavoidable reasons, the Bidder shall declare the same and submit a list of all such SUPs along with the plan for effective management (collection, segregation, recycling/repurposing, disposal) of such SUPs along with this declaration. In absence of such plan, it shall be deemed that no SUPs shall be used by the Bidder in any manner for discharging its obligations under its proposed scope of work for which the Bid is being made.
- That in case any SUPs are required to be used for any unavoidable reasons, the Bidder shall submit a list of all such types of SUPs which they shall be using as a part of the contractual requirements. Refer Annexure-2 Guidance Document on Types of Single Use Plastics (SUPs).

The Bidder shall be solely responsible and liable for use of any SUPs and no liability of any nature whatsoever shall be accepted by the Company for the usage of SUPs by the Bidder or its sub-contractors. The Bidder shall indemnify HZL for any loss or damage sustained by HZL due to the Bidder's usage of Single Use Plastic in contravention of the law.

I hereby affirm my compliance to the above requirements as per applicable laws, regulations & Vedanta's ESG commitment and agree to be bound by the same.

Bidder name:

Date:

Place:

_____

Authorized signatory & stamp

NOTE: Upon award of the Contract to the Bidder, this Declaration shall form part of the Contract and any non-compliance or breach of the same shall entitle HZL to avail the available contractual remedies along with the remedies available under the law.

Annexure-1: Guidance Document on Prohibition of Single Use Plastics

Hindustan Zinc, a subsidiary of Vedanta Limited, is India's largest and world's second largest fully integrated Zinc-Lead miner that has over 77% market share in India's primary zinc industry, is among the top six silver producers globally and a part of the Wind Energy business.

Our Business Partners' commitment to and fulfilment of the ESG (Environment, Social & Governance) Expectations is a matter of paramount importance to HZL and will be assessed as a factor when HZL considers awarding commercial opportunities. HZL will apply the ESG Expectations on a global basis and will integrate them into the various practices involved in HZL's qualification, evaluation, selection, and management of Business Partners.

At HZL we are committed to identifying, reducing, and mitigating the negative impacts of our business activities on people and on the environment. We are on a journey to embed sustainability into our business to protect, connect and power a more sustainable world.

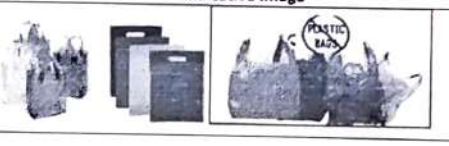
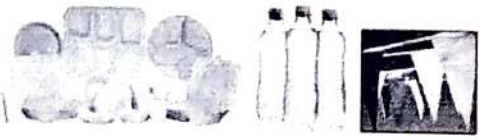
Environmental Social & Governance (ESG) is a renewed way 'how we do business'- to meet the expectations of stakeholders/ suppliers/ customers/ contractors/ employees/ consultants/ shareholders. In alignment with the same we have announced several bold commitments like Net Zero by 2050 or before and Net Water Positivity by 2030. Similarly, we aim to achieve zero usage of Single Use plastics in our premises and be compliant with the applicable laws.

We as an Organisation are committed towards demonstrating our compliance towards the latest Plastic Waste Management (Amendment) Rules, 2021 from Ministry of Environment, Forest, and Climate Change (MoEF&CC), prohibiting use of Single Use Plastic (SUP) items effective from 1st July 2022 and restricting usage of plastic bags with thickness less than 120 micron from December 2022.

In furtherance of the same, all our service providers and suppliers of chemicals, goods, consumables, and commodities are required to ensure that plastic materials shall not be used for packing of material and in case of integrated plastic lining of the product, the thickness of the same must be above 150 micron and the same shall be notified to the HZL procurement team in advance before accepting the order or dispatching the item along with an effective collection and disposal plan from the HZL premises.

Single-use plastic commodity means any plastic item intended to be used only once for the same purpose before being disposed-off or recycled. e.g., disposable straw & cutlery, Poly & Non-woven carry bags, PET Bottles, packaging materials like films, wrappers, foam sheets etc., In addition to the identified Single Use Plastic items by the Ministry of Environment, Forest and Climate Change vide its notification No. G.S.R. 571(E) dated 12th August 2021, below is an indicative list of the Single Use Plastics the use of which in any manner whatsoever is restricted on the HZL Premises:

1. Poly and Non-Woven Carry bags,
2. Polystyrene (Styrofoam or Thermocol) items e.g., plates, cups, decorative balls etc.
3. Plastic plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, stirrers
4. Plastic covers, caps, and lids
5. Laminated disposable plates, bowls, cups, and glasses of paper 6. Plastic films for Wrapping or packing and multi-layered plastics as packaging material
6. Packet with overwrap films of plastic e.g., cigarette packets etc.
7. Plastic or PVC banners (Flex)
8. PET Bottles
9. Plastic sticks with Ice cream, flags, balloons etc.
10. Stationery items of SUPs e.g., Sticky files, plastic folders etc.
11. Plastic sheets and plastic table spread etc.
12. Food Items in Multi-layered Plastic packaging.
13. All other item of Single Use Plastic or packed in single use plastic

Single Use Plastic Items Examples	Indicative Image
Poly and Non-Woven Carry bags	
Styrofoam or Thermocol items e.g., plates, cups, etc., PET Bottles, Plastic flags, or decorative items etc.	
Plastic plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping, stirrers, Disposable Plastic items	
Laminated disposable plates, bowls, cups, and glass etc	

Plastic films/clings for Wrapping or packing Plastic Packaging, Overwrap films	
Single Use Stationery Items of plastics, PVC banners, Plastic sheets etc.	

Annexure-2: Guidance Document on Types of Single Use Plastics

Most plastics are not infinitely recyclable like some other materials, such as glass. They are 'down-cycled' rather than recycled; made into lower grade products which are eventually not recyclable. "Plastic" means material which contains as an essential ingredient a high polymer.

Resin identification codes will indicate the type of plastic that an item is made from. RIC, is a set of symbols appearing on plastic products that identify the plastic resin out of which the product is made.

Please tick the appropriate box below, indicating the types of plastics you shall be using as a part of contract.

Recycling Number	Image	Polymer Name	Recycling
☐		Polyethylene Terephthalate (PETE)	Picked up through most curb side recycling programs.
☐		High-Density Polyethylene (HDPE)	Picked up through most curb side recycling programs, although some allow only those containers with necks.
☐		Polyvinyl Chloride (PVC)	Too long life for significant recycling volumes.
☐		Low-Density Polyethylene (LDPE)	LDPE is not often recycled through curb side programs and is a significant source of plastic pollution. LDPE can often be returned to many stores for recycling.
☐		Polypropylene (PP)	Picked up through most curb side recycling programs.
☐		6Polystyrene (PS)	Polystyrene is often not recycled through curb side programs as it is too lightweight to be economical to recycle, usually incinerated instead.
☐		Miscellaneous Plastics (Mix plastics) multi-materials like • Acrylonitrile Butadiene Styrene, [ABS] • Polyphenylene Oxide, [PPO] • Polycarbonate, [PC] • Polybutylene Terephthalate [PBT]	Number 7 plastics are not typically recycled as they are mostly specialty produced in limited volumes.

ANNEXURE - XXII

सत्यमेव जयते

File No.: IA-J-11011/279/2006-IA-II(IND-I)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
***

Dated **03/04/2025**

To,

M/s. HINDUSTAN ZINC LTD.
Chanderiya Lead Zinc Smelter Complex PO Putholi District Chittorgarh Rajasthan , Village Putholi, Tehsil Gangrar, CHITTORGARH, RAJASTHAN, -, 312021
E-mail: manisha.bhati@vedanta.co.in

Subject: **Amendment in EC titled "Expansion within the existing Chanderiya land Zinc Smelter Complex [Expansion in Hydro Plant by adding 1 Induction Furnace, 1 Slab Casting Line & Integratin of RZO Unit in Hydro-II, Change in Product Mix in Pyro Unit on Total Metal Basis & Installation of 1 Lead Refinery, Expansion of CPP through Modernization and Installation of 1 BPTG, Recovery of Minor Metals & Installation of 5 DG Sets]" by M/s Hindustan Zinc Ltd., located at Village Putholi, Ajoliya ka Khera & Biliya,Tehsil Gangrar & Chittorgarh, District Chittorgarh, Rajasthan - Consideration of Amendment in EC.**

Sir/Madam,

This is in reference to your application submitted to MoEF&CC vide proposal number IA/RJ/IND1/497483/2024 dated 26/09/2024 for grant of an amendment in prior Environmental Clearance (EC) to the project under the provision of the EIA Notification 2006-and as amended thereof.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC24A1004RJ5412352A
(ii) File No.	IA-J-11011/279/2006-IA-II(IND-I)
(iii) Clearance Type	Amendment in EC
(iv) Category	A
(v) Schedule No./ Project Activity	3(a) Metallurgical Industries (ferrous and non ferrous)
(vi) Sector	Industrial Projects - 1
(vii) Name of Project	Expansion within the existing Chanderiya Lead Zinc Smelter Complex at Villages: Putholi, Ajoliya Ka Khera & Biliya, Tehsil: Gangrar & Chittorgarh, District: Chittorgarh (Rajasthan)
(viii) Location of Project (District, State)	CHITTORGARH, RAJASTHAN
(ix) Issuing Authority	MoEF&CC

(x) EC Date 12/02/2025

(xi) Applicability of General Conditions NO

(xiii) Status of implementation of the project

3. The proposal was considered in the 72nd EAC held during 9th – 10th January, 2025. The minutes of the meeting and all the project documents are available on PARIVESH portal which can be accessed at https://parivesh.nic.in.

Details submitted by Project proponent

4. Environmental Clearance for expansion within the existing Chanderiya land Zinc Smelter Complex [Expansion in Hydro Plant by adding 1 Induction Furnace, 1 Slab Casting Line & Integration of RZO Unit in Hydro-II, Change in Product Mix in Pyro Unit on Total Metal Basis & Installation of 1 Lead Refinery, Expansion of CPP through Modernization and Installation of 1 BPTG, Recovery of Minor Metals & Installation of 5 DG Sets], located at Village Putholi, Ajoliya ka Khera & Biliya,Tehsil Gangrar & Chittorgarh, District Chittorgarh, Rajasthan has been obtained from MoEFCC, New Delhi vide Letter No. F. No.- IA-J-11011/279/2006-IA-II(IND-I), dated 29.12.2023 in the name of by M/s Hindustan Zinc Ltd.

5. The instant proposal is for seeking amendment in F. No.- IA-J-11011/279/2006-IA-II(IND-I), dated 29.12.2023 w.r.t. exclusion of 22 ha land from the total project area of 335.89 ha along with amendment in some specific and general conditions as detailed below:

Particulars	Existing	Proposed Amendment/ Correction	Remark
Corrigendum 'Project /activity including Schedule no.' Page 1 EC letter	1(d) Thermal Power Plants	3(a)- Metallurgical Industries (Ferrous Non-Ferrous & 1(d) Thermal power Plant	Factual correction
Corrigendum in 'Project' - Page 2 EC letter.	'Land' from project name	'Land' to be read as '**Lead**'	Factual correction
Environmental Clearance issued for CLZS Smelter Complex from MOEF&CC vide File no. IA-J-11011/279/2006-IA-II(IND-I) on 29.12.2023 with EC identification no. EC23A004RJ174768.	Integrated EC issued to Existing Chanderiya Zinc Lead Smelter Unit comprising of Pyro Lead Zinc Smelter, Ausmelt Lead Smelter, Hydro Zinc Smelter[1&2], 3 Units of CPP & Minor Metal Complex with capacities as referred to in EC.	HZL has proposed for exclusion of 22Ha land from existing CLZS smelter complex for its proposed Ammonium Phosphate Fertilizer Complex. Hence, the modified land of CLZS complex shall be read as 313.89Ha at all places in the EC letter dated 29-12-2023.	The proposed plant was part of CLZS Expansion Project as Interlinked Project with Cumulative impact and Detail material Balance considering utilities like Power, steam, Water etc. as part of TOR Compliance and EIA/EMP Report.
Specific Condition A(ix) & (xiv)	Particulate matter emission from stacks shall be less than 30 mg/Nm3. Action plan submitted to limit the dust emission shall be strictly implemented. The PP shall periodically conduct Mineralogical	Particulate matter levels from Hydro I & II Stacks shall be less than 30mg/Nm3, Pyro Metallurgical Smelter and Ausmelt shall achieve 30 mg/Nm3 by December 2026 and Captive Power Plant Stacks PM emission shall be less than 50mg/Nm3. Action plan submitted to limit the dust	PP's submission The Pyro Metallurgical Smelter (1991) and Ausmelt Plant (2005) updation would require major technology change w.r.t Plant design and challenges like space constraints etc. As per existing CTO, the permissible PM Emission from Pyro & Ausmelt Smelter is 150mg/Nm3 & 50mg/Nm^3 respectively. A roadmap is prepared

Particulars	Existing	Proposed Amendment/ Correction	Remark
	composition study of the PM10 and shall ensure the constituents are well within the permissible limits. The reports shall be submitted to MoEFCC and uploaded in their six-monthly EC compliance report.	emission shall be strictly implemented. The PP shall periodically conduct Mineralogical composition study of the PM10 and shall ensure the constituents are well within the permissible limits. The reports shall be submitted to MoEFCC and uploaded in their six-monthly EC compliance report.	and would be implemented to achieve <=30mg/Nm3 by December 2026 considering design modifications, material procurement, technical expertise requirement and aspects related to integration with existing technology. As per MOEFCC Notification dated 07/12/2015, PM emissions for TPPs installed after 01/01/2003 is 50mg/Nm3. The PM emissions will be achieved once FGD is installed at site and roadmap of March-2029 prepared and submitted.
Specific Condition A(xii)	SO2 emissions from H2SO4 plant shall be less than 1kg/t of acid.	SO2 emissions from H2SO4 Plant shall be less than 1kg/t from Hydro Zinc Smelters. SO2 emissions from H_2SO_4 Plant of pyro & Ausmelt plant shall be achieved less than 1kg/t by December 2026.	PP's submission SO_2 emissions and Acid mist from Hydro Zinc Smelters is being maintained at <1kg/t of acid and <30mg/Nm3 respectively.
Specific Condition A(xiii)	Acid mist from H2SO4 plant shall be less than 30 mg/Nm3.	Acid mist from H2SO4 plant at Hydro units shall be maintained at <30mg/Nm3, and Acid mist from Pyro and Ausmelt shall be achieved less than 30mg/Nm3 by December 2026.	The Pyro Metallurgical Smelter (1991) and Ausmelt Plant (2005) updation would require major technology change w.r.t Plant design and challenges like space constraints etc. A roadmap is prepared, and would be implemented by December 2026 to achieve standards of <=30mg/Nm3 for Acid mist and SO2 emissions of <1kg/t. The road map considers aspects like design modifications, material procurement, technical expertise requirement and integration with existing technology
Specific Condition A(xxvi)	Air Cooled condensers shall be used in the captive power plant.	'To be removed'	PP's submission Water Cooled condensers are currently used in the captive power plant. The replacement is practically not possible in light of existing plant design. As per assessment, air cooled condensers would reduce plant efficiency by 7-8%, and expected to increase the CO2 Emission by approx. 55000 tCO2e and SOx by 550 Ton annually for same production. The unit is consuming 75000m3/month of STP water leading to reduction of 7.5% in overall freshwater intake, *equivalent to 16% reduction in CPP freshwater intake*

6. It is reported that there is no change in the configuration and capacity of the facilities envisaged in the EC.

7. It is reported that there is no violation under EIA, 2006/court case/show cause/direction related to the project under

consideration.

8. The proposal was considered during the 72nd meeting of the EAC for Industry-I sector held on 9th – 10th January, 2025. The deliberations and recommendations of EAC are as follows:

Deliberation by the Committee

9. The Committee noted the following:

i. Environmental Clearance for expansion within the existing Chanderiya land Zinc Smelter Complex [Expansion in Hydro Plant by adding 1 Induction Furnace, 1 Slab Casting Line & Integration of RZO Unit in Hydro-II, Change in Product Mix in Pyro Unit on Total Metal Basis & Installation of 1 Lead Refinery, Expansion of CPP through Modernization and Installation of 1 BPTG, Recovery of Minor Metals & Installation of 5 DG Sets], located at Village Putholi, Ajoliya ka Khera & Biliya,Tehsil Gangrar & Chittorgarh, District Chittorgarh, Rajasthan has been obtained from MoEFCC, New Delhi vide Letter No. F. No.- IA-J-11011/279/2006-IA-II(IND-I), dated 29.12.2023 in the name of by M/s Hindustan Zinc Ltd.

ii. The instant proposal is for seeking amendment in F. No.- IA-J-11011/279/2006-IA-II(IND-I), dated 29.12.2023 w.r.t. exclusion of 22 ha land from the total project area of 335.89 ha alongwith amendment in some specific and general conditions as detailed in relevant para above.

iii. The EAC deliberated on the justification provided by the project proponent on each condition and found it satisfactory.

iv. It is reported that there is no change in the configuration and capacity of the facilities envisaged in the EC.

v. The Member Secretary before the scheduled meeting had informed the EAC that the Ministry had received complaints regarding the project through email dated 07.01.2025. The EAC Chairman requested that these complaints be shared with the Project Proponent (PP) for clarification. Accordingly, the complaint was shared by the Ministry with the project proponent for providing the clarification during the meeting. In response, the PP presented the pointwise reply addressing the issues raised in the representation. After detailed deliberation, the EAC found the PP's clarification satisfactory.

vi. The EAC deliberated on the ADS reply of the project proponent and found it satisfactory.

vii. The EAC also deliberated on the written submission of the project proponent and found it satisfactory

Recommendations of the Committee

10. After deliberations, the Committee **recommended** the proposal for amendment in F. No.- IA-J-11011/279/2006-IA-II(IND-I), dated 29.12.2023 w.r.t. exclusion of 22 ha land from the total project area of 335.89 ha along with amendment in some specific and general conditions as detailed in relevant para 5 above. PP shall also abide by its commitments made in the justification provided for amendment in the conditions. The other terms and conditions of the EC letter dated 29.12.2023 shall remain the same.

Decision of MoEF&CC

11. The undersigned is directed to inform that Ministry of Environment, Forest and Climate Change has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the Expert Appraisal Committee (Industry-1) hereby decided to accord amendment in EC as mentioned in Para 5. The PP shall ensure compliance of OM dated 14-01-2025 regarding streamlining the implementation of GSR 702 and GSR 703 dated 12-11-2024 through which projects requiring prior EC were exempted from requirement of CTE, if applicable.

12. All other terms and conditions mentioned in the earlier EC letter F. No. IA-J-11011/279/2006-IA-II(IND-I), dated 29.12.2023 shall remain unchanged.

13. This issue with the approval of the Competent Authority.

(Dinesh Runiwal)
Scientist 'F'/Director
Tel: 011-20819346
E-mail: d.runiwal@gov.in

Copy To

1. The Secretary (Environment), Department of Environment and Climate Change, Government of Rajasthan, Secretariat, Jaipur, Rajasthan.
2. The Deputy Director General of Forests (C), Ministry of Environment, Forest and Climate Change, Sub Office, A- 209 & 218, Aranya Bhawan, Mahatma Gandhi Road, Jhalana Institutional Area, Jaipur – 304002.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
4. The Chief Wildlife Warden, Govt. of Rajasthan, Van Bhawan, Vaniki Path, Jaipur -302005.
5. The Chairman, Rajasthan State Pollution Control Board, 4, Institutional area, Jhalana, Doongri, Jaipur.
6. The Member Secretary, Central Ground Water Authority, A-2, W3, Curzon Road Barracks, K.G. Marg, New Delhi-110001.
7. The District Collector, Chittorgarh District, Rajasthan.
8. MoEF&CC websiteMonitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi.
9. Guard File/Monitoring File/Website/Record File/Parivesh Portal.

(Dinesh Runiwal)
Scientist 'F'/Director

Annexure 1

Standard EC Conditions for (Metallurgical Industries (ferrous and non ferrous))

1. Statutory Compliance

S. No	EC Conditions
1.1	-

Additional EC Conditions

Not Applicable.

Signature Not Verified
Digitally Signed by : Shri Dinesh Runiwal
Member Secretary, MoEFCC (EC)
Date: 03/04/2025