

Ref : HZL/RA/ENV/MoEF&CC/2026-27/ 251

28.05.2026

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

Sub: Six monthly environmental compliance reports from October 2025 to March 2026.

Ref : Environment Clearances and Amendments

1.	Environment Clearance vide No. : J-11015/267/2008-IA.II (M) Dtd. 11.12.2009.
2.	Environment Clearance Amendment vide No. J-11015/267/2008-IA.II (M) dtd. 05.03.2012
3.	Environment Clearance Amendment vide No. J-11015/267/2008-IA.II (M) dtd. 22.08.2014
4.	Environment Clearance Amendment vide No. J-11015/267/2008-IA.II (M) dtd. 12.12.2014
5.	Environment Clearance Amendment vide No. J-11015/267/2008-IA.II (M) dtd. 28.12. 2015
6.	Environment Clearance Amendment vide No. J-11015/267/2008-IA.II (M) dtd. 28.02. 2020

Sir / Madam,

Please find enclosed herewith the compliance status report of above referred Environmental Clearance granted by the Ministry of Environment, Forest and Climate Change for the period **October 2025 to March 2026**. along with soft copy in a CD.

Thanking you,

Your faithfully



(Ram Murari)
CEO (Agucha IBU)

**CEO - IBU Agucha
Hindustan Zinc Limited
Rampura Agucha Mines
PO - Agucha
Distt. - Bhilwara (Raj.)**

Cc to:

1. In-Charge (Zonal office)
Central Pollution Control Board,
Vithal Market, Paryavaran Parisar , E-5, Arera Colony,
Bhopal, – 462 016 (MP)
2. Member Secretary
Rajasthan Pollution Control Board
4 Institutional Area, Jhalana Doogri,
Jaipur (Raj) -302004
3. The Regional officer
Rajasthan Pollution Control Board Regional Office,
18, Azad Nagar, Pannadhay Circle Mining Engineer Office Road
(Near Telephone Exc.) Bhilwara-311001



Hindustan Zinc Limited

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CIN No. L27204RJ1966PLC001208

HINDUSTAN ZINC LIMITED RAMPURA AGUCHA MINE

MoEF Environmental Clearance for Expansion of Rampura Agucha Lead and Zinc Opencast and Underground Mining Project (from 5.00 to 6.15 mTPA) and Beneficiation Capacity of Beneficiation Plant (from 5.00 to 6.50mTPA) Env Clearance Vide No. J-11015/267/2008-IA.II (M) Dtd 11.12.2009

S. No.	Condition	Status
A. Specific Conditions		
i	The project proponent shall obtain Consent to Establish and Consent to Operate from the Rajasthan State Pollution Control Board and effectively implement all the conditions stipulated therein	Complied Consent to establish obtained from RSPCB. Consent to Operate granted by RSPCB vide File F(CPM)/Bhilwara(Hurda)/2(1)/2019-2020/7113-7117 dated 28/02/2023 for mining activity. RSPCB. Consent to Operate granted by RSPCB vide File F(HDF)/Bhilwara(Hurda)/1(1)/2023-2024/1629-1631 dated 14/06/2023 for Beneficiation plant, and the conditions stipulated are implemented.
ii	The environmental clearance is subject to approval of the State Land use Department, Government of Rajasthan for diversion of agricultural land for non-agricultural use.	Complied Land purchased within Mine Lease area and converted in name of HZL for mining.
iii	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations.	Complied No natural watercourse or water resources are obstructed due to mining operations.
iv	The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.	Complied Top soil utilized on waste dump for its stabilization and plantation.
v	The over burden generated during the mining operation shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time and its phase-wise stabilization shall be carried out. The maximum height of the dump should not exceed 100m having 5 terraces as recommended by the Central Institute of Mining and Fuel Research, Dhanbad. The recommendations made by the Central Institute of Mining and Fuel Research, Dhanbad shall be effectively implemented. The over burden dump shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Lucknow on six monthly basis	Being Complied Amendment in this condition was granted in EC vide letter No J-11015/267/ 2008-I-A.II (M) dated 22 nd August, 2014. The maximum height of the dump shall not exceed 140 m (in two lifts of 20m each). Waste dump vegetated phase manner. Waste dump covered by application of geotextile and plantation.
vi	The void left unfilled in an area of 25 ha shall be converted into water body. The higher benches of excavated void/mining pit shall be terraced and plantation done to stabilize the slopes. The	Will be complied during the mine closure. when the stage will be achieved.

	slope of higher benches shall be made gentler. Peripheral fencing shall be carried out along the excavated area.	
vii	<p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working and over burden dump. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly.</p> <p>Garland drain (size, gradient and length) shall be constructed for both mine pit and over burden dump and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p>	<p>Being Complied</p> <p>Garland drain of adequate size is constructed along the waste dump toe & mining pit, along with siltation pond that provides adequate retention time for settling of silts and rain water collection lined sumps of about 8.5 lakh CuM. The water collected is utilized for watering the mine area, roads, green belt development etc</p> <p>Annexure –VIII</p>
viii	Dimension of the retaining wall at the toe of dump and OB benches within the mine to check run-off and siltation should be based on the rain fall data.	The retaining wall at the toe of the OB dump is constructed along with garland drain. Annexure VIII
ix	Regular monitoring of subsidence movement on the surface over working area and impact on water bodies/vegetation/ structures/ surrounding shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.	<p>Being Complied</p> <p>A comprehensive assessment and monitoring of subsidence movement on the surface over working area is done by a dedicated team comprising of Rock mechanic engineers. There has been no subsidence or movement observed.</p> <p>Annexure XXI.</p>
x	All the mine entries shall be above the highest flood level to avoid any anticipated flooding of mine from the surface water during the rainy season	<p>Complied</p> <p>The underground mine opening is at 392 mRL against highest flood level at Agucha reservoir of 391 mRL. Further, A peripheral bund is constructed around the mine pit for protection of the mine from flooding due to rain water.</p>
xi	In areas where subsidence is anticipated in shallow mineral occurrence, such areas be identified and provided with garland drains to ensure draining of water and avoid ingress of the same in to the underground mine.	<p>Being Complied</p> <p>No subsidence is anticipated in the proposed area.</p> <p>Annexure XXI.</p>
xii	The project authorities shall check the possibility of existence of fault(s) before deciding about the thickness of safe barrier required to be maintained between the working face and the	<p>Being Complied</p> <p>Mining activities are carried out as per Mine plan as approved by IBM.</p> <p>De-pillaring, if required, shall be carried out after</p>

	water bodies, if any, in consultation with the Director General Mines & Safety (DGMS). De-pillaring should also be carried out after taking prior approval of the DGMS.	prior approval of the DGMS.
xiii	The project proponent shall carry out conditioning of the ore with water to mitigate fugitive dust emission, without affecting flow of ore in the ore processing and handling areas.	Water sprinklers are installed on conveyer belts, transfer points, and conditioning of ore is done during crushing to mitigate fugitive dust. Annexure- XXXII
xiv	The effluent from the ore beneficiation plant shall be treated to conform to the prescribed standards and the tailings slurry shall be transported through a closed pipeline to the tailing dam.	Complied Tailings are being disposed through closed pipeline to the earmarked Tailing dam after necessary lime treatment. Annexure- XXXIV
xv	The decanted water from the tailing dam shall be re-circulated and there should be zero discharge from the tailing dam. Acid mine water, if any, shall be neutralized and reused within the plant.	Complied Tailing dam water is completely reused in process plant and zero discharge is maintained. There is no acid mine drainage occurring in the mine.
xvi	Plantation shall be raised in an area of 670.7ha including a green belt of adequate width by planting the native species around ML area, OB dump, around tailing dam, around beneficiation plant, roads etc. in consultation with the local DFO / Agriculture Department. In addition, the township area shall also be adequately planted. The density of the trees should be around 1500 plants per ha. Green belt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.	Being Complied Green belt developed all along the acquired mine lease area. Progressive plantation is being carried out on waste dump benches every year Seed spreading and geotextile laying is also carried out on waste dump slopes. As per SRSAC study conducted based on Nov 2021 satellite imagery, 694103 Nos of plants are existing with in 348 Ha area. Further FY 2022-23, FY 2023-24, FY 2024-25, & 2025-26 15000 Nos, 23000 Nos, 15000 Nos, 15000 Nos saplings planted as gap filling. Currently 762103 Nos of plants are exiting in 348 Ha. Detailed SRSAC report attached as Annexure XXXV. Plantation in remaining area will be completed by closure of mine. Additional plantation has been done in 37.70 ha in the township and along roadsides. Annexure –IX.
xvii	Regular water sprinkling should be carried out in critical areas prone to air pollution and having high levels of SPM and RPM such as haul road, loading, unloading and transfer points and other vulnerable areas. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Being Complied Water sprinkling is carried out by 4 Nos. of 40 KL water sprinkler on Haul roads to mitigate air pollution in mine area. Dust extraction system and Water sprinkling nozzles are installed at the crusher, transfer points and coarse stockpiles for dust suppression. The parameters of Ambient Air quality monitored are within the prescribed norm of CPCB. Annexure-X
xviii	The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Complied 3 Nos. of anicuts have been constructed for groundwater augmentation in consultation with the CGWB. 4 anicuts constructed in the area under MJSA. 8.72 MCM groundwater recharge work has been completed four blocks of Bhilwara district. (Annexure –XI). Detailed report shared in six monthly EC report of Oct-21 to Mar-22. Ref:

		HZL/RA/ENV/MoEF&CC/2022-23/463
xix	Regular monitoring of ground water level and quality shall be carried out in and around the project area (mine lease, beneficiation plant and tailing dam) by establishing a network of existing wells and installing new piezometers during the operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Lucknow, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out.	Being Complied Regular groundwater monitoring is being done by piezometers and wells outside and inside the lease area. Report enclosed as Annexure - I Six monthly reports are submitted to MoEF & CPCB. Quarterly report being sent to RSPCB, CGWA and CGWB.
xx	The project proponent shall ensure that no additional water is drawn for the expansion project. The additional requirement of water will be met out of the water saved by adopting water conservation measures.	Complied No additional water is drawn. The additional requirement of water if any in future will be met out by water conservation measures.
xxi	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.	Complied Various rainwater-harvesting measures are implemented including the construction of rainwater collection pond of about 1.5 Lakh cum in the township, collection sumps of 8.5 lakh CuM capacity to collect and reuse the rainwater. Annexure XII
xxii	Regular monitoring of groundwater quality around the tailing dam shall be carried out in consultation with Central Ground Water Authority and records maintained. It shall be ensured that the groundwater quality is not adversely affected due to the project	Complied Groundwater quality is regularly monitored around the tailing dam through piezometers within ML area and wells inside as well as outside the lease area. The groundwater quality report is being submitted to MoEF, CPCB, RSPCB, CGWA and CGWB on regular basis. Annexure - I (2/3)
xxiii	Groundwater and surface water in and around the mine shall be regularly monitored at strategic locations for heavy metals such as Ni, Co, Cu, Zn and Cd. The monitoring stations shall be established in consultation with the Regional Director, Central Ground Water Board and State Pollution Control Board	Complied Ground and surface water is regularly monitoring for heavy metals. Report enclosed as in point no. xix.
xxiv	Vehicular emissions should be kept under control and regularly monitored. Measures shall be	Being Complied Periodic preventive maintenance of vehicles is part

	taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded	of our operations. All the trucks are covered with tarpaulin while transportation of concentrates to the smelters and no overloading is allowed. Annexure -XIII
xxv	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented	Complied Blasting operation is carried out in underground during daytime with various mitigation measures as per DGMS guidelines. The vibrations monitored are well within the prescribed limits by DGMS.
xxvi	Drills shall either be operated with dust extractors or equipped with water injection system	Being Complied Wet drilling system is adopted. Photographs enclosed as Annexure - X
xxvii	Digital processing of the entire lease area using remote sensing technique should be done regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Lucknow	Complied Noted. The land use & land cover change study carried out in 2023. Copy attached. Annexure-XIV
xxviii	The tailing dam shall be lined by LDPE lining on the sides as the height of the dam is raised. The ultimate height of the dam shall be maintained to 51m and provided with garland drains. The disaster management plan for tailing dam shall be prepared and implemented	Complied The sides of the tailing dam are lined with HDPE. As per letter No. Environment Clearance Amendment vide No. J-11015/267/2008-IA.II (M) dtd. 28.02.2020 ultimate height shall be 74m. The present height of tailing dam is 60 meter. Garland drains are constructed around the tailing pond with pumping arrangement to collect any seepage and rainwater runoff back to tailing pond. Disaster management plan for the tailing pond is prepared and implemented. Annexure XV
xxix	The recommendations of the study report of NEERI, Nagpur on pollution vulnerability of aquifer shall be effectively implemented and action taken report submitted to the Ministry and its Regional Office, Lucknow on six monthly basis	Complied Complied on the recommendations of NEERI i.e. network of piezometer established and report submitted on six monthly basis. Report enclosed as point no xix.
xxx	The project proponent shall regularly analyse the waste generated from the mining (at least once a year) for heavy metals such as Ni, Co, Cu, Pb, Zn and Cd and the data thus collected may be sent regularly to Ministry of Environment and Forests and its Regional Office, Lucknow. It should be ensured that the parameters conform to the prescribed norms	Being Complied Being analyzed and report is submitted on six monthly basis. Annexure II
xxxi	The recommendations of the study report on blood lead levels of children to monitor levels of lead in human system carried out by National Institute of Occupational Health, Ahmedabad shall be effectively implement and action taken report submitted to the Ministry and its Regional Office, Lucknow on six monthly basis.	Complied As recommended by the NIOH, regular health checkups are carried out for the mine personnel and regular health checkup organized in nearby villages to keep a track of the health status. Annexure XX
xxxii	Pre-placement medical examination and	Complied

	periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly	Pre-placement medical examination and periodical medical examination of the employees are being carried out at regular intervals as per the Mine Act. From 'O' Medical examination format attached Annexure-XXXVI
xxxiii	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and the wastewater generated during mining operation	Complied Sewage treatment plant of 425 KLD capacity in colony and 300 KLD in mine area operating efficiently. Oil & Grease Traps installed and water reused in process. Annexure XVI
xxxiv	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, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project	No construction labour housing is proposed in mining area. However, the sanitation and drinking water facility is provided to the workers, working at site.
xxxv	Acid mine water, if any, has to be treated and disposed of after conforming to the standard prescribed by the competent authority	Complied No acid mine water generated & mine pit water is used in process plant.
xxxvi	The critical parameters such as RSPM (Particulate matter with size less than 10µm i.e., PM ₁₀ and with size less than 2.5µm i.e., PM _{2.5}), NOX in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance	Being Complied Monitoring of Ambient air at 3 locations inside mine and 3 locations outside the mine area is regularly carried out. Monitoring report is enclosed as Annexure III. Peak Particle velocity of blast vibration is being monitored for every blast & records are maintained. No effluent, treated or untreated, is discharged outside the project area as Zero discharge is maintained at all times. Monitoring data are displayed at Main Gate. Annexure XVII.
xxxvii	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval	A Final Mine Closure Plan along with details of Corpus Fund will be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

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HINDUSTAN ZINC LIMITED RAMPURA AGUCHA MINE

MoEF Environmental Clearance Compliance to amendment in EC vide letter No J-11015/267/2008-I-A.II (M) dated 5 March, 2012

Sr. No	Condition	Status
i	In the environment clearance letter dated 11th December, 2009, in para number 1, the words "The mineral will be transported through the road." will be substituted by the words "The mineral will be transported through the rail".	Amendments granted by MoEF vide letter dated 28.12.2015 "The mineral will be transported both through road and rail". Railway line commissioned but not operative.
ii (a)	All the requisite prior clearance from the concerned authorities, as may be applicable to such project shall be obtained and the conditions, if any, stipulated there under shall be effectively implemented.	Complied All the requisite prior clearance from the concerned authorities, as may be applicable to such project shall be obtained and the conditions, if any, stipulated there under shall be effectively implemented.
ii (b)	The project affected people whose land will be acquired for laying of the railway track shall be compensated as per the National / State Policy in this regard.	Complied Compensation given to land owners done by RIICO, GOR as per the norms.
ii (c)	The company shall submit within 3 months their policy towards Corporate Environment Responsibility which should inter alia provide for (i) Standard operating process / process to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions, (ii) Hierarchical system or administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions and (iii) System of reporting of non compliance s / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders.	Complied Policy towards Corporate Environment Responsibility enclosed.

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HINDUSTAN ZINC LIMITED RAMPURA AGUCHA MINE

MoEF Environmental Clearance Compliance to amendment in condition no (v) in EC vide letter

No J-11015/267/2008-I-A.II (M) dated 22nd August, 2014

Specific Condition		
S.No	Condition	Status
i	The Open crack, whenever developed in the partially consolidated new dump mass, should be consolidated with proper filling/ leveling with the help of dozer/ compactors.	Being Complied In such case, we shall consolidate with proper filling/ leveling with the help of dozer.
ii	Dump foundation preparation should be done by excavating and removing soil before dumping, to improve the frictional resistance at the base of dump. It should be filled with over burden containing stones.	Complied The contents of para ii are noted and complied.
iii	There should not be any dumping in pool water or on slushy ground.	Being Complied No dumping is done in water pooled / slushy ground
iv	Discontinuous dumping should be avoided to check water accumulation between two isolated dumps.	Complied Dumping is done at a single earmarked area.
v	During rainy season, an officer should be deputed to go in and around the dump site every morning to see the effectiveness of drain. If any blockage is observed, immediately steps should be taken to make it effective.	Complied Mining officer is always deputed during rainy season to ensure smooth flow of runoff water.
vi	The dump should be surveyed periodically to produce up-to-date and accurate dump geometry.	Being Complied Survey team survey the dump once in a month to produce up-to-date and accurate dump geometry.
vii	The slope and stability monitoring by Radar should be done and its report should be sent to MoEF and its Regional Office every six – months.	Complied Stability monitoring by Radar. Report enclosed as Annexure VII
viii	The dump design should be reviewed by CIMFR or any other scientific agency after reaching dump height of 120m and its report sent to MoEF and its Regional office.	Complied Waste dump design and slope stability is being reviewed yearly by CIMFR and report being submitted to MoEF Regional Office. Latest report is attached as Annexure XXI.
ix	Waste dump has to be managed as per the guidelines of DGMS and quarterly monitoring report to be submitted to DGMS and regional office	Being Complied Waste dump is being managed as per the DGMS guidelines and quarterly monitoring report shall be submitted to DGMS and regional office.
x	On stabilized dumps, more species such as Pongamia, Bombax ceiba, Tamarind, Arjun, Gravillea robusta and Amla to be planted.	Complied Plantation of Pongamia, Bombax ceiba, Tamarind, Arjun, Gravillea robusta, Amla and other species has been done on stabilized dumps.

xi	The Radar monitoring system should satisfactorily sub- serve the dual objectives viz.(a) Investigative monitoring to provide an understanding of the slope behavior over time and typical response to external events (e.g. Precipitation and seasonal fluctuations) and (b). Predictive Monitoring: To provide a warning of a change in behavior, enabling the possibility of limiting or intervening to prevent hazardous sliding. The data so analyzed should be provided with reference to the above.	Complied The analyzed data is enclosed Annexure – VII
xii	Paved drains are to be provided to protect the slope surface against rain-cuts and seepage during rains to make a safe way to discharge top and surface water to the bottom of the dump. Constant vigilance on the condition of dumps with special reference to accumulation of water and development of cracks.	Complied Paved drains are provided. Constant vigilance shall be given on dump conditions with special reference to water accumulation and development of cracks.
xiii	Regular Monitoring of above mentioned specific conditions shall be included in the monitoring plan and report submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office located at Lucknow on six monthly basis.	Being Complied Regular monitoring of the above mention conditions conducted and report is enclosed. Annexure – XXI. Recommendations of current quarters also attached.



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HINDUSTAN ZINC LIMITED, RAMPURA AGUCHA MINE
MoEF Environmental Clearance Compliance to amendment in EC vide letter No. J-11015/267/2008-I-A-II (M)
dated 28th February , 2020

A) Additional Specific Conditions		
S.No.	Condition	Status
1.	PP shall ensure that the recommendation provided in study conducted by Indian Institute of Science, Bangalore shall be complied for increasing the height of the tailing dam.	Complied Height raising of the tailing dam is done as per the recommendations of Indian Institute of Science, Bangalore study.
2	The risk arising due to surface runoff during rainy season or otherwise, from the tailing area/heap, shall be assessed on regular basis and corrective measures shall be undertaken and reported to SPCBs.	Being Complied Tailing Dam is always having freeboard and there is no risk of surface runoff from the area.
3	PP shall engage suitable agency for conducting subsidence study for increasing the depth of working from 1000 mbgl to 1500mbg. The report shall be submitted to Ministry within 6 months.	Complied Study conducted by Central Institute of Mining & Fuel Research (CSIR- CIMFER). Copy of the study report "Numerical Modelling Studies for Subsidence predication at Rampura Agucha Mine, HZL" submitted vide letter No. HZL/RAM/ENV/2020-2021/789 dated 28.08.2020. Report cover page – XXXIII
4	No waste to be transported outside the mining lease area.	Complied No waste is transported outside the lease area. If required to be done in future, necessary approvals will be taken.
B) Standard Conditions: (As Ministry's O.M No 22-34/2018-IA.III dated 8.01.2019 and Ministry's O.M No 22-34/2018-IA.III dated 16.01.2020)		
I. Statutory compliance		
1	This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.	Complied All applicable orders/ and Judgment will be complied.
2	The Project Proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors before commencing the mining operations.	Complied Till date no liability raised by state government. If raised any in future, same will be complied.
3	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2 nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.	Complied Till date no liability raised by state government. If raised any in future, same will be complied.

4	This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife, if applicable to the Project.	Not Applicable for our operations.
5	This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of Forest Conservation Act, 1980, if applicable to the Project.	Forest clearance not applicable as there is no forest land in Mine Lease area.
6	Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish/ Consent to Operate from the concerned State Pollution Control Board/Committee.	Complied Consent to Establish was granted by RSPCB vide letter No. F(Mines)/Bhilwara (Hurda)/1(1)2009-2010/4792 dtd 21/01/2010 (Copy attached as Annexure - XXXII). Consent to Operate granted by RSPCB vide File F(CPM)/Bhilwara(Hurda)/2(1)/2019-2020/7113-7117 dated 28/02/2023 for mining activity. RSPCB. Consent to Operate granted by RSPCB vide File F(HDF)/Bhilwara(Hurda)/1(1)/2023-2024/1629-1631 dated 14/06/2023 for Beneficiation plant, and the conditions stipulated are implemented. (Copies attached as Annexure -XXXIII) There is no requirement of obtaining CTE & CTO afresh as this is an amendment in existing EC.
7	The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.	Complied Adherence to all provisions of Mines Act, MMDR Act and circulars of DGMS & IBM is ensured.
8	The Project Proponent shall obtain consents from all the concerned land owners, before start of mining operations, as per the provisions of MMDR Act,1957 and rules made there under in respect of lands which are not owned by it.	Complied All the land is owned by HZL. Operations were started in the year 1991.
9	The Project Proponent shall follow the mitigation measures provided in MoEF&CC's Office Memorandum No. Z-11013/57/2014-IA. II (M), dated 29 th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area"	No village and Habitation are part of mining lease area.
10	The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water	Complied Permission for mine dewatering issued by CGWA vide NOC No. CGWA/NOC/MIN/REN/3/2026/12020

	and from CGWA for withdrawal of ground water for the project.	valid till 07.07.2026. (Annexure XXIV). NOC of water withdrawal from Banas radial well has been renewed vide no. CGWA/NOC/MIN/REN/3/2023/7399 same is valid till 07/07/2024 (Annexure XXV). Renewal application submitted
11	A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion/ representation has been received while processing the proposal.	Complied Copy of EC letter was submitted to Panchayat in 2009.
12.	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.	Complied Copy is marked to Rajasthan State Pollution Control Board.
13	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.	Complied Copy of the advertisement was sent to MoEF &CC, Lucknow vide letter No HZL/RAM/Env/Exp/2009 Advertised in two News papers on 03.01.2010.
14	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred than mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.	Complied Will inform as per EIA notification in case of any change in ownership or transfer of the mining lease.
15	In pursuant to Ministry's O.M. No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Hon'ble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.	Being Complied Reclamation is carried out progressively for growth of flora and fauna.

II. Air quality monitoring and preservation

16	<p>The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, N02, CO and S02 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.</p>	<p>Complied Three Online Ambient Air Quality Monitoring Stations are in place, 1 in upwind and 2 in downwind direction. Six Ambient air monitoring locations, three each in core and buffer zone each are selected in consultation with the SPCB. AAQ monitoring is carried out every fortnightly</p> <p>Data digitally displayed at main gate. Attached as Annexure-XXVI.</p>
17	<p>Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM 10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipment's/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.</p>	<p>Complied Water sprinkling is carried out by 4 Nos. of 40 KL water sprinkler on Haul roads to mitigate air pollution in mine area Annexure-X. Dust extraction system and Water sprinkling nozzles are installed at the crushers, transfer points and coarse stockpiles for dust suppression. Industrial roads are cleaned by using Truck mounted vacuum road sweepers. (Annexure-XXII) The parameters of Ambient Air quality monitored are within the prescribed norm of CPCB.</p>
III. Water quality monitoring and preservation		
18	<p>In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed</p>	<p>Complied Permission for mine dewatering issued by CGWA vide NOC No. CGWA/NOC/MIN/REN/3/2026/12020 valid till 07.07.2026. (Annexure XXIV). NOC of water withdrawal from Banas radial well has been renewed vide no. CGWA/NOC/MIN/REN/3/2023/7399 same is valid till 07/07/2024 (Annexure XXV). and renewal application submitted and attached with annexure XXIV and XXV.</p>

	hydro-geological study of the area.	
19	Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water bodies and or streams which are flowing in an around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department/ State Pollution Control Board.	<p>Complied</p> <p>There is no perennial nallahs in and around mine lease. Not disturbed any village's natural water bodies or streams.</p> <p>Regular water monitoring carried out for open dug well / piezometers near mining area and water level and water quality report Quarterly to CGWA, GCWB & State Pollution Control Board.</p> <p>Drinking water is provided to the nearby villages through tankers.</p> <p>Report Submitted to MoEF&CC on six monthly basis. Attached as Annexure –I</p>
20	Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry,CGWA and State Groundwater Department/ State Pollution Control Board	<p>Complied</p> <p>Ground water level and water quality monitoring done regular basis and report submitted to CGWA, State Pollution Control Board and MoEF&CC on quarterly basis and six- monthly basis.</p>
21	The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.r.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-a-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to	<p>Being Complied</p> <p>There is no perennial nallahs in and around mine lease.</p> <p>Regular Monitoring of natural water resources around mining lease is carried out.</p> <p>Regular water monitoring carried out for open dug well / piezometers near mining area and water level and water quality report Quarterly to CGWA, GCWB & State Pollution Control Board. (Annexure- I (1, 2 & 3)).</p>

	<p>water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.</p>	
22	<p>Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1 /2006-IA. II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.</p>	<p>Complied Water generated from operations is utilized in Beneficiation Plant and zero discharge is maintained. There is no acid mine drainage occurring in the mine. Garland drains are constructed around the tailing dam and waste dump with collection sumps.</p>
23	<p>Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.</p>	<p>Complied Garland drains are constructed around the tailing dam and waste dump with collection sumps of 8.5 lakh CuM capacity to collect and reuse the rain water. Collection pond of 1.5 lakh CuM has been constructed in the township. 3 Nos. of anicuts have been constructed for groundwater augmentation in consultation with CGWB. 4 anicuts constructed in the area under MJSA. 8.7 MCM groundwater recharge work has been completed in four blocks of Bhilwara district.</p>
24	<p>Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap</p>	<p>Complied No waste water generation from mining. Water generated during mining intersection is used in sprinkling and beneficiation process. Water from tailing dam is recycled back to the Beneficiation Plant and zero discharge is maintained. Oil & Grease traps are installed near work shop and water reused in beneficiation process. Annexure V & Annexure XVIII.</p>
25	<p>The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and</p>	<p>Complied Water balance attached as annexure XXVII</p>

	reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.	
IV. Noise and vibration monitoring and prevention		
26	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines	Being Complied Peak particle velocity monitoring done as per guidelines. Annexure-XXIII
27	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.	Being Complied Lights are installed in a manner so that no disturbance to the villagers. Noise levels are also within prescribed limits. Annexure- IV
28	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.	Being Complied PPEs like ear plugs / muffs, dust masks, safety goggles, safety shoes etc. provided to all workers/ personals/ laborers. Adequate trainings provided to all concerned and toolbox talks are carried out before starting work. Noise monitoring done as per guideline report attached as per Annexure –IV
V. Mining plan		
29	The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, overburden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management , OB & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of	Working as per mining plan. There is no changes in mining technology scope of work, method of mining, overburden & dump management, OB & dump mining, mineral transportation mode, ultimate depth of mining. As per the latest MoEF&CC O.M. No. 22-44/2018-IA.III dated 14.05.2020, production will not be extended beyond EC approved quantity.

	EC or granted by State Govt. in the form of Short Term Permit (STP), Query license or any other name.	
30	The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.	Progressive Mine Closure Plan is part of approved Mining Plan. Final Mine Closure Plan along with details of Corpus Fund will be got approved from IBM and copy of the same will be submitted to MoEF&CC well in advance of final mine closure.
31	The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-a-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.	Complied Land use of mine lease area, excavation and afforestation and reclamation are done as per approved mining plan.
VI. Land reclamation		
32	The Overburden (OB) generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.	Complied Overburden burden is stacked at earmarked Waste Dump site. Physical parameters maintain as per mining plan and DGMS guidelines and circulars. The topsoil is used for land reclamation and plantation. In current FY there is no top soil generation.
33	The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.	Complied Overburden is stacked at earmarked Waste Dump site. Physical parameters maintain as per mining plan and DGMS guidelines and circulars. stability monitoring by Radar Report enclosed as Annexure –VII

34	The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.	Complied Reclamation of waste dump site as per mining plan.
35	The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ gee-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.	Complied Slopes of waste dumps are stabilized and vegetated in scientific manner using geotextile and with native and arid zone seeds (like <u>Acacia nitolica</u> , <u>Ziziphus Jojoba</u> , <u>Prosopis cineraria</u> , <u>Alkanna Tinctoria</u> , <u>Capparis decidua</u> , <u>Gundi</u> , <u>Salvadorapersica</u> spread on waste dump slopes. Aloe Vera and Vetiver grass planted during laying of geotextiles Annexure XXVIII
36	The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC.	Complied Waste dump design and slope stability is being reviewed yearly by CIMFR and report being submitted to MoEF&CC Regional Office. Latest report enclosed as Annexure XXI.
37	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly	Complied Garland drains of adequate size are constructed along the waste dump toe & mining pit, along with lined collection sumps of about 8.5 lakh CuM . The water collected is utilized for various purposes. De-silting sump and drains are de-silted on regular basis. Annexure –VIII
38	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.	Complied Garland drains of adequate size are constructed along the waste dump toe & mining pit, along with lined collection sumps of about 8.5 lakh CuM . The water collected is utilized for various purposes. De-silting sump and drains are de-silted on regular basis. Annexure –VIII
39	The top soil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only	Complied The topsoil has been utilized for land reclamation

	<p>and should not be kept unutilized for long. The physical parameters of the top soil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purpose.</p>	<p>and plantation. At present no top soil dump at site.</p>
VII. Transportation		
40	<p>No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.</p>	<p>Complied Ore transportation is being done within acquired land and not passing through any village / habitation. Regular water sprinkling is done on haul roads (Annexure X). Industrial roads are cleaned using truck mounted vacuum Road Sweepers (Annexure-XXII). Periodic preventive maintenance of vehicles is part of our operations. All the trucks are covered with tarpaulin while transportation of concentrates to the smelters. PUC certificate is ensured for every truck prior to entry in the premises. Annexure XIII</p>
41	<p>The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while</p>	<p>Complied Regular water sprinkling is done on haul roads (Annexure X). Dust extraction system and Water sprinkling nozzles are installed at the crushers, transfer points and coarse stockpiles for dust suppression. Industrial roads are cleaned by using Truck mounted vacuum road sweepers. (Annexure-XXII) The parameters of Ambient Air quality monitored are within the prescribed norm of CPCB.</p>

	transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.	
VIII. Green Belt		
42	The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.	Complied Green belt developed all along the acquired area.
43	The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.	Complied Green belt developed all along the acquired area. Progressive plantation is being carried out on waste dump benches every year. Seed spearing and geotextile laying is also carried out on waste dump slopes. As per SRSAC study conducted based on Nov 2021 satellite imagery, 694103 Nos of plants are existing within 348 Ha area. Further FY 2022-23, FY 2023-24, FY 2024-25, and 2025-26 15000 Nos, 23000 Nos, 15000 Nos and 15000 saplings planted as gap filling. Currently 762103 Nos of plants are exiting in 348 Ha. Detailed SRSAC report attached as Annexure XXXV. Additional plantation has been done in 37.70 ha in the township and along roadside. Density of the plantation will be increased in phase manner. (Annexure –IX)
44	The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.	Complied Hindustan Zinc Ltd. is carrying out various work for livestock and agriculture development under its flagship project named "Samadhan" in collaboration with BAIF (National level Origination)
45	The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A	Not applicable there is no Shedule-1 species in mining area

	Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt.	
46	And implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.	Not applicable There is no Shedule-1 species in mining area
IX. Public hearing and human health issues		
47	The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carryout Occupational health check-ups in respect of workers which. are having ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEFCC Regional Office and DGMS on half-yearly basis.	Complied Appointed Occupational Health Specialist. Regular as well as Periodical medical examination of the workers are carried out as per Mines Act. Copy of the return submitted to DGMS is attached as annexure –XXIX
48	The Project Proponent must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carryout base line HRA for all the category of workers and there after every five years.	Complied We are committed for Zero Harm from our mining activities. Various studies have been done for health risk assessment regarding identification and control measures for workplace hazards. Regular health check-ups of nearby community are done through “Government PHC (Primary Health Center)” (Annexure-XX) and awareness sessions are also conducted.
49	The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical	Complied Biological monitoring and tests and investigations relevant to the exposure are carried out and record

	<p>and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust a X-Ray chest; For Noise Audiometric; for Lead Exposure Blood Lead, For Welders Full Ophthalmologic Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) Estimation in Blood; For Inorganic Chromium-Fortnightly skin inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminium, Iron, Manganese, Chromium, Lead, Uranium need to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality).</p>	<p>maintain by Occupational health team. No manganese and chromium mining so Mn & Cr monitoring not applicable. Blood lead monitoring is done on regular basis.</p>
50	<p>The Proponent shall maintained a record of performance indicators for workers which includes (a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities ,(c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1),Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (e) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have normal range of movement, (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEF&CC annually along with details of the relief and compensation paid to workers having above</p>	<p>Complied Periodical medical examination of the workers are being carried out as per DGMS guidelines and records are being maintained.</p> <p>Further, as no changes in the performance indicators have been reported, the need for paying compensation didn't arise.</p>

	indications.	
51	The Project Proponent shall ensure that Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.	Complied Dust masks are provided to all workers/ personals/ laborers. Adequate trainings provided to all concerned and toolbox talks are carried out before starting of work.
52	Project Proponent shall make provision for the housing for workers/ labors or shall construct labor camps within/ outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.	Complied No construction labor housing is proposed in mining area. However, the sanitation and drinking water facility is provided to the workers, working at site. Sewage Treatment Plants are also installed at mining area and township.
53	The activities proposed in Action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame. The Status Report on implementation of Action Plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.	Complied All the issues raised during Public Hearing in the year 2009 were addressed.
X. Corporate Environment Responsibility (CER)		
54	The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's O.M No 22-65/2017-IA. II (M) dated 01.05.2018 or as proposed by EAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase documents, latitude & longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement.	Complied Separate Cost center and GL account are maintained. Activities proposed for CER will be implemented in time bound manner.
55	Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the MoEFCC and its concerned Regional Office.	Complied Environmental funds are earmarked for environment work only. Separate Cost center and GL account are maintained. Environmental expenditure is reported on six monthly basis enclosed as Annexure -VI
XI. Miscellaneous		

56	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEFCC.	Complied The land use & land cover change study carried out in 2023. Copy attached Annexure-XIV
57	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Being operational unit, condition is not applicable.
58	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.	Complied Compliances report submitted to MOEF & CC & Regional Office, Central Pollution Control Board and State Pollution Control Board. Environment statement submitted on 27th September 2025. Annexure-XIX.
59	A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.	Complied Environment Management Cell has been set up having adequate qualified Executives and a Senior executive who reports to IBU CEO directly. Adequate number of mining engineers are appointed for mine planning, execution, Geotech etc.
60	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.	Noted

CEO - IBU Agucha
Hindustan Zinc Limited
Rampura Agucha Mines
PO - Agucha
Distt. - Bhilwara (Raj.)

Mechanism for addressing Environmental Issues

HZL has a Health Safety and Environment Policy, given below, signed by its CEO and forms the guidelines for the entire organization. A well laid mechanism is implemented uniformly across all units of HZL for the implementation of the policy.

All operating units of Hindustan Zinc Limited are certified for ISO-14001 Environmental Management system (EMS). The Management Representative (MR) of the certification system is an experienced environmental officer with due authority to implement and drive a responsible EMS. The MR is duly supported by a committee constituting the operations and maintenance officers of the unit. The system has a well laid documented procedure for identification of all environmental aspect, Impacts and implementation of suitable mitigation measures.

The company has three level monitoring mechanism for addressing environmental concerns starting at unit level, HZL corporate level and Vedanta group company level. Depending on the scale and nature of the issue, the concern is escalated to different level right up to the Board of the company and also the shareholders of the company in the general body meetings.

The compliances to Environment Clearance and all environmental licenses are reviewed and monitored regularly and reports are submitted to the respective regulatory authorities at every unit, by a dedicated environmental professional, who reports directly to the unit head. The compliance is periodically reviewed and audited by Corporate Environment Department, which reports to the top management of the company. A Corporate Sustainability Committee, chaired by the CEO of the company, oversees all sustainability issues including Environment, Safety and Health and also reviewing any policy matters.

Any non-compliances/show cause/notices/complaints received from regulatory authority or any stakeholder is addressed jointly by the unit and corporate environment department. Such issues are also reported and the actions taken are reviewed by the top management every month. Further, all show cause, complaint letters and notices from any stakeholder, along with the action taken report is submitted to the Board of Directors of the company every quarterly. All major concerns are reported to the stakeholders through the annual general body meetings of the company.



HINDUSTAN ZINC

Environmental Policy

Purpose:

Hindustan Zinc Limited is committed to achieving excellence in environmental management. Our goal is to minimize 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 external 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 our 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

Date: 05th June, 2025


Arun Misra
CEO & Whole Time Director, HZL





HINDUSTAN ZINC

Biodiversity Policy

Purpose

Protecting and enhancing biodiversity is an integral part of Hindustan Zinc's commitment to sustainable development. We are conscious of the potential impacts and dependencies of our business on the environment in general and on biodiversity. Integrating the need for biodiversity conservation into our decision-making processes and taking measures to minimize impacts is a commitment that comes with a Natural Nature Promise.

Biodiversity is a complex phenomenon that needs to be identified, understood, and valued from a biological and societal perspective. From resources perspective and the Company is conscious of the potential impacts and dependencies of our business on the environment in general and on biodiversity in particular. This Biodiversity Policy shall help us define, strategize, plan, and implement the essential roadmap, guidance, and measurement towards achieving sustainability goals.

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

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 value chain.

Objectives of the Biodiversity Policy:

Hindustan Zinc will strive to:

- ◆ Achieve nature positive impacts to biodiversity values by implementing in-situ management actions either on-site or off-site, to compensate for any project impacts to areas recognized nationally or internationally for their high values of threatened, endemic or migratory / congregatory species or unique and threatened ecosystems.
- ◆ Comply with and exceed whenever feasible, the local, regional, and national legislative requirements concerning land management and biodiversity conservation as well as relevant international agreements, in all jurisdictions where we operate.
- ◆ Avoid deforestation and habitat loss and respect internationally recognized areas such as World Heritage Sites, IUCN Category II-IV Protected areas (legally designated protected areas), and Key Biodiversity Areas.
- ◆ Compensate with future reforestation (no net deforestation) by appropriate on or off-site habitat restoration. Plan to achieve No Gross Deforestation in protected areas and strive to achieve No Net Deforestation in operating sites by 2050 against the baseline of 2020.
- ◆ Plan and strive to achieve No Net Loss (NNL) of biodiversity at all mine sites by closure through applying mitigation hierarchy and ensure that we will operate on the principles of Net Positive Impact (NPI) for critical habitat¹ to support halting and reversing biodiversity loss by 2030 from a 2020 baseline.
- ◆ Set targets and objectives to avoid, reduce or mitigate biodiversity and nature-based impacts on people and planet.
- ◆ Analyze nature-related financial risks arising in our operations and integrate relevant nature considerations into our strategic approach, financial planning. Also analyzing the nature-related opportunities throughout the project lifecycle, including decommissioning, closure, and rehabilitation.
- ◆ Conduct biodiversity risk assessment and apply the mitigation hierarchy to avoid or minimize biodiversity and nature-based risks.
- ◆ Ensure continuous improvements in biodiversity performance through effective management and implementation of action plans in alignment with the Nature-Based Solutions approach.
- ◆ Review the performance against the policy on a periodic basis to ensure management of biodiversity as per our objectives including the sharing of good practices throughout the organization and stakeholders.
- ◆ Align with local, national, and global conservation initiatives by collaborating with conservation experts, Indigenous Peoples, local communities, affected stakeholders, and organizations. Support joint efforts by the private and public sectors, and foster knowledge, awareness, and participation among relevant stakeholders, including employees, to collectively address biodiversity and nature-related challenges.
- ◆ Engage and raise awareness amongst our employees, business partners, supply chain and other stakeholders to enhance their knowledge and understanding of biodiversity and ecosystem management practices.
- ◆ Actively encourage value chain partners and suppliers to align with this policy and avoid operational activities near sites containing globally or nationally important biodiversity.

Responsibility & Review

This Policy aligned with Kunming-Montreal Global Biodiversity Framework is part of our Sustainability Framework, and each Hindustan Zinc Business shall implement this policy. 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. Board ESG will review this policy annually and recommend appropriate revisions to the Board as may deem necessary.

¹Critical habitats include Corridors for Wildlife, ecologically sensitive areas, IUCN Category II-IV protected areas, regions adjacent to World Heritage Sites, and other ecologically significant habitats and ecosystems.

Date: 05th June, 2025

Arun Misra
Arun Misra
CEO & Whole Time Director, HZL



Annexures Table

S. No.	Descriptions	Annexure No.
1	Water PZ & well water quality data water level	Annexure I(1,2 & 3)
2.	Waste Dump rock analysis	Annexure II
3	Ambient air quality data	Annexure III
4.	Noise level monitoring	Annexure IV
5.	Oil & Grease separator water analysis	Annexure V
6.	Environmental Expenditure	Annexure VI
7.	Dump Slope monitoring Data: Radar & Prism data	Annexure VII
8.	Retaining wall & Garland Drain	Annexure VIII
9.	Plantation in mining area	Annexure IX
10	Water sprinklers in mining haul road & Wet drilling system in RA Mine	Annexure X
11	Anicuts photo	Annexure-XI
12	Environment Sump	Annexure XII
13	Truck covered with tarpaulin	Annexure XIII
14	Land use mapping by digital processing report	Annexure XIV
15	HDPE laying in tailing dam	Annexure XV
16	STP (300KLD & 425 KLD)	Annexure XVI
17	Display board at Main gate	Annexure XVII
18	Oil & grease trap	Annexure XVIII
19	Environment statement (Form V)	Annexure XIX
20	Government PHC (Primary Health Center) Report	Annexure XX
21	Dump stability monitoring report by CIMFER	Annexure XXI
22	Truck mounted vacuum road sweepers	Annexure XXII
23	Peak particle velocity monitoring	Annexure-XXIII
24	existing CGWA NOC for mine water intersection and renewal application	Annexure XXIV
25	Existing CGWA NOC for Ground water withdrawal from Banas radial well and renewal application	Annexure XXV
26	Digital Display	Annexure XXVI
27	Water balance	Annexure XXVII
28	Geotextiles Photo	Annexure XXVIII
29	Periodical medical examination	Annexure XXIX
30	Covered Conveyer belt	Annexure XXX
31	Subsidence Study report	Annexure XXXI
32	Copy of Consent to establish and revised copy of EC	Annexure XXXII
33	Copy of Valid CTO	Annexure XXXIII (A) and XXXIII (B)
34	Tailing through closed pipeline	Annexure XXXIV
35	Green Cover Assessment by SRSAC Report	Annexure XXXV
36	Form 'O' medical examination	Annexure-XXXVI

HINDUSTAN ZINC LIMITED
RAMPURA AGUCHA MINE

WELL WATER ANALYSIS REPORT October-2025 to March- 2026

S.No	1		2		3		4		5		6		7		8		9		10		11	
	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26
Code	WW-10		ww-22		GWD		WW-13		HP-1		WW-15		WW-16		WW-23		PRK-1		KOT-1		WW-14	
Month	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26
pH	7.37	7.46	7.63	7.38	7.09	7.58	7.50	7.39	6.95	7.01	7.85	7.88	7.38	7.23	8.15	7.23	7.28	7.05	7.54	7.68	7.88	7.39
Alkalinity	222.20	272.00	111.10	136.00	196.00	214.20	120.00	132.60	232.00	255.00	556.00	518.50	328.00	365.50	128.00	365.50	116.00	146.20	136.00	163.20	368.00	357.00
Chlorides	204.94	190.79	25.99	29.35	237.93	225.04	19.99	23.48	107.97	107.63	277.91	234.82	197.94	220.14	45.99	220.14	121.96	125.24	107.97	109.58	143.96	136.98
Sulphate	347.48	365.76	31.52	42.26	144.02	156.37	10.81	9.50	284.71	319.40	131.71	152.37	165.11	177.23	25.89	177.23	53.11	60.92	60.41	66.25	154.70	161.20
CN	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Pb	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zn	0.380	0.310	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.140	0.130	0.030	0.060	<0.01	<0.01
Fe	<0.01	<0.01	<0.01	<0.01	0.040	0.050	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.030	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.030	0.020
Cd	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cu	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Co	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ni	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

All figures are in mg/l except pH

HINDUSTAN ZINC LIMITED
RAMPURA AGUCHA MINES

Annexure - I (2/3)

PIEZOMETER WATER ANALYSIS REPORT – October-2025 to March- 2026

S. No.	1		2		3		4		5		6		7		8	
	P		H		E1		G1		I1		K		A		Adm	
Months	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26	Nov-25	Feb-26
pH	7.55	7.37	7.21	7.06	7.13	7.41	7.15	7.22	7.10	7.80	7.71	7.10	7.89	7.25	8.13	7.25
Alkalinity	324.00	331.50	204.00	231.20	136.00	146.20	308.00	316.20	124.00	132.60	212.00	227.80	248.00	265.20	192.00	212.50
Chlorides	287.91	298.42	287.91	308.20	513.84	567.48	199.94	220.14	261.92	288.63	317.90	347.34	261.92	298.42	209.93	234.82
Sulphate	274.76	261.27	254.41	247.82	201.30	216.42	290.15	265.32	214.53	235.86	185.19	196.22	284.25	296.54	176.89	183.52
CN	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Pb	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zn	0.020	0.030	<0.01	0.090	<0.01	0.07	<0.01	<0.01	<0.01	0.070	<0.01	0.070	0.02	0.04	<0.01	0.020
Fe	0.06	0.08	<0.01	0.080	0.020	0.040	<0.01	<0.01	0.020	0.050	<0.01	0.030	0.02	0.03	0.03	0.05
Cd	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cu	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Co	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ni	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
As	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Hg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ca	139.20	147.37	190.40	210.53	155.20	168.42	227.20	280.7	235.2	224.56	100.8	143.86	132.8	150.88	75.20	70.18
Mg	43.74	46.9	83.59	68.21	38.88	36.24	83.59	59.68	42.77	43.63	37.91	23.45	28.19	21.32	25.27	33.25

Waliq

Annexure I (3/3)

HINDUSTAN ZINC LTD
 RAMPURA AGUCHA MINE
 WELL WATER LEVEL MONITORING
 (Below the ground level in meters)

Months	W-10	W-22	W-13	W-14	W-15	W-16	W-23	GWD	PRK-1	KOT-1
October-25	2.6	1.2	1.8	2.2	1.9	4.2	2.9	25	3.9	2.6
November-25	2.3	0.5	1.2	1.1	1.2	3.1	2.4	30	1.9	1.8
December-25	2.8	2.3	1.5	2.1	1.9	4.6	2.2	28	2.4	3.3
January-26	2.5	1.7	1.6	2.6	4.1	5.2	2.5	30	2.8	3.5
February-26	2.1	1.2	2.5	3.4	2.5	5.8	3.1	31	3.2	3.2
March-26	2.3	1.5	3.1	4.8	2.2	6.3	2.8	33	3.7	3.8

Wahid

Annexure - II

Analysis of Waste Dump Rocks

Location:	Waste Dump	
Element		Range
Pb	0.0051%	- 0.0075%
Zn	0.0016%	- 0.02%
Cu	0.0045%	- 0.007%
Cd	0.0001%	- 0.0002%
Ni	0.0035%	- 0.0060%
Co	0.0038%	- 0.0045%

Wdind

HINDUSTAN ZINC LIMITED RAMPURA AGUCHA MINE
AIR MONITORING: AMBIENT AIR & STACK : October 2025 to March 2026

Location month/year	Fortnight	Mine Site						Main Gate						Mine Tower					
		SPM (µg/m³)	PM ₁₀ (µg/m³)	PM _{2.5} (µg/m³)	SO ₂ (µg/m³)	NO _x (µg/m³)	CO (µg/m³)	SPM (µg/m³)	PM ₁₀ (µg/m³)	PM _{2.5} (µg/m³)	SO ₂ (µg/m³)	NO _x (µg/m³)	CO (µg/m³)	SPM (µg/m³)	PM ₁₀ (µg/m³)	PM _{2.5} (µg/m³)	SO ₂ (µg/m³)	NO _x (µg/m³)	CO (µg/m³)
Oct-25	I st	142.41	74.84	31.17	6.92	14.56	380.00	142.56	77.24	29.03	6.67	14.95	330.00	160.94	76.60	34.01	6.80	14.19	360.00
	II nd	138.81	71.48	33.12	6.28	14.13	370.00	123.20	60.37	30.77	6.27	14.32	320.00	142.56	71.35	35.35	6.29	14.38	380.00
Nov-25	I st	140.37	71.84	33.91	7.13	15.48	360.00	125.38	67.33	29.36	6.89	14.60	310.00	129.63	74.2	34.29	7.08	15.37	380.00
	II nd	136.08	71.41	31.68	7.45	15.47	370.00	122.41	63.12	30.04	6.95	14.91	290.00	135.19	69.43	33.39	7.17	14.85	390.00
Dec-25	I st	143.64	80.86	31.80	6.92	14.39	340.00	131.14	67.08	30.55	6.91	14.42	310.00	147.04	81.40	33.73	6.84	14.61	360.00
	II nd	151.21	82.22	43.22	8.31	20.12	390.00	147.29	77.35	38.71	9.01	18.27	310.00	150.10	80.61	41.27	7.94	16.99	370.00
Jan-26	I st	143.61	79.55	34.91	6.22	15.80	390.00	143.43	71.82	30.63	6.98	14.46	320.00	145.38	80.04	32.71	7.11	15.28	360.00
	II nd	144.69	73.20	32.35	6.12	15.09	380.00	126.00	69.44	30.46	6.05	14.88	320.00	151.83	79.05	34.71	6.19	15.48	370.00
Feb-26	I st	144.90	76.12	34.80	6.42	15.83	370.00	106.88	61.40	29.37	6.0	14.17	310.00	141.80	79.99	37.82	6.89	15.47	390.00
	II nd	139.79	71.58	33.52	6.74	15.55	360.00	126.81	69.50	30.00	6.56	14.82	290.00	148.29	81.97	36.04	6.69	15.28	380.00
March-26	I st	155.51	83.37	34.07	6.86	15.88	370.00	139.21	76.46	30.65	6.68	14.81	310.00	144.70	82.54	36.73	6.51	15.36	390.00
	II nd																		
Location month/year	Fortnight	Agucha village						Kothiya village						Bherukhera village					
		SPM (µg/m³)	PM ₁₀ (µg/m³)	PM _{2.5} (µg/m³)	SO ₂ (µg/m³)	NO _x (µg/m³)	CO (µg/m³)	SPM (µg/m³)	PM ₁₀ (µg/m³)	PM _{2.5} (µg/m³)	SO ₂ (µg/m³)	NO _x (µg/m³)	CO (µg/m³)	SPM (µg/m³)	PM ₁₀ (µg/m³)	PM _{2.5} (µg/m³)	SO ₂ (µg/m³)	NO _x (µg/m³)	CO (µg/m³)
Oct-25	I st	111.81	67.81	25.81	<6	13.54	320.00	124.76	60.89	24.13	<6	13.64	310.00	115.93	61.21	24.63	<6	13.49	290.00
	II nd	117.89	56.98	27.73	<6	13.48	230.00	89.12	51.33	28.46	<6	13.87	190.00	101.89	55.26	24.75	<6	13.24	210.00
Nov-25	I st	114.35	63.40	26.23	<6	13.07	310.00	115.31	64.38	27.86	<6	13.97	290.00	113.03	57.21	26.28	<6	12.53	320.00
	II nd	130.48	64.80	29.69	6.83	13.27	320.00	109.42	60.05	27.41	6.78	13.59	310.00	115.39	61.45	24.01	<6	14.34	230.00
Dec-25	I st	140.32	73.77	29.14	<6	13.67	320.00	119.27	58.61	24.58	<6	13.94	290.00	113.63	67.99	26.97	<6	13.42	280.00
	II nd	119.41	62.92	25.74	<6	13.80	240.00	115.34	66.13	22.49	6.10	13.41	250.00	102.74	58.50	19.42	<6	13.23	230.00
Jan-26	I st	114.97	66.12	29.64	<6	13.49	270.00	122.13	68.50	24.40	6.25	13.08	280.00	125.16	68.53	29.62	6.57	13.74	260.00
	II nd	125.91	62.35	28.56	<6	13.86	280.00	120.19	68.58	26.87	<6	13.44	270.00	128.57	62.24	24.71	<6	13.22	290.00
Feb-26	I st	130.30	68.18	27.41	<6	13.03	310.00	124.67	67.28	26.85	<6	13.30	290.00	116.00	63.52	25.06	<6	13.93	280.00
	II nd	136.24	74.17	28.21	<6	13.99	320.00	124.65	60.92	25.18	<6	13.06	280.00	130.42	65.60	26.37	<6	13.19	290.00
March-26	I st	125.99	60.95	25.54	<6	13.47	310.00	126.84	51.12	23.12	<6	13.02	280.00	120.90	59.07	27.60	<6	13.12	230.00
	II nd	126.53	60.99	29.78	<6	13.74	280.00	121.66	66.91	26.79	<6	13.86	210.00	123.25	66.83	26.16	<6	13.08	240.00

All figures are in (µg/m³)

STACK MONITORING SPM

Month-Yr	Fortnight	Pr Crusher (SPM)	New Pr Crusher (SPM)	All figures are in (mg/Nm³)	
				CO (mg/Nm³)	Particular Matter, (ppm)
Oct-25	I st	35.58	37.66	113	275
	II nd	32.90	24.28	113	285
Nov-25	I st	28.97	22.65	113	275
	II nd	29.68	26.22	113	285
Dec-25	I st	27.65	24.52	113	275
	II nd	28.10	26.50	113	285
Jan-26	I st	34.31	29.56	113	275
	II nd	32.36	27.51	113	285
Feb-26	I st	35.74	30.59	113	275
	II nd	37.86	29.45	113	285
March-26	I st	38.91	32.57	113	275
	II nd	37.52	30.27	113	285

Month	CO (mg/Nm³)	Particular Matter, (mg/Nm³)	NDx, (ppm)	NMHC (mg/Nm³)
Nov-25	113	56.23	275	32
Feb-26	113	57.07	285	37

Annexure-IV

Sno.	Area of Monitoring	NOISE LEVEL AT WORK ENVIRONMENT IN dB(A)								Equipment Condition
		October-25	November-25	December-25	January-26	February-26	March-26			
1	BENEFICIATION PLANT									
	a. Mill Ambient	74.88/64.10	74.86/64.45	74.10/63.11	74.70/63.40	74.80/63.80	74.10/64.55	Plant is in running condition.		
	b. Mill- Grinding Area	75.10	75.20	75.30	75.05	74.90	75.10	--do--		
	c. Operators cabin mill area	69.10	71.10	72.80	71.50	73.10	69.80	--do--		
	d. Flotation cell area	75.20	74.10	75.30	73.20	74.50	74.50	--do--		
	e. AFM's cabin cell area	73.20	74.70	73.20	72.30	71.80	72.60	--do--		
	f. Shift engineer's room	74.40	73.30	73.20	71.10	71.90	73.10	--do--		
	g. Control room	72.10	72.10	73.60	72.70	72.90	73.30	--do--		
	h. Work Shop	75.00	74.90	74.70	74.90	74.60	74.80	--do--		
	i. Mine Tower	72.11/63.88	71.20/63.10	73.05/64.00	72.80/62.65	71.80/63.50	72.50/63.90	--do--		
	PRIMARY CRUSHER									
2	a. Primary Crusher I Control Room	71.80/62.00	71.30/62.10	72.70/62.60	71.50/61.30	71.70/62.10	71.15/59.90	Day/ Night		
	b. Primary Crusher II Control Room	72.30/63.50	72.40/61.20	71.50/61.20	71.20/60.20	70.70/62.10	70.60/60.90	Day/ Night		
3	SEC/TER.L. CRUSHER									
	a. Shift Room Sec. Crusher	74.90/65.00	74.80/63.90	75.00/65.00	74.80/64.10	73.90/64.30	74.70/63.90	Day/ Night		
4	b. Secondary crusher control room	75.00	74.90	74.80	73.90	74.60	74.10	Plant is in running condition.		
	Ambient Mine Pit	70.10/59.50	70.10/60.10	71.80/62.30	71.20/61.40	72.10/61.50	72.10/62.60	Day/ Night		
5	Ambient Noise									
	Main Gate	63.40/60.00	64.55/60.54	62.66/61.67	62.55/59.20	63.80/61.10	62.88/62.05	Day/ Night		
Village monitoring										
5	Agucha	53.20/44.10	54.10/44.78	53.77/43.10	52.80/43.76	53.70/44.12	54.10/44.20	Day/ Night		
	Bherukhera	52.11/42.20	51.80/43.56	51.80/43.20	53.30/42.80	53.20/42.67	52.80/43.70	Day/ Night		
	Kothiya	51.44/44.32	50.33/42.38	52.34/43.69	53.40/44.10	51.50/43.55	52.50/43.88	Day/ Night		

Wolind

DG set Noise Monitoring		
Month	Location	Noise level (dB)
1	DG set Operator's room	70.80
	DG set Hall	96.06
2	DG set Operator's room	71.64
	DG set Hall	97.67



TEAM TEST HOUSE
(Unit of Team Institute of Science & Technology Pvt. Ltd.)

Approved by Ministry of Environment and Forest, Government of India as Environmental Laboratory JDA/ETDH
 RSPCB ISO 9001:2015, ISO 14001:2015, PCO 4001:2018 (GHGS), PCO 4001:2018 (GHGS), JDA/ETDH
 Office: E-68, Chhatrapati Marg,
 C Scheme, Jaipur - 302004, Rajasthan
 Phone: +91 8455755555, 0141077349,
 Website: www.teamtesthouse.com
 Email: teamtesthouse@gmail.com

Annexure -V

TEST REPORT

Request No./RIS No.	26200000687	Date	26-06-2025
Issued To	M/S Hindustan Zinc Ltd (Agri-Unit) Rampura Agucha Mines PC, Area No 311029 Gulabpura, District Bhilwara (Rajasthan)	Type of Job	55006
Type of sample / Discipline	Liquid Effluents / Chemical	Date of Sample Collection Month	12-06-2025
Point of Collection	Oil Grease Separator Out of Water (HE-MTA Workshop)	Date of Receipt	13-06-2025
Date of Test/Analysis	13-06-2025 to 26-06-2025	Sampling Plan	APHA 2017 / 1990
Quantity of Sample	2 Lit	Sample Collected By	Rakesh Sharma
Unit representative	Mr Dinesh Kumar Pathwal	Condition of Sample	Fa for testing

S.No	Parameters	RESULTS		Limits as per Environment protection rules 1986
		Observed Value	Testing Protocol	
1	Total Suspended Solids (mg/l)	39	2540-D, APHA 24th Edition	100
2	Biochemical Oxygen Demand (BOD) (mg/l)	28.25	5210-B, APHA 24th Edition	30
3	Chemical Oxygen Demand (COD) (mg/l)	229.68	5220-C, APHA 24th Edition	250
4	pH	6.83	4500 H+B, APHA 24th Edition	5.5 - 9.0
5	Oil & Grease (mg/l)	7	5520-B, APHA 24th Edition	10

Notes:
 1. The results listed are valid only for the tested sample. Sample results for other parameters are not reported.
 2. This report is not valid for legal purposes. It is for information only. For legal purposes, the report of law firm should be consulted.
 3. The sample should be analyzed within 7 days from the date of issue of test report unless otherwise specified.

Rakesh Kumar

Rajesh Maheshwari
 Project No. 26200000687

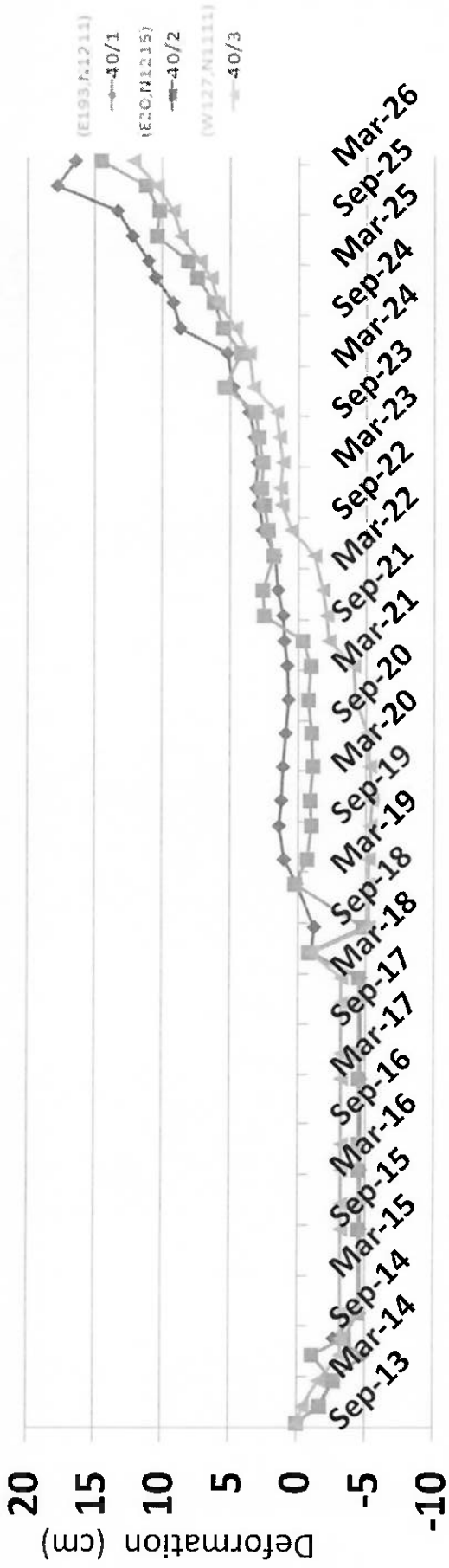
Annexure - VI

ENVIRONMENTAL EXPENDITURE DETAILS

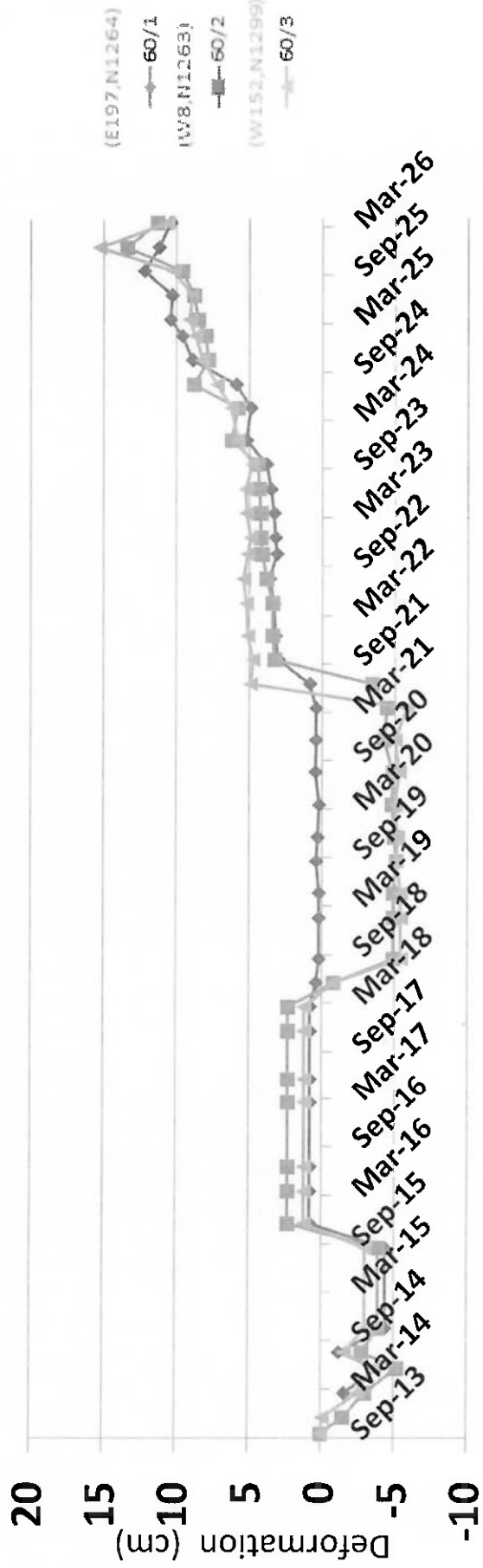
Particulars	2025					
	October 2025 to March 2026					
Expenditure	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	March-26
	46.96	16.38	29.50	62.91	52.50	48.47
TOTAL Rs (Lacs)						256.71

Dump Slope monitoring Data: Radar & pillar-prism Monitoring data for MOEF_ April2026

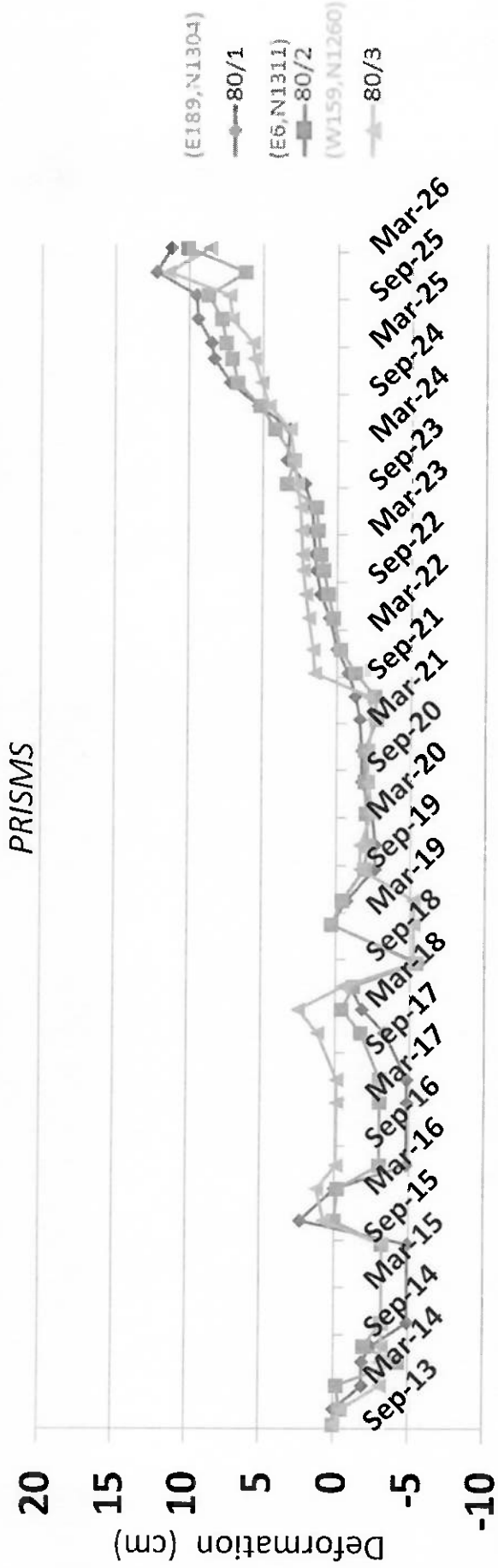
MOVEMENT : MONITORING TREND OF WASTE DUMP AT 40m LIFT BY PRISMS



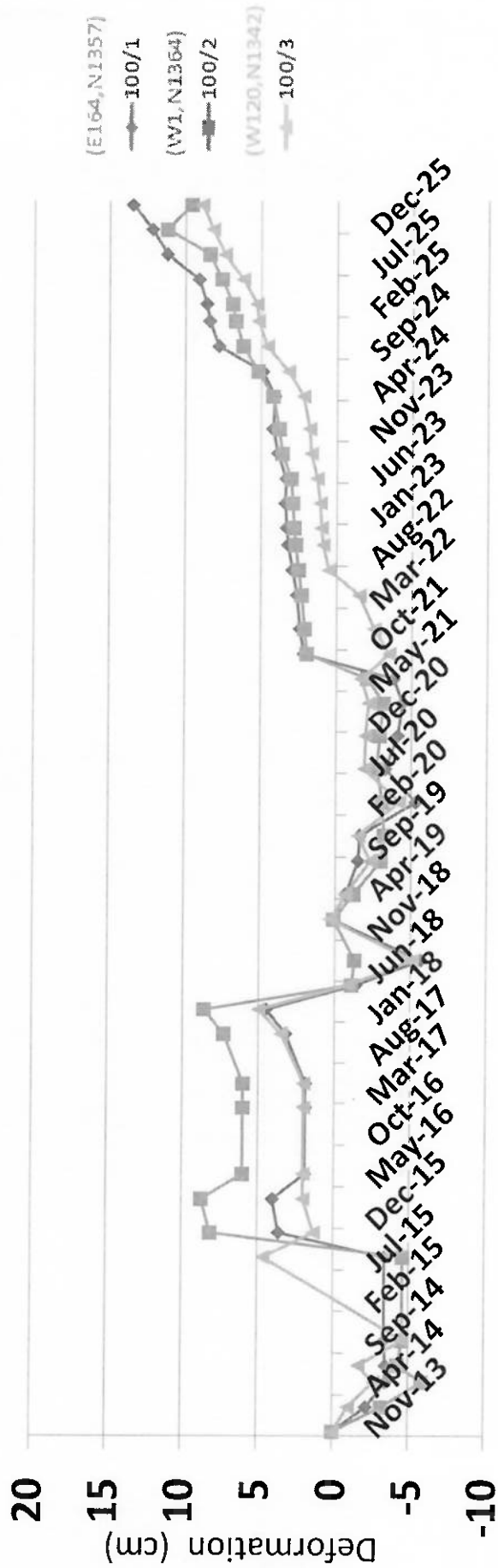
MOVEMENT: MONITORING TREND OF WASTE DUMP AT 60m LIFT BY PRISMS



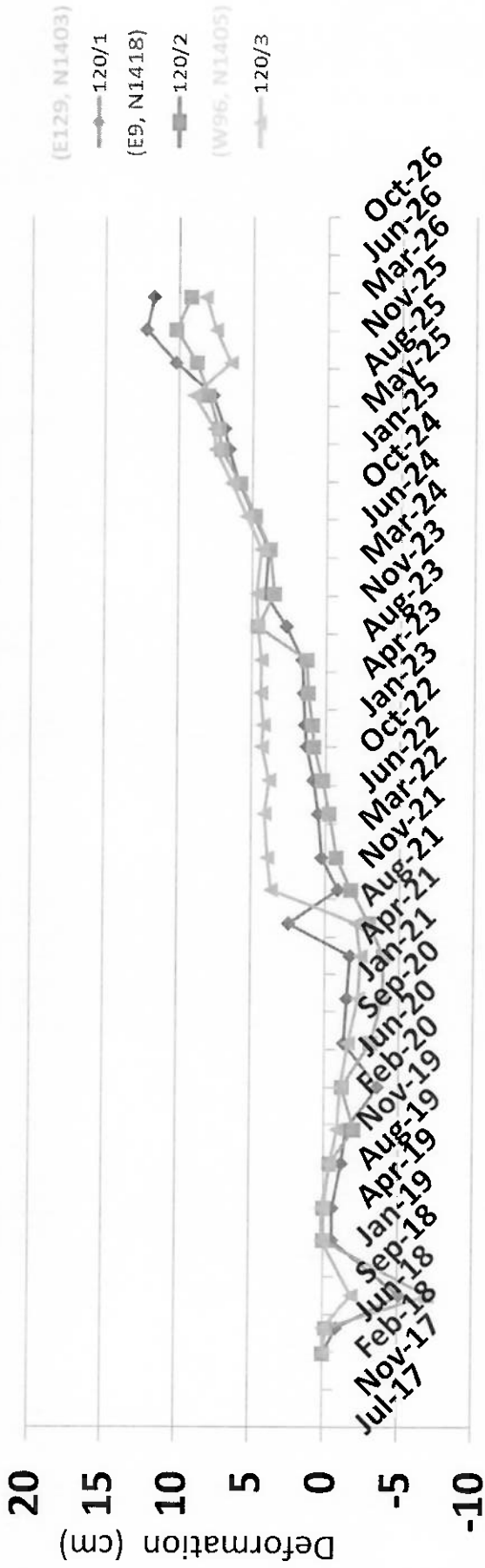
MOVEMENT: MONITORING TREND OF WASTE DUMP AT 80m LIFT BY PRISMS



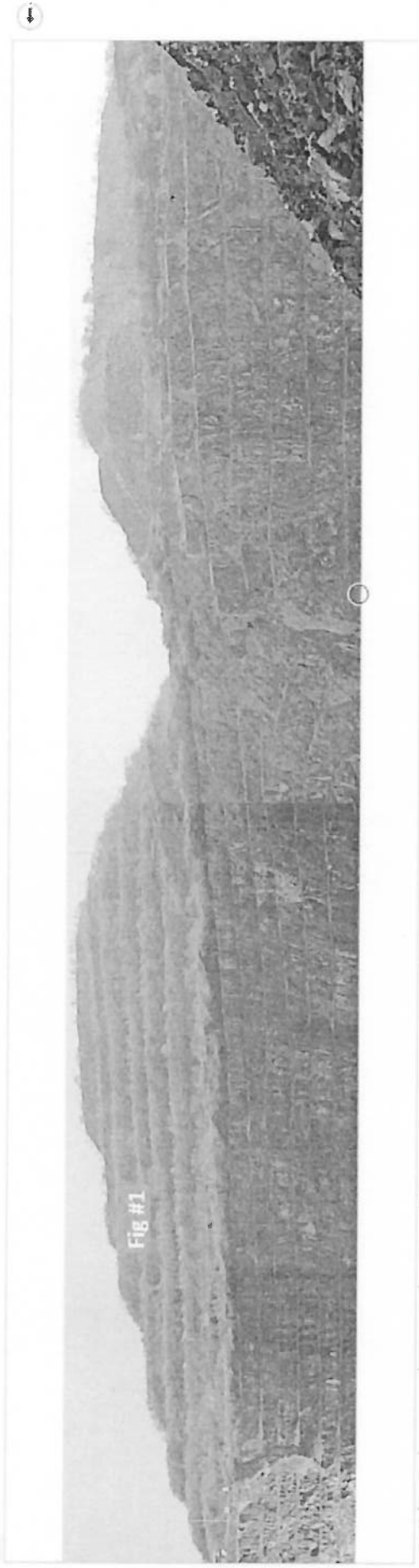
MOVEMENT: MONITORING TREND OF WASTE DUMP AT 100m LIFT BY PRISMS



MOVEMENT : MONITORING TREND OF WASTE DUMP AT 120m LIFT BY PRISMS



Slope Stability Radar monitoring on waste Dump Area



X: 57.000 Y: 1.000 D: 0.9 mm A: 53.387 R: 524.30 m C: 1.000 H: 524.400m

FIGURES Enhanced Deformation

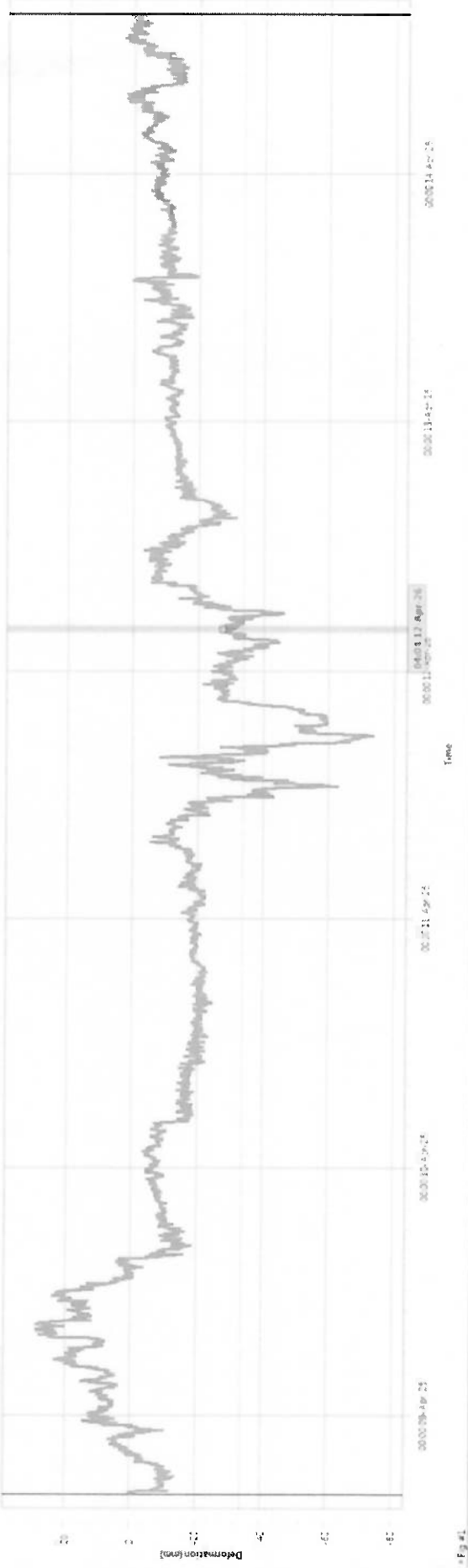
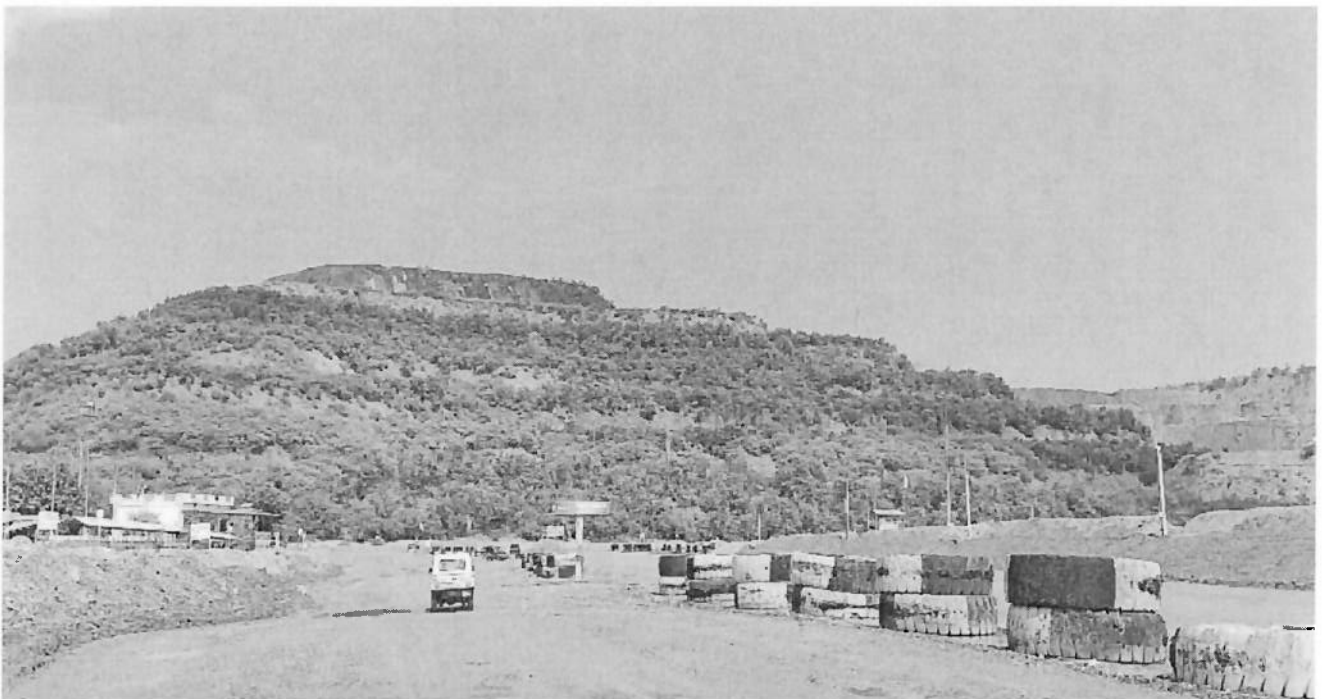
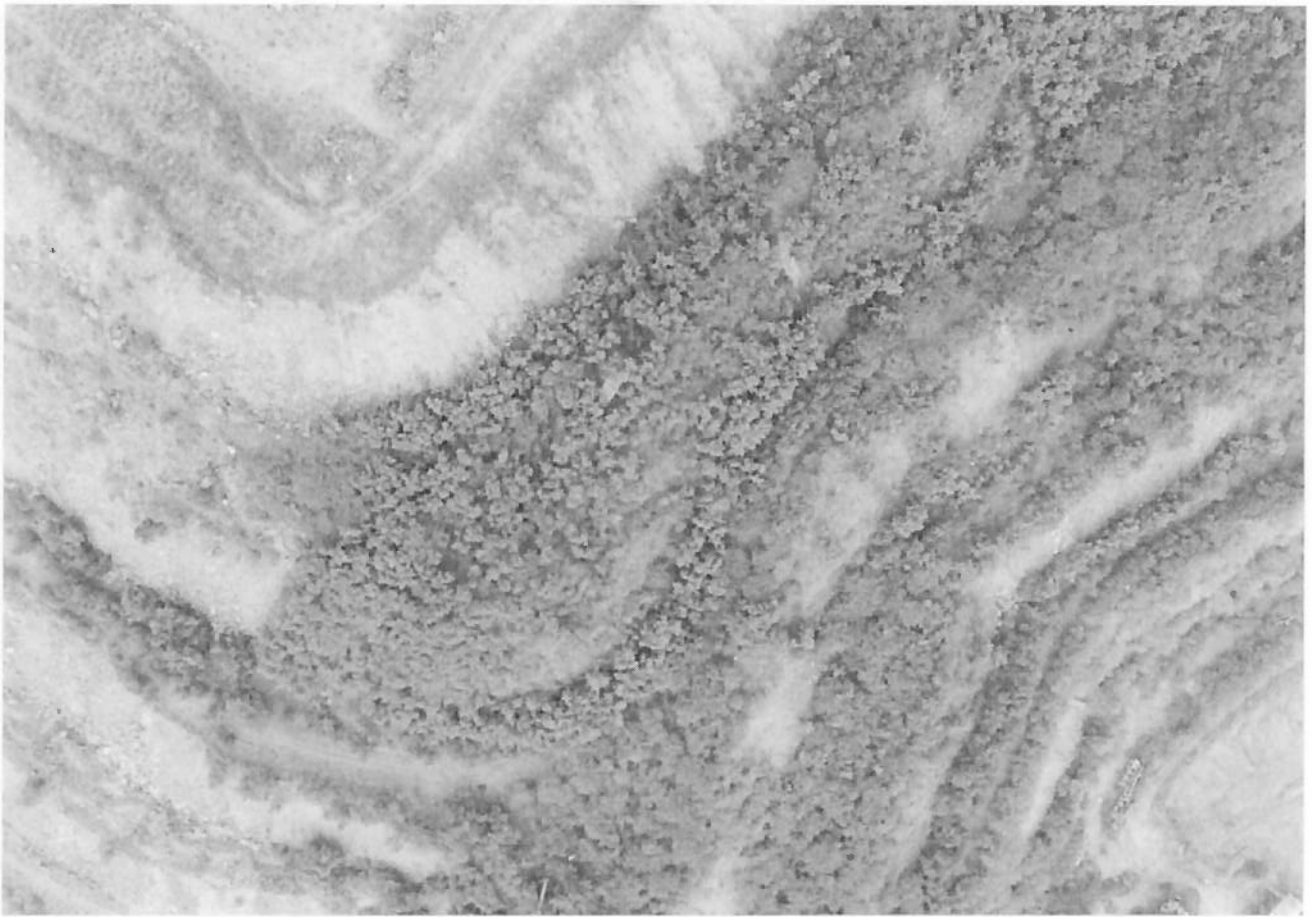


Fig #1

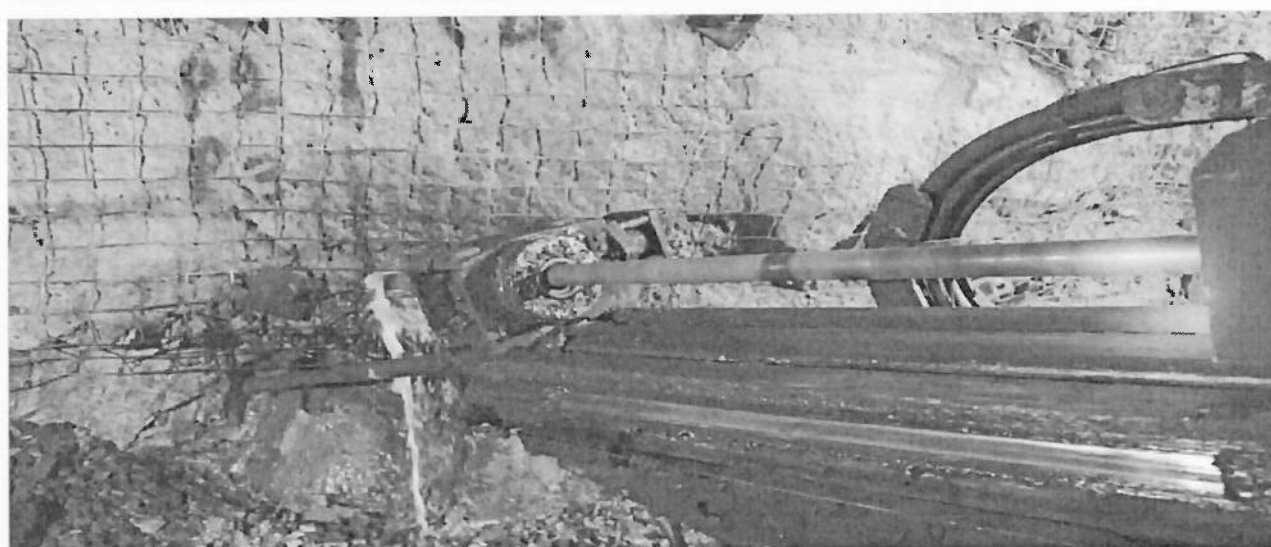


Garland Drain and Retaining Wall Photo





Plantation



40KL Water sprinkler and wet Drilling System



Anicut Photos



Pond Photo



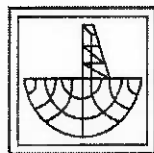
Truck covered with tarpaulin

**Land use mapping of 15 km radius area of Rampura-Agucha mine
of the year 2023 using remote sensing techniques and
showing the changes in land use in the last five years**



Sponsor: Hindustan Zinc Limited, Rampura-Agucha Mine, Bhilwara

Studied by:



Estb: 1988

Studied for:



Hydro-Geosurvey Consultants Private Limited



CERTIFICATE NO.: NABET/GWCO/1A/GW003

Address: C-103, Shastri Nagar, Jodhpur- 342003

Phone: - 0291-2431754

Web: www.hydrogeosurvey.com, E-mail: - hydro.geosurvey@yahoo.com

June, 2023



HDPE laying in tailing dam



STP (300KLD) in plant premises

SEWAGE TREATMENT PLANT AT COLONY.



STP (425KLD) in plant premises

Annexure -XVII

A. Name of Industry & Address		The Industries RAMPURA ALU CHA SIMI					
Name of person responsible for handling Hazardous Waste & Pollution Control System		Hazardous Zone Ltd, Agacha, PIN - 710270 Dist. Bhubaneswar (Or)					
B. DETAILS OF HAZARDOUS CHEMICALS HANDLED							
Name	Quantity Stored handled	Nature (Toxic Inflammable Reaction Explosive)					
Sodium cyanide	MT	Toxic					
MTM	MT	Inflammable					
C. WASTE WATER DETAILS							
Nature (Domestic/Industrial)	Treatment (Provided/Not provided/Not Required)	Inland surface water Irrigation/ Sewer	Prescribed standards	Status of compliance	Parameters Prescribed BANSOCHES EIS	Allowed discharge (i. A. L) discharge or land for irrigation	Disposal of treated effluent
Industrial	Not Required	Zero discharge	Complied	Not Required	Zinc enclosure	None in process	None in process
D. AIR EMISSIONS							
Source	Stack height	Standard Prescribed	SFM (mg/m ³)	Permitted Control Measures Provided/Not provided/Not required	Status of compliance		
Primary Crusher Stack	33 m	SFM: 150 mg/m ³	80.00	Prohibited	Complied		
Sec. Tertiary Crusher Stack	29 m	SFM: 150 mg/m ³	2.00	Provided			
Sec. P. Crusher Stack	34 m	SFM: 150 mg/m ³	2.00	Provided			
E. HAZARDOUS WASTE DETAILS							
S. No	Type of hazardous waste	Category	Quantity generated during month	Quantity stored up to previous month	Storage capacity	Safe Disposal Practice	
1	Discarded containers (Plastic)	I	33.3	0	700/Non-compliant	CTDR & Super	
2	Consumed container tags or other cleaning material (MT)	4	33.2	0	500/MTA	CTDR & Super	
3	Sludge from treatment of wastewater arising out of cleaning/repair of tanks	1	34.2	0	500/MTA	CTDR & Super	
4	Used Spent oil (MT)	1	5.1	0	1500/MTA	Safe to registered transporter	
5	Oil containing water/touches	1	5.2	0	500/MTA	CTDR & Super	
6	Insulated copper wire wire/wireless with PVC sheathing including 1000-wire material variety "Dress" (MT)	IV	7	0	150/MTA	Safe to registered transporter	
F. STATIC INFORMATION							
Mining Lease Area (Ha)	2.00 Ha						
Method of mining	Mechanical Underground Mining and Ore Beneficiation Plant						
Production Capacity	0.15 Kilo Lead-Zinc Ore production (KTP) and 0.5 Tpa Ore Beneficiation						
Lease Duration	Valid up to 12-03-2030						
Date of commencement of work	14 March 1991						
G. MONITORING OF DYNAMIC PARAMETERS							
Emission	Ambient Air Monitoring (µg/m ³)					Best Vibration (m/s ²)	
	SPM	PM ₁₀	SO ₂	NO ₂	CO		
Main Gate	102.55	61.85	5.88	12.71	2.65	0.35 - 0.85	
Main Sitr	101.35	60.99	5.80	14.79	2.60		
Main Tower	71.54	41.15	6.23	14.59	2.95		
H. QUALITY OF DISCHARGE WATER: Zero discharge from mine premises							
Year	No. of Plants						
As on Date	12/22/2024						

Display board at Main gate

vedanta		RAMPURA ALU CHA SIMI	
1. इकाई का नाम व पता		Rampura Alu Cha Simi, Bhubaneswar, Odisha, India	
2. इकाई का प्रकार व प्रमुख उत्पाद		Aluminum Refining Plant	
3. इकाई का क्षेत्र		Rampura Alu Cha Simi, Bhubaneswar, Odisha, India	
4. इकाई का स्तर		Phase 1	
5. इकाई का विवरण		Aluminum Refining Plant	
6. इकाई का विवरण		Aluminum Refining Plant	
7. इकाई का विवरण		Aluminum Refining Plant	
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72. इकाई का विवरण		Aluminum Refining Plant	
73. इकाई का विवरण		Aluminum Refining Plant	
74. इकाई का विवरण		Aluminum Refining Plant	
75. इकाई का विवरण		Aluminum Refining Plant	
76. इकाई का विवरण		Aluminum Refining Plant	
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81. इकाई का विवरण		Aluminum Refining Plant	
82. इकाई का विवरण		Aluminum Refining Plant	
83. इकाई का विवरण		Aluminum Refining Plant	
84. इकाई का विवरण		Aluminum Refining Plant	
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87. इकाई का विवरण		Aluminum Refining Plant	
88. इकाई का विवरण		Aluminum Refining Plant	
89. इकाई का विवरण		Aluminum Refining Plant	
90. इकाई का विवरण		Aluminum Refining Plant	
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93. इकाई का विवरण		Aluminum Refining Plant	
94. इकाई का विवरण		Aluminum Refining Plant	
95. इकाई का विवरण		Aluminum Refining Plant	
96. इकाई का विवरण		Aluminum Refining Plant	
97. इकाई का विवरण		Aluminum Refining Plant	
98. इकाई का विवरण		Aluminum Refining Plant	
99. इकाई का विवरण		Aluminum Refining Plant	
100. इकाई का विवरण		Aluminum Refining Plant	



Oil trap



HINDUSTAN ZINC
Zinc & Silver of India

HZL/RAM/Env/2025-2026/ 755

September 27, 2025

Member secretary,
Rajasthan Pollution Control Board,
4, Institutional Area,
Jhalana Doongri,
Jaipur.

Sub : Environment Statement of Rampura Agucha Mine for year 2024-2025.

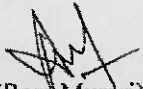
Ref: CTO Mine order No 2022-2023/Mines/10762 dated 28/02/2023.
CTO Mill order No 2023-2024/HDF/9370 dated 14/06/2023.
EC Letter No J-11015/267/2008-IA.II (M) dated 11.12.2009.

Sir,

Please find enclosed herewith the environmental statement for financial year ending on 31st March 2025.

Thanking you

Yours truly,


(Ram Murari)
CEO Agucha IBU
CEO - IBU Agucha
Hindustan Zinc Limited
Rampura Agucha Mines
PO - Agucha
Distt. - Bhilwara (Raj.)

cc to: Regional Officer,
Rajasthan State Pollution Control Board,
18, Azad Nagar, Pannadhay Circle,
Mining Engineer Office Road (Near Telephone Exchange)
Bhilwara (Raj.)

The Joint Director,
Ministry of Environment, Forest & Climate Change,
Integrated Regional Office, A-209&218, Aranya Bhawan,
Jhalana Institutional area Jaipur-302004.

O/C-EM.

Hindustan Zinc Limited

Rampura Agucha Mines, P.O. Agucha, Dist. Bhilwara (Rajasthan) - 311 022
M +91-9001294956-57 www.hzindia.com

Registered Office : Yashad Bhawan, Udaipur (Rajasthan) 313 004
CIN No. L27204RJ1966PLC001208

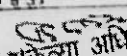
**Rajasthan Government
Primary Health Centre, Kothiya**

Total OPD: 3835

Time Period: OCTOBER-25 To
DECEMBER - 2015.

Total IPD: 63

S.No.	Disease	Total
1	Back Pain	117
2	PUD	122
3	Common Cold	836
4	Vomiting	124
5	Diarrhoea	82
6	Anaemia	84
7	Dog Bite	24
8	Snake Bite	0
9	Accident RTA	59
10	Scabies	162
11	Fungal Infection	124
12	HTN	226
13	DM	184
14	Typhoid	32
15	Pneumonia	06
16	Malaria	0
17	Dengue	0
18	Asthma	292
19	COPD	27
20	TB	02
21	CAD	63
22	Burn	30
23	Gastritis	177
24	Acne	56
25	Ear Infection	102
26	Eye Infection	132
27	Glaucoma	01
28	Cataract	04
29	DNS	00
30	Thalassemia	00
31	Arthritis	30
32	PICA	10
33	Etc.	661
TOTAL		3835


 चिकित्सा अधिकारी पंभारी
 राजकीय प्राथमिक स्वास्थ्य केंद्र
 कोठिया (भीलवाड़ा)

Annexure Page (4)


**Rajasthan Government
Primary Health Centre, Kothiya**

Total OPD: 3506

Time Period: JAN 26 TO
MAR 2026

Total IPD: 50

S.No.	Disease	Total
1	Back Pain	110
2	PUD	115
3	Common Cold	875
4	Vomiting	120
5	Diarrhoea	78
6	Anaemia	80
7	Dog Bite	22
8	Snake Bite	0
9	Accident RTA	55
10	Scabies	156
11	Fungal Infection	120
12	HTN	210
13	DM	175
14	Typhoid	30
15	Pneumonia	4
16	Malaria	0
17	Dengue	0
18	Asthma	280
19	COPD	22
20	TB	01
21	CAD	60
22	Burn	25
23	Gastritis	160
24	Acne	45
25	Ear Infection	95
26	Eye Infection	102
27	Glaucoma	0
28	Cataract	03
29	DNS	0
30	Thalassemia	0
31	Arthritis	30
32	PICA	5
33	Etc.	528
TOTAL		3506


 निमित्त आचार्यी तमारी
 चार्ज प्राथमिक स्वास्थ्य केंद्र
 कोठिया सोनवाड़ा


कार्यालय चिकित्सा अधिकारी प्रभारी आर्दश प्राथमिक स्वास्थ्य केन्द्र
रूपाहेली कलां

TOTAL OPD = 5406

IPD = 124

दिनांक 1 अक्टूबर 2025 से 31 दिसम्बर 2025 तक

S.No	DISEASES	TOTAL
1	BACK PAIN	700
	PUD	610
3	COMMON COLD	904
4	VOMITING	206
	DIARRIA	35
6	ANEMIA	106
7	DOG BITE	16
8	SANKE BITE	0
9	ACCIDENT RTA	26
10	SCABIESH	49
11	FUNGAL INFECTION	206
12	HITN	424
13	DM	406
14	TYPHOID	4
15	PNEAUMIA	2
16	MALARIA	0
17	DENGUE	0
18	ASTHIMA	270
19	COPD	46
20	TB	12
21	CAD	78
22	BURN	6
23	GASTRITIS	16
24	ACNE	36
25	EAR INFECTION	22
26	EYE INFECTION	16
27	GLUCAUMA	6
28	CATARACT	12
29	DNS	0
30	THALASEMIA	1
31	ARTHIRITIS	26
32	PICA	12
33	ETC.	1147
	TOTAL	5406


चिकित्सा अधिकारी प्रभारी
प्राथमिक स्वास्थ्य केन्द्र, रूपाहेली कलां

कार्यालय चिकित्सा अधिकारी प्रभारी आर्दश प्राथमिक स्वास्थ्य केन्द्र
रूपाहेली कलां

TOTAL OPD = 4606

IPD = 144

दिनांक 1 जनवरी 2026 से 31 मार्च 2026 तक

S.No	DISEASES	TOTAL
1	BACK PAIN	535
	PUD	468
3	COMMON COLD	804
4	VOMITING	179
	DIARRIA	35
6	ANEMIA	106
7	DOG BITE	16
8	SANKE BITE	0
9	ACCIDENT RTA	26
10	SCABIESH	49
11	FUNGAL INFECTION	206
12	HTN	424
13	DM	358
14	TYPHOID	4
15	PNEAUMIA	2
16	MALARIA	0
17	DENGUE	0
18	ASTHMA	212
19	COPD	46
20	TB	12
21	CAD	78
22	BURN	6
23	GASTRITIS	16
24	ACNE	36
25	EAR INFECTION	22
26	EYE INFECTION	16
27	GLUCAUMA	6
28	CATARACT	12
29	DNS	0
30	THALASEMIA	1
31	ARTHRITIS	26
32	PICA	12
33	ETC.	893
	TOTAL	4606

[Handwritten Signature]
चिकित्सा अधिकारी प्रभारी
आर्दश प्राथमिक स्वास्थ्य केन्द्र, रूपाहेली कलां

Date: 1 January '2025 to 31st December '2025

		showing the infectious and other diseases treated in hospital / dispensary					
causes		patients treated					
		outdoor		indoor		indoor deaths	
		male	female	male	female	male	female
sr. no.	causes	code no.					
1	typhoid fever	A01	47	68	10	18	
2	food poisoning	A05	7	14	3	8	
3	infectious colitis, enteritis & gastroenteritis	A09	1689	2287	17	24	
4	other ill-defined intestinal infections	A08	1944	2917	13	29	
5	pulmonary tuberculosis	A15	50	23			
6	tuberculosis of meninges & central nervous system	A17	1	0			
7	tuberculosis of genito urinary system	A18	0	1			
8	small pox	B03					
9	rabies (dog bite)	A82	263	116			
10	malaria	B50	1	1			
11	disorders of thyroid glands	E00-E07	15	21			
12	diabetes mellitus	E10-E14	647	598			
13	anaemias	D50-D64	140	221	0	421	
14	glaucoma	1140	4	14			
15	cataract	1125-1128	7	9			
16	conjunctivitis	1110-1113	2314	3445			
17	otitis media and mastoiditis	1165-1167	226	449			
18	acute rheumatic fever	100-102	9	9			
19	hypertensive heart diseases	111	912	732			
20	acute myocardial infarction	121	4	7			
21	haemorrhoids	184	377	261	0	5	
22	chronic disease of tonsils and adenoids	J03	2137	4651			
23	acute bronchitis and bronchiolitis	J20-21	2918	1202	2		
24	pneumonia	J12-J18	89	203			
25	bronchitis, chronic & unspecified emphysema and asthma	J40-J47	1837	2968	0	5	
26	diseases of teeth and supporting structures	K00-K09	337	418			
27	cholelithiasis and cholecystitis	K80-K87	29	37	0		
28	urinary calculus	N21	48	51			
29	hyper-plasia of prostate	N40	13	0			
30	hydrocele	N43	2	0			
31	menstrual disorders	N92		427			
32	infections of genito urinary tract in pregnancy	O-23	0	428			
33	normal delivery / tissues	O80		0	269	736	
34	diseases of skin & subcutaneous tissue	L00-L99	2745	1891			
35	rheumatoid arthritis, except spine	M05	171	219			
36	fracture of skull and face	s02	3	2			
37	fracture of neck and trunk	s12					
38	fracture of upper limb	T10-T11	4	3			
39	fracture of lower limb	T12-T13	2	1			
40	open wound and injuries to blood vessels	T12	988	2074			
41	effects of foreign body entering through orificer	T15-T19	118	177			
42	burns	T20-T32	79	98			
43	other injuries, early complications of trauma	T66-T78	934	1761			
44	motor vehicle traffic accidents	V50-V79	489	197			
45	other road vehicle accidents	V80-V89	117	49			
46	accidental poisoning	X40-X49	4	3			
47	accidents falls	W00-W19	9	6			
48	accidental caused by fire and flames	X00-X09	25	37			
49	drug, medicaments causing adverse effects therapeutic use	Y40-Y84	4	5			
			21759	28101	314	1246	

चिकित्सा अधिकारी प्रभारी
आदर्श प्राथमिक स्वास्थ्य केन्द्र
दुरड़ा (भीलवाड़ा) राज.

सीएसआईआर - केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान, धनबाद
CSIR-CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH, DHANBAD
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
(Council of Scientific & Industrial Research)

शीर्षक

मेसर्स हिंदुस्तान जिंक लिमिटेड की रामपुर अगुचा खदान के पिट, अपशिष्ट डंप
की ढलान स्थिरता और ज़मीनी हलचल का आकलन

Title

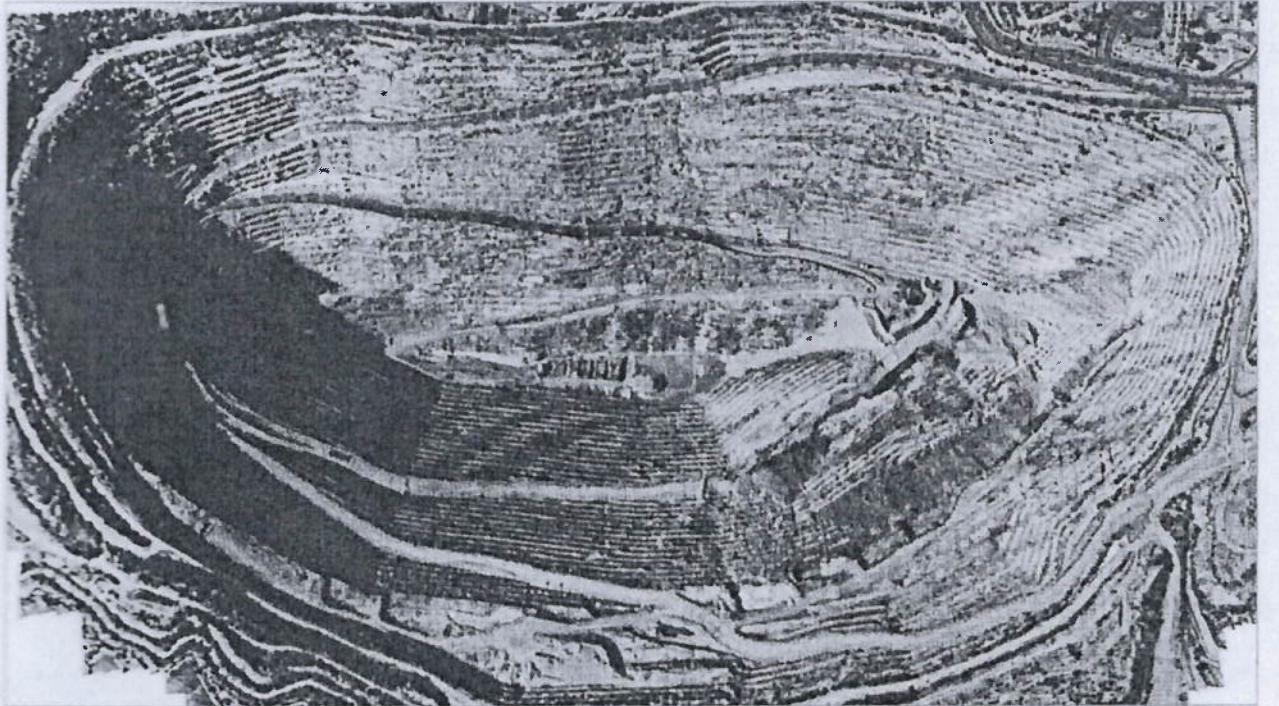
ASSESSMENT OF SLOPE STABILITY OF PIT, WASTE DUMP AND GROUND
MOVEMENT OF RAMPUR AGUCHA MINE OF M/S HINDUSTAN ZINC LIMITED

परियोजना क्रमांक / PROJECT NO. – SSP/993/2025-26

प्रायोजक / Sponsor: M/s Hindustan Zinc Limited

अंतिम रिपोर्ट / FINAL REPORT

अप्रैल / APRIL, 2026





सीएसआईआर-केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining and Fuel Research

(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद् / Council of Scientific and Industrial Research)

(विज्ञान एवं प्रौद्योगिक मंत्रालय, भारत सरकार / Ministry of Science & Technology, Govt. of India)

बरवा रोड, धनबाद - 826 001 झारखण्ड, भारत / Barwa Road, Dhanbad - 826001, Jharkhand, India

(आईएसओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institute)



स्पीड पोस्ट / ईमेल

By Speed Post/ Email

पत्रसंख्या : CIMFR/SSLM/SKR/2026/21/ 68

दिनांक: 15.04.2026

सेवा मे,
इकाई प्रमुख
रामपुर अगुचा खदान
हिंदुस्तान जिंक लिमिटेड (एच जेड एल)
पी.ओ.-आगुचा, जिला-भीलवाड़ा
राजस्थान, पिन-311029

To
The Unit Head
Rampur Agucha Mine
Hindustan Zinc Limited (HZL)
P.O.- Agucha, Dis.- Bhiwara
Rajasthan, Pin- 311029
Mob: 9571830773

विषय: पी.ओ. क्रमांक GEOTECH / 4500009040 दिनांक 05.02.2025 से संबंधित सीएसआईआर-सीआईएमएफआर निगरानी टीम की फ़ाइनल रिपोर्ट

Subject: *Final Report of CSIR-CIMFR Monitoring team against P.O. No. GEOTECH / 4500009040 dated 05.02.2025*

महोदय / Sir,

पी.ओ. क्रमांक GEOTECH / 4500009040 दिनांक 05.02.2025 के संदर्भ में, कृपया आपके अवलोकन के लिए रामपुर अगुचा खदान के पिट और डंप की ढलान निगरानी से संबंधित फ़ाइनल रिपोर्ट संलग्न प्राप्त करें।

With reference to PO No. GEOTECH / 4500009040 dated 05.02.2025, kindly find attached the final report related to slope monitoring of pit and dumps of Rampur Agucha Mine for your kind perusal.

धन्यवाद / Thanking You

आपका विश्वासी / Yours Faithfully

Sanjay Kumar Roy
15/04/2026

(डॉ संजय कुमार राय / Dr. SANJAY KUMAR ROY)

वैज्ञानिक-जी और अनुसंधान समूह प्रमुख / Scientist-G & HORG

ढलान स्थिरीकरण और भूखलन प्रबंधन / Slope Stabilisation and Landslide Management.

सीएसआईआर - केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान / CSIR - Central Institute of Mining and Fuel Research,

बरवा रोड, धनबाद, झारखंड - 826015 / Barwa Road, Dhanbad, Jharkhand - 826015

मोबाइल / Mobile: +91 9471192140, +91 7903939216

संलग्नक (Enclosure's): ऊपरवर्णित / As mentioned Above

HQ ; Dhanbad - IP-PBX +91-326-22237200/2237399, Digwadih Campus ☎ +91-326-2381111

Research Centres : Bilaspur : ☎ +91-775-2271450, Nagpur : ☎ +91-712-2510604 / 2510390

Ranchi : ☎ +91-9430799534/536, Roorkee : ☎ +91-1331-283345/83/84

E-mail : director.cimfr@csir.res.in Website : https://cimfr.res.in

सीएसआईआर - केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान, धनबाद
CSIR-CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH, DHANBAD
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
(Council of Scientific & Industrial Research)

परियोजना का शीर्षक / Title of the Project

मेसर्स हिंदुस्तान जिंक लिमिटेड की रामपुर अगुचा खदान के पिट, अपशिष्ट डंप की
ढलान स्थिरता और ज़मीनी हलचल का आकलन

ASSESSMENT OF SLOPE STABILITY OF PIT, WASTE DUMP AND GROUND MOVEMENT
OF RAMPUR AGUCHA MINE OF M/S HINDUSTAN ZINC LIMITED

प्रायोजक / Sponsor: M/s Hindustan Zinc Limited

अप्रैल / APRIL, 2026

Name of Contributor's with designation

1. Dr. Sanjay Kumar Roy, Scientist-G
2. Mr. Kartik Varwade, Scientist-D
3. Dr. Anand Singh, Scientist-D
4. Mr. Rakesh Kumar Singh, Senior Technical Officer (2)
5. Mr. Manish Kumar, Senior Technical Officer (2)
6. Mr. Prince Kumar, Technical Officer
7. Mr. Swapan Mahato, Technician

परियोजना प्रस्तावकों के हस्ताक्षर / Signature of Project Proponents

Manish Kumar
09/04/2026

परियोजना नायक / Project Leader
Manish Kumar, S.T.O. (2)

Sanjay Kumar Roy
09/04/2026

परियोजना नायक / Project Leader
Dr. Sanjay Kumar Roy,
Scientist-G

Sanjay Kumar Roy
09/04/2026

परियोजना समन्वयक / अनुसंधान समूह प्रमुख
Project Coordinator / HoRG
Dr. Sanjay Kumar Roy, Scientist-G

सीएसआईआर-सीआईएमएफआर अधिकृत हस्ताक्षर / CSIR-CIMFR Authorised Signature

अपूर्व
10/04/2026
प्रमुख / Head

परियोजना निगरानी और मूल्यांकन एवं जीएसटी
Project Monitoring and Evaluation & GST

R. R. Roy
10/04/2026
प्रमुख / Head

अनुसंधान योजना एवं व्यवसाय विकास
Research Planning & Business Development

अस्वीकरण / DISCLAIMER

1. रिपोर्ट में निर्धारित अनुशंसाओं का कड़ाई से पालन किया जाना चाहिए एवं सक्षम व्यक्तियों/एजेंसियों की देखरेख में अक्षरशः पालन और कार्यान्वयन किया जाना चाहिए। / Recommendations stipulated in the report should be strictly followed and implemented in letter and spirit under the supervision of competent persons / agencies.
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Executive Summary

The main objective of slope monitoring study is to detect any slope instability well in advance so that any damage to men and machineries can be avoided. If the failure is unavoidable then it can be brought down in a predictable manner. The instability detected in the early stage can be stabilized by applying a suitable remedial measure.

M/s Hindustan Zinc Limited have given the work related to monitoring of stability of pit and dump slopes and analysis of ground movement data of Rampur Agucha Mine to CSIR-Central Institute of Mining and Fuel Research (CSIR-CIMFR), Dhanbad vide P.O. no. GEOTECH / 4500009040 dated 05.02.2025 for one year.

As per the work order, CSIR-CIMFR team made four visits to Rampur Agucha Mine of M/s Hindustan Zinc Limited during 22-24 April 2025 (1st visit), 7-8 July 2025 (2nd visit), 10-11 December 2025 (3rd visit) and 25-26 February 2026 (4th visit).

Based on the set of monitoring data recorded during fourth visit from 25 to 26 February 2026, their comparison with initial data taken in during 18-19 June 2024, visual observations during the site visit and discussions with the mine management, it can be said that there are progressive movement of different monitoring stations installed in the footwall as well as hangwall side. Average rate of movement of monitoring stations installed in hangwall side (i.e. 0 to 1.41 mm/day) were found to be more than that for monitoring stations installed in footwall side (i.e. 0 to 0.79 mm/day). Rate of movement in the area of the hangwall of the pit where instability/ crack had developed was found to be higher than that in other areas. Analysed data is showing that maximum displacement are observed at Hangwall central bottom slope. Considering the cumulative movement of the strata over the years since the opencast mining operation has stopped, the rate of movement about 1mm/ day should be considered seriously and any operation inside the opencast mine may be avoided till very urgent especially in rainy season when movement is expected to increase. If average movement rate exceeds more than 3mm/day in any part, then start daily prism monitoring for having a close watch of slope stability. If average movement rate exceeds more than 5mm/day in large area of the pit, then no men / machine operation should be carried out in the pit. After cooling down of movement, the operation can be resumed with proper physical inspection being carried out in the pit. As prism based monitoring is discrete mode of monitoring and provide movement records of the

areas where they are installed, mine management may kindly corroborate / cross-check these movement records with other methods of slope monitoring practices existing in the mine.

Mine management should continue slope monitoring of pit and dump areas using the previously established system of slope stability radar, Insar Satellite monitoring and prism so that accelerated slope movement in any part of the mine is detected to take necessary precautionary / corrective measures. As the rate of movement is expected to increase during the rainy season, mine management should continue slope monitoring of pit and dump areas using the total station & prism as well as visual observation every day during the rainy season so that any rapid / accelerated movement can be detected in advance by the management for appropriate preventive / remedial measures to eliminate risks to men/machine.

Although, the mine management has been taking meticulous efforts to manage the flow of rain-water in controlled manner, it is advised that mine management should inspect and ensure effectiveness of present rain-water drainage system in place, so that catchment runoff water should not enter in cracked zone and failure zone. Mine management shall ensure surface rainwater management system in pit periphery and surface area also. A detailed plan for in-pit surface water management should be developed and maintained also, so that catchment runoff water should not enter in old failure zone (FW SW Shear Zone) which was remediated.

1. INTRODUCTION

The importance of safe, properly designed and scientifically engineered slope is well known. The benefit of an openpit operation largely depends on the use of the steepest slopes possible, which should not fail during the life of the mine. So, the design engineer is faced with the two opposite requirements, stability and steepness, in designing the deep Openpit slopes. Steepening the slopes, thereby reducing the amount of material to be excavated, can save a vast sum of money. At the same time excessive steepening may result into slope failure leading to loss of production, extra stripping costs to remove failed material, reforming of benches, rerouting of haul roads and production delays. The Directorate of Mines Safety may even close the mine, in case unsafe conditions are created. Therefore, it is necessary that a balance between economics and mine safety should be achieved.

Rampura Agucha mining complex is situated in Tehsil- Hurda, District- Bhilwara in Rajasthan and connected by road from Gulabpura railway station on Delhi-Udaipur railway line. Opencast mine of about 390m depth has been created with overall slope of about 35° on footwall side and 42° on the hangwall side. Presently, underground mining operations are going on below the open pit working by keeping a 60m crown pillar between the open pit and underground mines. The underground mining is carried out by Long Hole Open Stopping (LHOS) with paste fill. Presently there is no mining operation in open pit, however pit slope monitoring is being continued in order to determine any movement in and around the mine and dump to take care of safety of opencast as well as underground mining and other operations nearby.

Mine management of Rampur Agucha mine entrusted the work related to slope stability and slope monitoring studies to CSIR-CIMFR, in consultation with DGMS, along with the slope steepening for years. This report is for assessment of open pit slope stability, waste dump stability and ground surface movement through monitoring and data analysis at Rampura Agucha Mine of HZL for one year from February 2025 to February 2026.

2. SLOPE MONITORING

With reference to P.O. no. GEOTECH / 4500009040 dated 05.02.2025, CSIR-CIMFR team made its first, second, third & fourth visits during 22-24 April 2025, 7-8 July 2025, 10-11 December 2025 & 25-26 February 2026 respectively for slope monitoring of pits and dumps of Rampura Agucha Mine. Moreover, CSIR-CIMFR team made four visits of Rampura Agucha Mine in financial year 2024 to 2025 during 19-20 March 2024, 18-19 June 2024, 12-13 September 2024 and 7-8 January 2025 for slope monitoring of pits and dumps under previous P.O. no. 3215866900 / 5100032522 dated 29.01.2022 with amendment dated 20.02.2024. As per the recommendation of the final report under the previous P.O. no. 3215866900 / 5100032522, it was evident that decision of the mine management to reset the initial reading in May 2024 and establishment of additional back sight stations has led to increase in accuracy of displacement measurement. Therefore, in this report initial reading of second visit of CSIR-CIMFR team during 18-19 June 2024 has been taken as reference to calculate the change in movement in subsequent visits. For some of the monitoring stations installed after 19.06.2024, date of their initial reading has been taken when it was first recorded during CSIR-CIMFR visit. In order to calculate the displacement, current reading has been subtracted from initial reading. Therefore, positive reading of horizontal displacement indicates displacement of the point towards the base stations and vice versa. Similarly, positive reading of vertical displacement indicates lower RL value of current reading in comparison to initial reading (i.e. subsidence of the point) and vice versa. Change in the horizontal / vertical displacement of the monitoring pillars were calculated separately from 18.06.2024 to 12.09.2024, 12.09.2024 to 07.01.2025, 07.01.2025 to 22.04.2025, 22.04.2025 to 07.07.2025, 07.07.2025 to 10.12.2025 & 10.12.2025 to 25.02.2026 and added together to get the total displacement between 18.06.2024 to 25.02.2026.

2.1 Monitoring of Horizontal Displacement of Monitoring Stations Installed in Footwall side of Pit

Out of total 194 monitoring stations installed in the footwall side of the pit, measurement of coordinates and horizontal distance of only 178 monitoring stations could be done in the fourth visit of CSIR-CIMFR team during 25-26 February 2026. Changes in horizontal distance of different monitoring stations installed in footwall side of pit from 18.06.2024 to 25.02.2026 have been listed in Annexure-1. From the analysis of data shown in Annexure-I, the range of horizontal displacement of different monitoring station have been summarized below in table 1.

Table 1: Range of horizontal displacement of different monitoring stations installed in the footwall side of the pit

Range of horizontal displacement	Number of monitoring stations having horizontal displacement in the specified range						
	18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 25.02.26	19.06.24 to 25.02.26
-20 cm to -10 cm	0	0	0	0	0	0	5
-10 cm to 0 cm	20	20	40	5	28	24	20
0 cm to 10 cm	151	158	142	174	130	154	34
10 cm to 20 cm	2	0	0	0	16	0	83
20 cm to 30 cm	0	0	0	0	1	0	25
30 cm to 40 cm	0	0	0	0	0	0	10
40 cm to 50 cm	0	0	0	0	0	0	1
Total	173	178	182	179	175	178	178

From table 1 above, it is evident that

- (i) 16 monitoring pillars were not visible during the fourth visit of CSIR-CIMFR team during in February 2026. This may be because those monitoring stations were either broken or their coordinated had shifted significantly from their originally fed coordinates in total stations and hence, they were not getting detected by total stations for coordinate measurement.
- (ii) Maximum positive horizontal displacement observed during 18.06.24 to 25.02.26 (i.e. 617 days) for any monitoring station installed in footwall side is not exceeding 48.5cm which corresponds to average movement of 0.79mm/day only.
- (iii) 154 out of 178 monitoring stations installed in footwall side showed positive horizontal displacement during 10.12.25 to 25.02.26 and only 24 out of 178 monitoring stations installed in footwall side showed negative horizontal displacement during 10.12.25 to 25.02.26.
- (iv) Maximum positive horizontal displacement observed during 10.12.25 to 25.02.26 (i.e. 77 days) for any monitoring station installed in footwall side is not exceeding 7.7cm which corresponds to average movement of 1.00 mm/day. Therefore, the maximum rate of change of horizontal displacement during 10.12.25 to 25.02.26 is less than that observed during 07.07.25 to 10.12.25 but more than that observed in previous four visits during 18.06.24 to 07.07.25.

2.2 Monitoring of Horizontal Displacement of Monitoring Stations Installed in Hangwall side of Pit

Out of earlier installed total 151 monitoring stations in the footwall side of the pit, measurement of coordinates and horizontal distance of only 129 monitoring stations could be done in the fourth visit of CSIR-CIMFR team during 25-26 February 2026. In addition, readings of 14 newly installed monitoring stations were taken for the first time which will be used in future as initial readings. Changes in horizontal distance of different monitoring stations installed in footwall side of pit from 18.06.2024 to 25.02.2026 have been listed in Annexure-2. From the analysis of data shown in Annexure-2, the range of horizontal displacement of different monitoring stations installed in the hangwall side of the pit have been summarized below in table 2.

Table 2: Range of horizontal displacement of different monitoring station installed in the hangwall side of the pit

Range of horizontal displacement	Number of monitoring stations having horizontal displacement in the specified range						
	18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 25.02.26	19.06.24 to 25.02.26
-10 cm to 0 cm	0	3	5	2	0	0	0
0 cm to 10 cm	110	122	121	130	50	73	22
10 cm to 20 cm	19	2	3	2	32	36	21
20 cm to 30 cm	1	0	0	0	34	8	8
30 cm to 40 cm	0	0	0	0	11	7	12
40 cm to 50 cm	0	0	0	0	0	3	6
50 cm to 60 cm	0	0	0	0	0	1	18
60 cm to 70 cm	0	0	0	0	0	0	33
> 70 cm	0	0	0	0	0	0	9
Total	130	127	129	134	127	129	129

From table 2 above, it is evident that

- (i) All monitoring stations situated in hangwall side were found to have horizontal displacement in positive value (i.e. movement towards the footwall side where base station is situated). During all previous five visits between 22.04.2025 to 07.07.2025, most of the monitoring stations in hangwall side were found have horizontal displacement below 10 cm with only few monitoring stations having horizontal displacement between 10cm to 20cm. But, during third visit, 45 monitoring stations in hangwall side were found have horizontal displacement more than 20 cm between 07.07.2025 to 10.12.2025

and during fourth visit, 20 monitoring stations in hangwall side were found have horizontal displacement more than 20 cm between 10.12.2025 to 25.12.2026. Monitoring stations nos. 130 mRL S-25 and 160 mRL S-50 were found to have horizontal displacement of 37.6 cm and 33.2 cm respectively between 10.12.2025 to 25.02.2026 (i.e. 77 days) which correspond to average horizontal displacement of about 4.88 mm/ day and 4.21 mm/day which are higher than the expected safe limits.

- (ii) Cumulative horizontal displacement during the past 617 days from 18.06.2024 to 25.02.2026 of all the monitoring stations situated in hangwall side were found to have positive value (i.e. horizontal displacement is towards the footwall side where base station is situated). Range of horizontal displacement of different monitoring stations situated in hangwall side were found in the range of 0.7 to 86.9cm between 18.06.2024 to 25.02.2026 which corresponds to average movement rate of 0.0 to 1.41 mm/day. Operations, if any, in the region of hangwall side having average movement rate higher than 1mm/day have to be done cautiously with a close watch by slope stability radar. If average movement rate exceeds more than 3mm/day in any part of the hangwall side then no men / machine operation should be carried out in the pit. Rate of positive horizontal displacement of monitoring stations installed in hangwall side were more than that observed in the footwall side.
- (iii) Scatter plot of the horizontal displacement vs Y coordinate shown in figure 1 below clearly indicates that range of horizontal displacement for monitoring stations situated in the central portion of pit in hangwall side (i.e. from +500N to -400S) were comparatively more than those observed for other region. Higher horizontal displacement of monitoring stations installed in central part of the pit in hangwall side may be due to cracked region which have formed before March 2024 and resurfaced again in February 2026. Trend of movement of monitoring stations during 18.06.2024 to 07.07.2025 and during 07.07.2025 to 25.02.2026 were found to be similar. But, rate of movement during last 154 days from 07.07.2025 to 10.12.2025 and last 77 days from 10.12.2025 to 25.02.2026 were found to be much higher than that that observed during previous 384 days from 18.06.2024 to 07.07.2025.

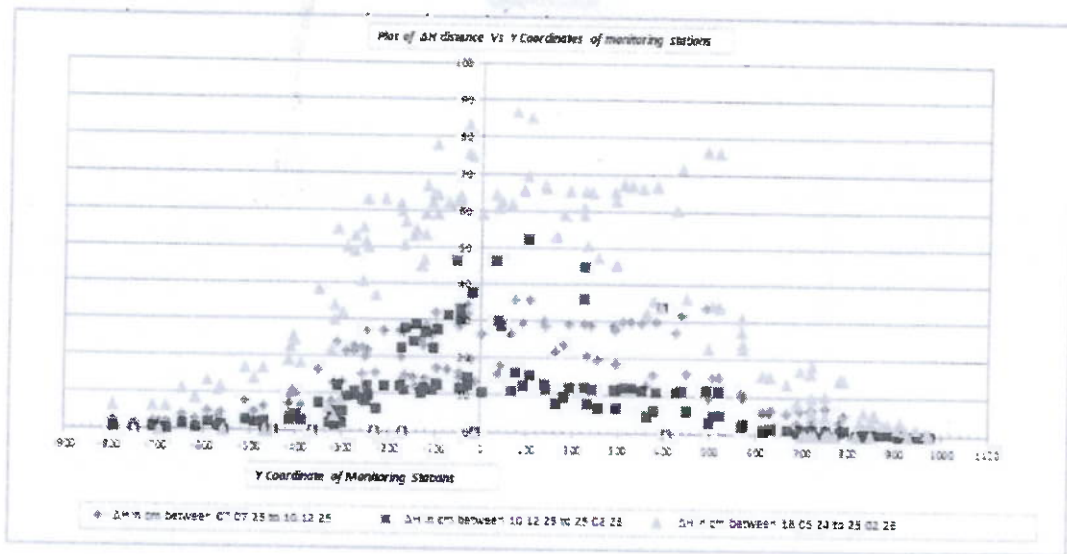


Fig 1: Plot of ΔH distance vs Y coordinate of monitoring stations installed in hangwall side of pit

2.3 Monitoring of Horizontal Displacement of Monitoring Stations Installed in Dump

Total 34 monitoring stations installed in different parts and terraces of waste dump were monitored during the fourth visit of CSIR-CIMFR team on 26.02.2026 for their movement with respect to their base stations and have been listed in Annexure-3. Horizontal distance of these 34 monitoring stations installed in different parts and terraces of waste dump were compared with their initial readings taken on 19.06.2024 to find out their horizontal displacement along the line of sight from base station. The ranges of horizontal displacement of different monitoring station installed in dump have been summarized below in table 3.

Table 3: Range of horizontal displacement of different monitoring station installed in dump

Range of horizontal displacement	Number of monitoring stations having horizontal displacement in the specified range						
	19.06.24 to 12.09.24	12.09.24 to 08.01.25	08.01.25 to 23.04.25	23.04.25 to 08.07.25	08.07.25 to 11.12.25	11.12.25 to 26.02.26	19.06.24 to 26.02.26
<-10 cm	0	0	0	0	0	0	0
-10 cm to 0 cm	20	11	6	9	4	26	7
0 cm to 10 cm	12	21	17	25	30	8	17
10 cm to 20 cm	0	0	9	0	0	0	8
20 cm to 30 cm	0	0	0	0	0	0	2
Total	32	32	32	34	34	34	34

From table 3 above, it is evident that

- (i) Changes in horizontal displacement during the period of 19.06.24 to 26.02.26 for 34 monitoring stations installed in different parts and terraces of dumps were found to vary between -9.3cm to 20.9cm.
- (ii) 27 monitoring stations installed in the dumps were found to have positive displacement between the ranges of 0 cm to 20.9cm during 19.06.24 to 26.02.26. Similarly, 7 monitoring stations installed in the dumps were found to have negative displacement between the ranges of -0.3cm to -9.3 cm during 19.06.24 to 26.02.26.
- (iii) Maximum positive horizontal displacement of 20.9cm was observed at monitoring station number WD 540 mRL W-45 installed at 540mRL bench. Similarly, maximum negative displacement of -9.3cm was observed at monitoring station number WDN534 mRLw-780 installed at 534mRL bench.
- (iv) Maximum positive displacement of 20.9cm was observed at monitoring station number WD 540 mRL W-45 correspond to average movement of about 0.34mm/day only during 19.06.24 to 26.02.26 (i.e. 617 days).
- (v) The rate of movement of monitoring stations installed in the dump during last 77 days from 11.12.2025 to 26.02.26 were varying between -8.2 cm to 1.6cm which corresponds to average movement of about -1.06mm/day to 0.21 mm/day only. As some of the monitoring stations in the dumps were found to have average movement rate of more than 1mm/day, these monitoring stations need to be verified physically and monitored at increased frequency by total stations (at least once in a month) to keep a close watch on their rate of movement with time.

2.4 Ground Movement in Vertical Direction (ΔZ) (i.e. subsidence) Monitoring

Out of total 47 earlier installed monitoring stations and three new monitoring stations earmarked for subsidence measurement monitored for their ground movement in vertical direction (ΔZ) during this visit of CSIR-CIMFR team on 26.02.2026 readings of only 27 monitoring stations could be taken up. Remaining 22 monitoring stations were either not visible or have displaced significantly from their original position. Details of the monitoring stations, their location and range of vertical movement during 19.06.2024 to 26.02.2026 are given in Annexure-4. Summary of Ground movement in vertical direction (ΔZ) during 19.06.2024 to 26.02.2026 have been listed in Table-4.

Table 4: Results of the subsidence monitoring of the monitoring stations during

Location of monitoring stations	Hangwall Side		Footwall Side	
	On Surface	In Pit	On Surface	In Pit
Number of monitoring stations	8	7	2	7
Range of vertical movement (ΔZ)	1.1 cm to 38.6 cm	1.5 cm to 43.7 cm	-1.7 cm to -4.4 cm	-1.9 cm to -5.5 cm
Monitoring station no. having maximum positive ΔZ movement	N-115	N-210	-	-
Monitoring station no. having maximum negative ΔZ movement	-	-	N-905	S-421

From table 4 above, it is evident that

- (i) Changes in vertical displacement during 19.06.2024 to 26.02.2026 of different monitoring stations earmarked for subsidence measurement were found to vary movement in vertical direction (ΔZ) between -1.7 cm to 43.7 cm.
- (ii) All 9 monitoring stations in footwall side were found to have negative vertical displacement between the ranges of -1.7 cm to -5.5 cm during 19.06.2024 to 26.02.2026. Similarly, all 15 monitoring stations in hangwall side were found to have positive vertical displacement between the ranges of 1.1 cm to 43.7 cm during 19.06.2024 to 26.02.2026.
- (iii) Maximum negative displacement in vertical direction (ΔZ) of -5.5 cm during 19.06.2024 to 26.02.2026 was observed at monitoring station number S-421 installed in pit in footwall side which correspond to average movement of about 0.37 mm/day.
- (iv) Positive reading of vertical displacement indicates lower RL value of current reading in comparison to initial reading (i.e. subsidence of the point). But, negative reading of vertical displacement indicates higher RL value of current reading in comparison to initial reading (i.e. upheaval of the point). Observance of positive reading of vertical displacement of different monitoring stations (15 nos.) may be thought to be attributed to subsidence due to effect of underground mining or slope instability in the hangwall region. But, observance of negative readings of vertical displacement of different monitoring stations (9 nos.) signifies that the presence of instrumental, environmental and human error in measurement of RL values of different monitoring stations using total station.

- (iv) Scatter plot of the vertical displacement vs Y coordinate shown in figure 2 below clearly indicates that range of vertical displacement for monitoring stations situated in the central portion of pit in hangwall side (i.e. from +400N to -400S) were comparatively more than those observed for other region and matches with similar observations for change in horizontal distance in figure 1. Higher vertical displacement of monitoring stations installed in central part of the pit in hangwall side may be due to slope instability / cracked region which have formed before March 2024 and resurfaced once again during February 2025. Trend of movement of monitoring stations during 18.06.2024 to 07.07.2025 and during 07.07.2025 to 10.12.2025 were found to be similar. But, rate of movement during last 77 days from 11.12.2025 to 26.02.2026 was found to be much higher than that observed during previous 540 days from 18.06.2024 to 11.12.2025.

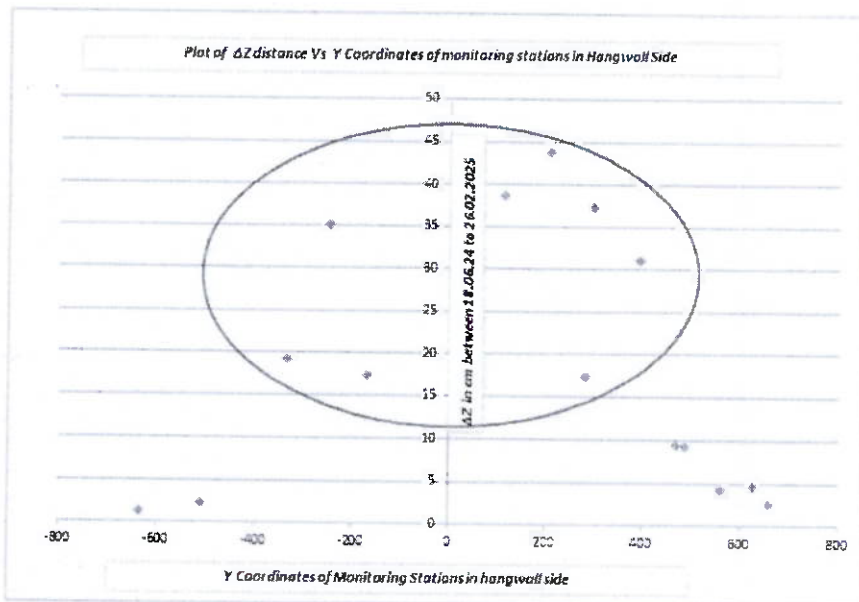


Fig 2: Plot of ΔZ distance vs Y coordinate of monitoring stations installed in hangwall side of pit

3. CONCLUSIONS & RECOMMENDATIONS

Open Pit

Based on the set of monitoring data recorded during fourth visit from 25 to 26 February 2026, their comparison with initial data taken in during 18-19 June 2024, visual observations during the site visit and discussions with the mine management, it can be said that there are progressive movement of different monitoring stations installed in the footwall as well as hangwall side. Average rate of movement of monitoring stations installed in hangwall side (i.e. 0 to 1.41 mm/day) were found to be more than that for monitoring stations installed in footwall side (i.e. 0 to 0.79 mm/day). Rate of movement in the area of the hangwall of the pit where instability/ crack had developed was found to be higher than that in other areas. Analysed data is showing that maximum displacement is observed at Hangwall central bottom slope. Considering the cumulative movement of the strata over the years since the opencast mining operation has stopped, the rate of movement about 1mm/ day should be considered seriously and any operation inside the opencast mine may be avoided till very urgent especially in rainy season when movement is expected to increase. If average movement rate exceeds more than 3mm/day in any part, then start daily prism monitoring for having a close watch of slope stability. If average movement rate exceeds more than 5mm/day in large area of the pit, then no men / machine operation should be carried out in the pit. After cooling down of movement, the operation can be resumed with proper physical inspection being carried out in the pit. If average movement rate exceeds more than 3mm/day in any part of the pit then no men / machine operation should be carried out in the pit. As prism based monitoring is discrete mode of monitoring and provide movement records of the areas where they are installed, mine management may kindly corroborate / cross-check these movement records with other methods of slope monitoring practices existing in the mine.

CSIR-CIMFR appreciates the Rampura Agucha Mine management for continuous monitoring of the pit and dump slopes using Slope Stability Radar, Insar Satellite monitoring as well as periodic monitoring using prism & total station. Moreover, CSIR-CIMFR commends the mine management for taking all possible safety precautions like cable bolting to prevent rock slides in shear zones, cement grouting in visibly cracked areas, installation of additional monitoring pillars in accessible area of the known accelerated movement zones, efficient drainage of water drainage to keep the rock/dump mass in drained condition etc.

The rate of movement of monitoring stations installed in the dump during last 77 days from 11.12.2025 to 26.02.2026 were similar to that observed in previous visits during 19.06.20224 to

11.12.2025 Thus, these monitoring stations in dumps need to be verified physically and monitored at increased frequency by total stations (at least once in a month) to keep a close watch on their rate of movement with time.

Although, the mine management has been taking meticulous efforts to manage the flow of rain-water in controlled manner, it is advised that mine management should inspect and ensure effectiveness of present rain-water drainage system in place, so that catchment runoff water should not enter in cracked zone and failure zone. Mine management shall ensure surface rainwater management system in pit periphery and surface area also. A detailed plan for in-pit surface water management should be developed and maintained also, so that catchment runoff water should not enter in old failure zone (FW SW Shear Zone) which was remediated.

Mine management should continue slope monitoring of pit and dump areas using the previously established system of slope stability radar, Insar Satellite monitoring and prism so that accelerated slope movement in any part of the mine is detected to take necessary precautionary / corrective measures. As the rate of movement is expected to increase during the rainy season, mine management should continue slope monitoring of pit and dump areas using the total station & prism as well as visual observation every day during the rainy season so that any rapid / accelerated movement can be detected in advance by the management for appropriate preventive / remedial measures to eliminate risks to men/machine.

It was evident that decision of the mine management to reset the initial reading in May 2024 and establishment of additional back sight stations has led to increase in accuracy of displacement measurement in Rampur Agucha Mine. As some of the monitoring stations (78 out of 129), especially in the hangwall side, has total horizontal displacement of even more than 30cm as on 25.02.2026, mine management may kindly consider resetting of initial readings of monitoring stations established in pit especially in hangwall to increase in accuracy of displacement measurement in future.

If any acceleration movement is observed in pit slope, then mine management may inform and share the recent movement data to CIMFR team for details analysis of pit slope movement. Moreover, mine management may kindly make available, historical monitoring data taken by the mine management so that rate of movement in the recent past can also be compared with those observed with historical data.

Waste Dump

The rate of movement of monitoring stations installed in the dump during last 77 days from 11.12.2025 to 26.02.26 were varying between -8.2 cm to 1.6 cm which corresponds to average movement of about -1.06 mm/day to 0.21 mm/day only. So far, maximum horizontal displacement of 20.9cm has been observed during last 1.5years from 19.06.24 to 26.02.26. Based on deformation trend and physical inspections, it may be considered that the displacement of dump slope is within safe limit. As some of the monitoring stations in the dumps were found to have average movement rate of more than 1mm/day, these monitoring stations need to be verified physically and monitored at increased frequency by total stations (at least once in a month) to keep a close watch on their rate of movement with time. Continuous physical inspection must be carried out by site engineers.

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Annexure-1: Measurement of coordinates and calculation of horizontal displacement of monitoring stations installed in footwall side

Sl No	Monitoring Station ID	Initial Coordinates as on 18.06.2024			Horizontal Distance (H) in m as on 25.02.2026	Change in horizontal distance (i.e. ΔH) in cm					
		X	Y	Z		18.06.24 to 12.09.24	07.01.25 to 22.04.25	07.01.25 to 22.04.25	07.01.25 to 22.04.25	07.01.25 to 22.04.25	10.12.25 to 25.02.26
1	395 mRL N-925 / 395 mRL N-935	-25.970	935.688	394.776	1362.798	0.1	-0.4	0.0	-0.2	-0.4	-0.8
2	330 mRL N-900 / 330 mRL N-907	67.608	907.826	333.413	1281.412	0.0	-0.1	0.0	-0.5	-0.2	-0.9
3	395 mRL N-900 / 395 mRL N-880	-64.917	880.883	395.037	1348.625	0.3	0.2	0.2	0.5	0.0	0.9
4	395 mRL N-825 / 395 mRL N-820	-90.364	821.729	395.265	1324.896	0.6	-	-	3.6	0.2	4.4
5	330 mRL N-775 / 330 mRL N-770	-11.850	772.816	332.733	1234.453	0.7	0.3	0.1	1.8	0.6	4.0
6	330 mRL N-700	-41.064	692.088	334.089	1201.273	-	0.3	1.5	2.6	1.1	6.4
7	390 mRL N-675	-164.903	672.541	392.765	1285.886	1.1	0.5	0.2	2.8	1.1	6.6
8	390 mRL N-650	-172.432	650.228	392.555	1278.866	1.2	0.5	0.2	3.0	1.3	7.2
9	390 mRL N-625	-178.35	621.653	392.352	1267.379	1.2	0.6	0.4	3.3	1.3	7.7
10	330 mRL N-600	-67.721	600.783	331.693	1165.081	1.4	0.7	0.4	4.0	1.3	8.7
11	354 mRL N-600	-103.668	599.818	355.634	1193.612	1.4	0.7	0.1	3.6	1.6	8.4
12	390 mRL N-600	-186.889	595.138	392.315	1259.786	0.4	0.7	0.4	3.5	1.5	7.4
13	390 mRL N-575	-196.346	572.047	392.206	1255.354	1.6	0.6	0.4	3.6	1.5	8.9
14	390 mRL N-550	-208.698	549.977	392.199	1254.414	1.3	0.9	0.4	4.2	1.5	9.2
15	290 mRL N-500	-40.093	513.653	292.709	1092.369	1.8	1.6	-0.2	4.8	2.0	11.5
16	330 mRL N-500	-91.000	502.622	331.789	1129.234	1.8	0.9	0.3	4.7	1.8	10.9
17	390 mRL N-500	-231.837	502.005	392.047	1250.862	1.3	1.0	0.7	4.4	1.9	10.3
18	354 mRL N-500	-129.098	500.828	356.268	1160.876	1.9	0.7	-	6.3	10.4	-
19	220 mRL N-500	46.252	499.901	222.903	1013.546	2.4	1.1	0.1	5.0	2.5	12.8
20	140 mRL N-493	143.798	493.716	141.937	653.733	3.3	2.3	1.1	10.3	-3.7	16.0
21	342 mRL N-475	-113.793	486.736	343.289	1140.528	1.9	1.2	1.3	-	-	-
22	330 mRL N-475	-99.864	483.506	332.593	1126.385	2.1	1.0	0.2	4.9	1.9	11.6
23	390 mRL N-475	-239.148	475.706	391.520	1245.089	2.6	0.8	0.4	4.5	1.7	11.8
24	170 mRL N-450	99.449	452.615	172.070	942.775	2.4	2.0	-0.1	6.7	2.7	15.7
25	330 mRL N-450	-105.076	451.968	332.075	1115.663	2.2	0.8	0.5	5.1	2.1	12.1
26	390 mRL N-425	-250.890	427.799	389.921	1234.625	1.8	1.0	0.5	4.7	1.9	11.4
27	342 mRL N-410	-127.516	410.21	343.088	1115.897	2.4	0.7	0.5	5.4	2.2	12.7
28	390 mRL N-400	-256.128	403.522	390.733	1229.39	2.1	0.8	0.5	4.7	2.1	11.9
29	170 mRL N-400	89.198	402.673	172.833	923.466	2.7	2.0	0.1	6.8	3.1	17.0
30	330 mRL N-400	-113.497	402.547	332.322	1099.929	-	-	3.7	5.6	2.3	13.1

ff

SI No	Monitoring Station ID	Initial Coordinates as on 18.06.2024			Horizontal Distance (H) m as on 18.06.2024	Horizontal Distance (H) in m as on 25.02.2026	Change in horizontal distance (i.e. ΔH) in cm									
		X	Y	Z			18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 25.02.26	18.06.24 to 10.12.25	10.12.25 to 25.02.26		
31	354 mRL N-400	-145.714	401.510	354.879	1128.343	1128.217	2.6	0.7	0.3	1.4	5.4	2.2	18.06.24 to 10.12.25	10.12.25 to 25.02.26		
32	140 mRL N-400 / 140 mRL N-398	123.971	398.119	142.952	891.789	891.620	2.7	2.2	-0.1	2.2	6.6	3.3	16.9	12.6		
33	140 mRL N-398	123.933	398.042	142.967	617.918	617.617	3.8	3.2	1.4	3.0	12.9	5.8	30.1	30.1		
34	220 mRL N-400	27.577	394.010	223.554	971.692	-	-	-	-	-	-	-	-	-		
35	180 mRL N-375 / 180 mRL N-400	73.420	386.811	184.292	928.546	-	2.9	-	1.9	2.6	-	-	-	-		
36	160 mRL N-375	97.033	382.823	163.165	906.302	-	-	4.9	-	2.8	6.8	-	-	-		
37	270 mRL N-400 / 270 mRL N-350	-43.532	358.651	270.657	1017.727	1017.566	3.2	1.3	0.4	2.0	6.6	2.6	16.1	16.1		
38	390 mRL N-350	-264.165	352.853	391.270	1217.329	1217.205	2.2	1.0	0.5	1.6	5.2	1.9	12.4	12.4		
39	260 mRL N-350	-33.215	341.523	261.902	1000.949	1000.773	3.7	1.3	0.3	2.7	6.8	2.8	17.6	17.6		
40	170 mRL N-325 / 170 mRL N-300	76.272	331.480	174.002	898.739	898.545	3.1	2.4	0.2	2.7	7.7	3.3	19.4	19.4		
41	390 mRL N-325	-269.294	326.896	391.204	1212.894	1212.767	2.1	0.9	0.6	1.8	5.1	2.2	12.7	12.7		
42	140 mRL N-325	109.612	321.112	144.110	864.473	864.277	3.1	-	-	5.3	7.6	3.6	19.6	19.6		
43	342 mRL N-300	-137.165	301.042	343.348	1080.180	1080.036	3.0	0.8	0.2	1.8	6.2	2.4	14.4	14.4		
44	330 mRL N-300	-122.930	299.236	331.924	1066.271	1066.117	3.0	1.3	0.2	1.9	6.4	2.6	15.4	15.4		
45	390 mRL N-300	-271.372	298.027	391.867	1205.192	1205.056	2.4	0.8	0.8	2.1	5.3	2.2	13.6	13.6		
46	290 mRL N-300	-72.638	295.334	292.339	1018.164	1017.993	3.4	1.4	0.2	2.2	7.1	2.8	17.1	17.1		
47	360 mRL N-150	-238.145	289.166	368.973	1170.889	1170.755	2.4	0.7	0.7	1.4	-	8.2	13.4	13.4		
48	366 mRL N-275	289.138	289.082	368.982	1170.854	1170.718	2.3	0.8	0.6	1.6	5.8	2.5	13.6	13.6		
49	160 mRL N-275	81.128	271.324	162.882	867.590	867.376	4.0	2.2	0.3	3.0	8.7	3.2	21.4	21.4		
50	330 mRL N-250	-123.792	252.796	331.494	1050.928	1050.771	2.8	1.4	0.5	1.5	6.8	2.7	15.7	15.7		
51	90 mRL N-249	216.426	249.920	93.435	472.760	472.415	4.5	3.2	1.5	3.8	14.6	6.9	34.5	34.5		
52	390 mRL N-250	-271.923	246.593	391.487	1190.066	1189.936	2.0	0.9	0.7	1.7	5.5	2.2	13.0	13.0		
53	170 mRL N-250 / 160 mRL N-375	67.138	245.749	173.125	870.066	869.849	4.4	2.0	-	2.5	9.0	3.8	21.7	21.7		
54	90 mRL N-217	223.587	217.697	93.125	456.489	456.118	5.0	3.5	1.3	4.8	14.8	7.7	37.1	37.1		
55	330 mRL N-200	-123.338	204.534	331.399	1035.657	1035.491	3.1	-	1.6	2.1	9.8	-	16.6	16.6		
56	220 mRL N-200	8.563	203.548	223.717	909.747	909.534	4.0	2.1	0.5	2.9	8.5	3.3	21.3	21.3		
57	260 mRL N-200	-37.386	202.623	261.727	953.032	952.839	3.8	1.6	0.4	2.6	7.7	3.2	19.3	19.3		
58	290 mRL N-200	-74.823	198.490	292.171	987.477	-	3.4	-	-	4.4	-	-	-	-		
59	90 mRL N-200	223.928	190.317	93.342	449.745	449.370	5.3	3.5	1.6	4.2	15.7	7.2	37.5	37.5		
60	110 mRL N-176	166.689	176.592	111.910	503.572	503.191	5.4	3.4	1.9	4.4	15.8	7.2	38.1	38.1		
61	390 mRL N-175	-269.078	174.093	391.541	1168.725	1168.588	2.5	0.9	0.6	1.9	5.7	2.1	13.7	13.7		
62	310 mRL N-175	-105.063	169.627	311.928	1005.647	1005.441	4.4	1.8	0.3	2.6	8.4	3.1	20.6	20.6		

SI No	Monitoring Station ID	Initial Coordinates as on 18.06.2024			Horizontal Distance (H) in m as on 18.06.2024	Horizontal Distance (H) in m as on 25.02.2026	Change in horizontal distance (i.e. AH) in cm						
		X	Y	Z			18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 25.02.26	18.06.24 to 25.02.26
63	90 mRL N-168 / 90 mRL N-175	226.097	168.478	93.423	443.628	447.738	5.4	3.6	1.9	4.2	16.0	6.7	18.06.24 to 25.02.26
64	90 mRL N-141 / 90 mRL N-150	218.045	141.067	93.021	448.113	1022.202	3.0	1.3	0.5	2.2	6.8	2.9	16.7
65	330 mRL N-125	-128.204	133.655	330.632	1019.248	1019.079	2.9	1.6	0.3	2.2	7.0	2.9	16.9
67	330 mRL N-100	-130.055	110.134	330.536	995.251	995.076	3.1	1.4	0.4	2.4	7.3	2.9	17.5
68	90 mRL N-103 / 90 mRL N-100	-106.579	105.157	311.521	454.41	454.018	4.3	3.6	1.5	4.5	15.5	6.8	36.2
69	220 mRL N-100	1.285	101.553	223.313	888.992	888.762	4.1	2.5	0.8	2.4	9.0	4.2	23.0
70	260 mRL N-100	-45.692	101.392	262.659	934.863	934.664	3.7	2.0	0.6	2.2	8.0	3.4	19.9
71	290 mRL N-100	-83.750	100.892	292.153	972.029	971.842	3.2	1.9	0.3	2.4	7.7	3.2	18.7
72	120 mRL N-90	147.416	90.475	123.445	516.710	516.225	15.4	2.4	2.2	4.6	16.7	7.2	48.5
73	30 mRL N-80	269.841	80.602	31.512	394.649	394.415	Initial	5.4	-4.6	4.2	12.9	5.5	23.4
74	390 mRL N-75	-251.109	75.275	392.691	1132.473	1132.340	1.7	1.3	0.6	1.7	5.6	2.4	13.3
75	390 mRL N-50	-249.628	50.683	392.808	1127.631	1127.502	1.3	1.4	0.8	1.3	5.6	2.5	12.9
76	366 mRL N-50	-214.179	50.517	367.897	1092.455	1092.314	1.9	1.3	0.7	1.7	5.9	2.6	14.1
77	340 mRL N-25 / 340 mRL N-50	-180.978	35.199	342.482	1057.594	1057.446	2.3	1.3	0.4	1.9	6.1	2.8	14.8
78	310 mRL N-25	-109.023	26.901	313.113	985.164	984.945	4.5	1.9	0.7	2.7	8.8	3.3	21.9
79	390 mRL N-25	-248.582	22.06	392.337	1123.324	1123.191	1.7	1.8	0.4	-	7.1	2.3	13.3
80	100 mRL N-20	168.671	19.624	102.066	501.545	501.207	3.0	3.3	2.1	4.1	14.9	6.4	33.8
81	220 mRL NS-00	-0.867	2.157	221.699	874.886	874.647	4.7	2.4	0.7	3.0	9.5	3.6	23.9
82	366 mRL NS-00	-213.000	0.732	367.808	1085.901	1085.763	1.8	1.3	0.7	1.7	5.7	2.6	13.8
83	390 mRL NS-0	-246.914	0.462	391.805	1119.672	1119.672	1.8	1.3	0.7	1.6	5.6	-	-
84	290 mRL NS-0	-83.625	-0.805	291.299	956.916	956.694	4.2	2.1	0.7	2.8	9.0	3.4	22.2
85	260 mRL NS-00	-48.545	-1.805	262.882	921.904	921.668	4.6	2.5	0.6	2.8	9.4	3.7	23.6
86	390 mRL S-25	-244.977	-24.597	391.213	1115.946	1115.814	2.1	1.1	0.7	1.7	5.4	2.2	13.2
87	180 mRL S-25	49.098	-32.037	182.438	822.026	821.784	3.9	2.6	1.3	2.7	10.0	3.7	24.2
88	160 mRL S-50	104.093	-39.808	162.031	766.619	766.372	4.5	2.8	0.5	3.1	9.7	4.1	24.7
89	30 mRL S-45	266.075	-46.575	32.755	423.467	423.169	-	1.3	-0.1	2.8	21.0	4.8	29.8
90	366 mRL S-50	-204.765	-51.084	366.397	1074.474	1074.127	11.8	2.0	0.8	3.7	13.6	2.8	34.7
91	390 mRL S-50 / 390 mRL S-53	-544.621	-53.280	391.493	1114.223	1114.093	1.9	0.8	1.0	1.6	5.4	2.3	13.0
92	100 mRL S-75 / 100 mRL S-100.9	177.587	-61.633	101.063	511.970	511.659	3.9	3.2	1.6	3.3	14.2	4.9	31.1
93	180 mRL S-75	53.115	-70.918	182.928	816.086	815.848	4.3	2.5	0.6	3.2	9.4	3.8	23.8
94	390 mRL S-75 / 390 mRL S-99	-239.677	-77.660	390.486	1108.696	1108.518	4.5	1.2	0.7	2.3	6.8	2.3	17.8

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SI No	Monitoring Station ID	Initial Coordinates as on 18.06.2024			Horizontal Distance (H) in m as on 18.06.2024	Horizontal Distance (H) in m as on 25.02.2026	Change in horizontal distance (i.e. ΔH) in cm							
		X	Y	Z			18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 25.02.26	25.02.26 to 18.06.24	
95	220 mRL S-100	8 878	-99 225	222 586	860 076	859 845	3 7	-	3 3	2 9	-	-	-	23 1
96	260 mRL S-100	-38 051	-99 359	262 074	907 005	906 787	3 9	2 5	0 5	2 6	9 0	3 3	21 8	-
97	390 mRL S-100	-237 744	-99 679	390 877	1106 694	-	4 2	1 4	0 6	-	-	0 0	-	-
98	330 mRL S-100	-152 008	-101 025	331 742	1020 972	1020 776	0 0	6 0	-	3 1	7 7	2 8	19 6	-
99	366 mRL S-100	-201 700	-101 251	367 874	1070 664	1070 434	5 9	1 6	0 9	2 8	8 9	2 9	23 0	-
100	290 mRL S-100	-72 999	-102 927	291 922	941 986	941 773	4 3	2 2	0 5	2 6	8 5	3 2	21 3	-
101	170 mRL S-100	100 061	-113 625	173 087	769 165	768 929	3 8	2 5	0 2	3 5	9 2	4 4	23 6	-
102	390 mRL S-125	-234 173	-124 581	390 467	453 921	1103 400	3 9	1 5	0 7	1 9	7 2	2 4	17 6	-
103	30 mRL S-150	282 983	-148 57	32 233	453 921	453 778	-	Initial	-0 2	2 9	8 1	3 5	14 3	-
104	366 mRL S-150	-200 906	-150 872	366 908	1071 444	1071 248	4 5	1 9	0 4	2 4	7 8	2 6	19 6	-
105	80 mRL S-156	203 251	-156 536	82 411	526 39	526 146	2 6	2 9	0 7	2 9	10 9	4 4	24 4	-
106	100 mRL S-161	181 656	-161 173	101 749	547 573	547 317	2 6	2 8	1 6	3 0	10 1	5 5	25 6	-
107	390 mRL S-175	-236 394	-173 46	391 060	1108 308	-	3 4	1 4	0 8	-	8 7	-	-	-
108	70 mRL S-175 / 70 mRL S-184 48	215 918	-184 429	70 283	529 664	529 450	2 6	2 1	0 5	2 8	9 6	3 8	21 4	-
109	340 HW S-196	707 549	-196 31	341 003	192 0997	192 051	Initial	0 0	0 7	1 4	2 2	1 3	4 9	-
110	220 mRL S-200	7 783	-199 206	223 179	867 776	867 563	3 5	2 6	0 6	2 6	8 6	3 4	21 3	-
111	390 mRL S-200	-236 901	-199 619	391 973	1111 039	1110 872	2 9	0 7	1 8	1 6	7 4	2 3	16 7	-
112	366 mRL S-200	-203 400	-200 023	367 375	1077 741	1077 585	3 3	1 5	0 3	1 9	6 3	2 3	15 6	-
113	260 mRL S-200	-39 650	-200 721	261 413	915 044	914 843	3 8	2 1	0 2	2 8	8 1	3 1	20 1	-
114	330 mRL S-200	-154 331	-203 137	332 177	1029 261	1029 085	3 8	1 5	0 4	2 4	6 9	2 6	17 6	-
115	390 mRL S-225	-238 214	-226 200	391 654	1115 229	1115 097	2 6	0 8	0 6	1 6	5 5	2 1	13 2	-
116	80 mRL S-242	201 537	-242 537	81 102	574 305	574 119	1 5	2 9	0 8	1 8	8 5	3 1	18 6	-
117	390 mRL S-250	-237 159	-244 339	390 738	1116 510	1116 375	2 8	1 0	0 5	1 7	5 4	2 1	13 5	-
118	160 mRL S-250 / 160 mRL S-246	107 992	-245 976	162 457	653 809	653 593	3 0	3 0	0 1	15 5	-	-	21 6	-
119	160 mRL S-246 / 160 mRL S-250	107 992	-245 976	162 457	653 809	653 593	2 4	2 5	1 2	2 3	9 7	3 5	21 6	-
120	366 mRL S-250	-204 689	-249 954	366 964	1085 154	1085 014	2 8	1 2	0 5	1 5	5 8	2 2	14 0	-
121	70 mRL S-250 / 70 mRL S-254 01	213 331	-253 955	72 106	571 804	571 632	1 6	2 2	0 7	2 4	7 3	3 0	17 2	-
122	340 HW S-254	709 924	-254 04	340 468	226 948	226 832	Initial	0 8	0 7	1 4	5 6	3 1	11 6	-
123	340 HW S-273	705 461	-273 61	340 203	244 264	244 129	Initial	1 1	0 6	1 7	6 5	3 6	13 5	-
124	340 HW S-280	731 887	-280 91	341 239	233 301	233 128	Initial	1 5	0 8	2 2	8 5	4 3	17 3	-
125	70 mRL S-300 / 70 mRL S-292 81	214 968	-292 754	72 166	595 226	595 080	1 2	2 1	0 5	1 8	6 7	2 3	14 6	-
126	180 mRL S-300	85 152	-298 292	182 193	810 438	-	3 0	2 6	0 0	2 7	-	-	-	-

SI No	Monitoring Station ID	Initial Coordinates as on 18.06.2024			Horizontal Distance (H) in m as on 18.06.2024	Horizontal Distance (H) in m as on 25.02.2026	Change in horizontal distances (i.e. All in cm)							
		X	Y	Z			18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 18.06.24	18.06.24 to 25.02.26	
127	220 mRL S-300	7.755	-299.670	222.181	885.829	885.650	3.1	2.0	0.6	2.1	7.6	2.5	17.9	
128	260 mRL S-300	-39.533	-301.060	264.033	932.177	932.004	3.2	2.0	0.3	2.2	7.1	2.5	17.1	
129	330 mRL S-300	-153.298	-302.322	331.409	1043.613	1043.463	3.3	1.4	0.3	1.9	5.8	2.3	15.0	
130	390 mRL S-300	-235.555	-303.231	390.097	1124.476	1124.345	3.2	0.8	0.4	1.8	5.0	1.9	13.1	
131	170 mRL S-300	97.986	-303.948	171.560	799.512	799.332	2.7	1.8	0.9	2.2	7.3	3.1	18.0	
132	100 mRL S-317	179.360	-317.524	103.006	638.365	638.227	0.9	1.8	0.6	1.5	6.8	2.2	13.8	
133	190 mRL S-325	74.443	-328.282	192.9	828.841	828.666	2.5	2.7	-0.3	2.6	6.9	3.1	17.5	
134	160 mRL S-330	110.596	-330.314	161.122	699.778	699.622	1.4	2.0	0.7	2.1	7.0	2.4	15.6	
135	80 mRL S-333	204.310	-333.066	83.522	630.158	630.020	0.5	1.9	0.1	2.4	4.9	4.0	13.8	
136	70 mRL S-350/70 mRL S-356.50	216.707	-356.448	72.798	637.615	637.515	1.1	1.2	0.5	0.8	5.1	1.3	10.0	
137	190 mRL S-375 / 190 mRL S-350	75.414	-363.789	193.585	838.730	838.570	2.2	2.3	0.3	2.3	6.0	2.9	16.0	
138	390 mRL S-375	-244.639	-378.655	389.647	1149.839	1149.723	2.5	0.8	0.4	1.7	4.6	1.6	11.6	
139	160 mRL S-380	110.367	-380.479	162.700	731.725	731.606	1.0	1.8	0.7	1.2	5.3	1.9	11.9	
140	390 mRL S-400	-249.078	-401.658	389.235	1160.064	1159.962	2.0	0.8	0.4	1.4	4.0	1.6	10.2	
141	330 mRL S-400	-162.981	-401.670	332.555	1077.337	1077.209	3.1	1.0	0.2	1.7	6.8	1.6	12.8	
142	170 mRL S-401	96.786	-401.796	173.305	755.972	755.867	1.2	1.2	0.5	1.2	4.9	1.5	10.5	
143	260 mRL S-400	-48.447	-403.516	262.143	968.784	968.648	2.5	1.5	0.2	2.0	5.4	2.0	13.6	
144	100 mRL S-410	177.748	-410.527	104.364	703.557	703.476	-0.7	2.1	0.1	1.7	3.4	1.5	8.1	
145	180 mRL S-425	80.988	-419.057	183.049	853.075	852.939	2.1	1.9	0.3	1.8	5.3	2.2	13.6	
146	160 mRL S-425	106.840	-425.226	162.835	764.211	764.211	1.2	0.3	0.6	1.2	4.1	1.4	8.8	
147	390 mRL S-425	-251.776	-425.521	388.757	1169.244	1169.145	2.1	0.9	0.2	1.5	3.6	1.6	9.9	
148	390 mRL S-450	-252.486	-449.727	388.801	1177.051	1176.961	1.9	0.6	1.4	0.3	3.4	1.4	9.0	
149	390 mRL S-475	-251.751	-474.247	388.184	1184.035	1183.953	1.8	0.6	0.2	1.3	3.1	1.2	8.2	
150	170 mRL S-487	94.300	-487.259	172.334	816.720	816.668	0.7	0.5	0.2	0.8	2.2	0.8	5.2	
151	390 mRL S-500	-251.004	-493.667	387.628	1189.742	1189.665	1.6	0.6	0.3	1.1	3.0	1.1	7.7	
152	330 mRL S-500	-171.144	-505.027	332.794	1119.036	1118.951	2	0.9	-0.2	1.3	3.3	1.2	8.5	
153	100 mRL S-510	178.251	-510.470	103.167	778.535	778.521	-	-0.1	0.0	-	1.2	0.3	1.4	
154	390 mRL S-525	-248.350	-520.945	386.848	1196.745	1196.677	-	2.2	-0.2	1.3	2.5	1.0	6.8	
155	390 mRL S-550	-247.514	-548.372	386.765	1206.071	1206.019	0.8	0.3	0.2	1.2	1.7	1.0	5.2	
156	390 mRL S-575	-245.014	-571.579	387.009	1212.743	1212.686	0.8	0.5	0.4	1.1	1.9	1.0	5.7	
157	270 mRL S-575	-87.348	-571.819	273.224	1069.848	1069.725	-	-	-	6.2	6.1	12.3		
158	390 mRL S-600	-236.415	-598.302	387.379	1215.731	1215.694	0.8	0.4	0.0	0.9	1.0	0.6	3.7	

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SI No	Monitoring Station ID	Initial Coordinates as on 18.06.2024			Horizontal Distance (H) in m as on 18.06.2024	Horizontal Distance (H) in m as on 25.02.2026	Change in horizontal distance (i.e. All in cm)											
		X	Y	Z			18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 18.06.24	18.06.24 to 25.02.26	25.02.26 to 18.06.24				
159	330 mRLS Zone S-600	-151 872	-602 374	332 997	1141 224	966 057	1141 179	966 022	10	0.7	-0.4	1.1	1.5	0.6	4.5			
160	220 mRLS Zone S-610	54 675	-611 981	222 872	968 282	968 250	968 250	968 250	0.6	0.5	0.0	0.7	0.7	0.9	3.5			
161	220 mRLS Zone S-620	-224 992	-628 085	386 966	1218 162	1218 137	1218 137	1218 137	0.6	0.2	0.0	0.8	0.7	0.7	3.2			
163	390 mRLS Zone S-625	-215 243	-659 292	386 557	1223 565	1223 552	1223 552	1223 552	0.2	0.3	-0.2	0.6	0.4	0.6	2.5			
164	280 mRLS Zone S-685 / S-683	-60 835	-683 211	281 268	1101 749	1101 736	1101 736	1101 736	0.1	0.5	-0.4	0.9	0.0	0.6	1.3			
165	230 mRLS Zone S-685	70 891	-684 212	232 518	993 700	993 693	993 693	993 693	-	0.7	-	0.7	0.0	0.2	1.3			
166	300 mRLS Zone S-700 / S-696	-81 869	-696 354	300 847	1126 550	1126 546	1126 546	1126 546	0.1	0.1	0.0	0.5	-0.8	0.1	0.7			
167	230 mRLS Zone S-700	84 385	-699 912	232 880	992 433	992 435	992 435	992 435	0.2	0.3	-0.6	0.4	-0.3	0.0	0.4			
168	275 mRLS Zone S-710 / 275 mRLS Zone S-725	-27 577	-710 107	275 355	1088 867	1088 869	1088 869	1088 869	-0.2	0.2	-0.1	0.6	-0.8	0.3	-0.2			
169	330 mRLS Zone S-775 / 330 mRLS Zone S-763	-90 326	-762 937	332 308	1170 541	1170 557	1170 557	1170 557	-0.1	0.0	-0.2	0.3	-1.4	-0.2	-0.2			
170	350 mRLS Zone S-765	-123 614	-764 253	347 540	1198 710	1198 723	1198 723	1198 723	-0.2	0.0	-0.1	0.3	-1.2	-0.1	-1.6			
171	280 mRLS Zone S-775 / 280 mRLS Zone S-767	-0 129	-767 185	283 560	1100 444	1100 462	1100 462	1100 462	-0.3	0.3	-0.2	0.3	-1.6	-0.3	-1.3			
172	350 mRLS Zone S-775 / 350 mRLS Zone S-770	-131 739	-771 309	351 256	1209 395	1209 407	1209 407	1209 407	0.3	-0.2	-0.3	0.5	-1.2	-0.3	-1.8			
173	360 mRLS Zone S-775	-147 623	-777 958	361 158	1226 276	1226 283	1226 283	1226 283	-	0.0	-	-	-0.4	-0.3	-1.2			
174	386 mRLS Zone S-779 / 386 mRLS Zone S-780	-186 207	-779 075	386 707	1259 055	1259 055	1259 055	1259 055	0.1	-0.3	-0.7	0.6	-	-0.4	-0.7			
175	386 mRLS Zone S-775 / 386 mRLS Zone S-780	-186 205	-779 078	386 732	1259 055	1259 055	1259 055	1259 055	0.1	-0.4	-0.6	0.6	-	-	-			
176	340 mRLS Zone S-790 / 340 mRLS Zone S-786	-98 298	-786 593	344 399	1190 723	1190 748	1190 748	1190 748	-0.4	-0.2	-0.1	0.4	-1.8	-0.4	-2.5			
177	330 mRLS Zone S-800 / 330 mRLS Zone S-798	-55 298	-797 832	328 084	1162 853	1162 890	1162 890	1162 890	-0.6	-0.1	-0.4	0.3	-2.4	-0.5	-3.7			
178	350 mRLS Zone S-800S Zone S-805	-106 031	-803 315	347 610	1206 793	1206 818	1206 818	1206 818	-	-0.4	0.2	-	-1.9	-0.4	-2.5			
179	350 mRLS Zone S-810 / 350 mRLS Zone S-809	-118 112	-809 850	353 106	1220 405	1220 438	1220 438	1220 438	-0.4	-0.3	-0.2	0.1	-2.0	-0.5	-3.3			

Stn No	Monitoring Station ID	Initial Coordinates as on 18/06/2024			Horizontal Distance (H) in m as on 18/06/2024	Horizontal Distance (H) in m as on 25/02/2026	Change in horizontal distance (i.e. MI) in cm							
		X	Y	Z			18/06/24 to 12/09/24	12/09/24 to 07/01/25	07/01/25 to 22/04/25	22/04/25 to 07/07/25	07/07/25 to 10/12/25	10/12/25 to 25/02/26	25/02/26 to 18/06/24	
180	360 mRLS Zone S-810	-137 895	-810 252	361 994	1236 693	1236 720	-0.2	-0.2	-0.4	0.5	-	-2.2	-0.5	2.7
181	367 mRLS Zone S-825	-143 599	-820 765	367 748	1247 453	1247 482	-0.2	-0.2	-0.4	0.5	-	-2.1	-0.5	-2.9
182	385 mRLS Zone S-825, 385 mRLS Zone S-827	-174 882	-827 067	383 432	1276 593	1276 630	-0.3	-0.5	-0.3	0.5	-	-2.4	-0.7	-1.7
183	383 mRLS Zone S-825 / 383 mRLS Zone S-827	-174 838	-827 131	383 408	1276 594	1276 628	-0.2	-0.5	-0.3	0.5	-	-2.3	-0.6	3.1
184	320 mRL S-840	-6466	-846482	321 726	1155 588	1155 655	-0.9	-0.4	-0.7	-	-	-3.7	-1.0	-6.7
185	385 mRLS Zone S-850 / 385 mRLS Zone S-860	-139 75	-858 191	386 283	1266 61	1266 674	-0.4	-0.5	-0.9	0.2	-	-3.5	-1.3	-6.4
186	360 mRL S-875 / 360 mRL S-865	-68 499	-868 433	361 768	1217 143	1217 219	-1.0	-0.6	-0.7	-0.1	-	-4.0	-1.2	-7.6
187	320 mRL S-885	51 443	-885 816	321 626	1139 404	1139 511	-1.4	-0.9	-0.9	-0.4	-	-5.4	-1.7	-10.7
188	320 mRL S-890	198 006	-893 95	323 661	1045 502	1045 664	-2	-10	-1.9	8.3	-	-7.8	-2.8	-16.2
189	320 mRL S-905	121 064	-905 31	322 514	1104 801	1104 939	-1.9	-1.2	-1.2	-0.6	-	-6.7	-2.2	-13.8
190	360 mRL S-950 / 360 mRL S-920	-0 116	-920 658	361 785	1200 716	1200 830	-1.5	-1.0	-0.9	-0.5	-	-5.7	-1.8	-11.4
191	360 mRL S-940	161 256	-940 522	363 059	1104 805	-	-1.6	-1.4	-1.5	-	-	-	-	-
192	360 mRL S-950 / 360 mRL S-945	102 487	-946 652	362 219	1147 896	1148 054	-2.2	-1.1	-1.4	-0.9	-	-7.6	-2.6	-15.8
193	S Zone S-575/270 mRL S-575	-87 348	-571 819	273 224	1069 848	-	-	0.6	1.8	-	-	8.4	-	-
194	340 HW S-243	NV	NV	NV	NV	-	-	-	-	-	-	-	-	-

Annexure-2: Measurement of coordinates and calculation of horizontal displacement of monitoring stations installed in hangwall side

Sl No.	Monitoring Station ID	Initial Coordinates as on 18.06.2024			Horizontal Distance (H) in m as on 18.06.2024	Horizontal Distance (H) in m as on 23.02.2026	Change in horizontal distance (i.e. ΔH) in cm)								
		X	Y	Z			18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 25.02.26			
1	380 mRL N-974	124.731	974.23	382.540	1052.503	-	0.2	0.1	0.5	0.1	0.4	-	-	-	-
2	380 mRL N-967	33.332	967.301	382.607	1016.457	1016.450	0.4	-0.2	0.1	0.4	0.0	0.0	0.0	0.0	0.7
3	380 mRL N-944	232.769	944.218	381.478	1069.306	1069.288	0.4	0.0	0.3	0.4	0.5	0.2	0.2	1.8	-
4	360 mRL N-925	212.248	927.351	362.654	1044.990	-	0.4	-	-	-	-	-	-	-	-
5	330 mRL N-925 / 330 mRL N-920	130.878	920.240	332.336	1004.677	1004.662	0.0	0.1	0.9	0.0	0.0	0.5	0.0	1.5	-
6	380 mRL N-910	330.586	909.223	381.945	1087.649	1087.613	1.0	-	-	1.2	1.0	0.4	0.4	3.6	-
7	330 mRL N-900 / 330 mRL S-850	182.602	905.140	332.568	1012.008	1011.988	0.0	-0.1	-	1.5	0.5	0.1	0.1	2.0	-
8	350 mRL N-875	297.779	885.218	352.330	1049.865	1049.836	0.7	0.2	0.5	0.4	0.8	0.3	0.3	2.9	-
9	360 mRL N-875	349.941	873.131	362.368	1068.245	1068.215	0.8	-0.1	-	1.2	1.5	0.8	0.3	3.0	-
10	380 mRL N-855	420.969	856.583	383.587	1096.917	1096.858	1.8	0.4	0.4	1.2	1.5	0.6	0.5	5.9	-
11	370 mRL N-855 / 370 mRL N-850	393.981	855.141	371.771	1079.348	1079.296	0	0.4	1.9	0.8	1.6	0.5	5.2	-	-
12	290 mRL N-850	233.051	846.989	292.521	983.911	983.879	0.9	0.3	0.8	-0.1	1.2	0.1	3.2	-	-
13	360 mRL N-850	387.968	846.132	362.724	1068.534	-	1.3	-	-	-	-	-	-	-	-
14	370 mRL N-830 / 370 mRL N-825	425.483	831.572	371.204	1080.164	1080.103	0.0	0.6	2.1	0.8	2.0	0.6	6.1	-	-
15	270 mRL N-825	230.22	822.482	272.498	961.273	961.239	0.7	-	1.1	-	1.4	0.2	3.4	-	-
16	360 mRL N-800	422.884	814.528	363.274	1065.323	-	2.0	-	-	-	-	-	-	-	-
17	380 mRL N-790	493.281	790.686	382.404	1093.916	1093.769	4.4	1.4	1.2	1.0	5.3	1.4	14.7	-	-
18	350 mRL N-780 / 350 mRL N-775	438.318	780.800	351.938	1049.647	1049.499	0.0	1.2	7.5	10.1	3.7	1.0	14.8	-	-
19	360 mRL N-775	468.495	767.972	362.463	1060.398	-	13.4	-	-	-	-	-	-	-	-
20	370 mRL N-760	498.672	758.170	371.213	1074.197	-	-	-	-	-	-	-	-	-	-
21	370 mRL N-755	497.942	755.293	368.444	1071.634	-	-	-	-	-	-	-	-	-	-
22	380 mRL N-750	524.068	750.379	380.788	1086.717	1086.613	-	0.8	-	-	-	-	-	-	-
23	260 mRL N-750	281.235	750.311	264.551	928.195	928.144	1.2	0.8	0.6	0.4	1.8	0.3	5.1	-	-
24	290 mRL N-750	388.651	748.086	291.052	992.408	-	3.5	-	-	2.3	-	-	-	-	-
25	360 mRL N-725	507.323	726.371	361.178	1057.984	-	27.3	1.0	0.4	-	-	-	-	-	-
26	260 mRL N-725	308.497	720.927	262.581	920.785	920.723	1.3	0.9	1.4	-0.1	2.2	0.5	6.2	-	-
27	390 mRL N-720	674.238	720.637	389.667	1180.349	1180.249	1.6	1.4	1.2	0.8	3.7	1.3	10.0	-	-
28	370 mRL N-725	538.753	720.33	371.917	1076.752	1076.564	5.7	2.5	2.1	7.0	1.5	18.8	-	-	-
29	352 mRL N-716	504.834	716.961	352.956	1049.673	-	-	1.6	-	-	-	-	-	-	-
30	380 mRL N-715	535.881	716.396	379.972	1086.812	1086.647	3.9	1.6	1.3	1.6	6.4	1.7	16.5	-	-

Sl. No	Monitoring Station ID	Initial Coordinates as on 18.06.2024			Horizontal Distance (H) in m as on 18.06.2024	Horizontal Distance (H) in m as on 25.02.2026	Change in horizontal distance (i.e. All in cm)						18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 25.02.26	18.06.24 to 25.02.26
		X	Y	Z			18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 25.02.26							
31	380 mRL N-705	565.001	706.344	380.105	1087.005	-	-	-	-	-	-	3.9	-	-	-	-	-	-	-
32	350 mRL N-700	516.938	700.610	350.936	1047.346	-	-	-	-	-	-	4.4	1.6	1.2	1.9	6.6	1.6	-	-
33	360 mRL N-700	541.662	694.377	361.672	1061.563	-	-	-	-	-	-	2.1	0.8	0.7	1.0	3.2	0.7	8.5	17.3
34	270 mRL N-675	366.427	688.764	272.316	933.083	-	-	-	-	-	-	2.2	1.5	1.4	1.4	5.7	1.4	13.6	8.5
35	360 mRL N-650	606.587	665.579	362.52	1093.141	-	-	-	-	-	-	2.4	3.2	-	1.6	6.6	1.8	15.6	13.6
36	360 mRL N-625	661.483	632.331	362.613	1117.538	-	-	-	-	-	-	0.0	1.4	4.3	1.5	6.2	2.0	15.4	15.6
37	380 mRL N-630 / 390 mRL N-630	739.719	628.21	387.821	1180.308	-	-	-	-	-	-	5.5	1.1	6.8	6.3	1.5	15.7	15.7	15.7
38	280 mRL N-612/280 mRL N-625	443.637	612.766	283.145	934.070	-	-	-	-	-	-	4.1	1.4	0.8	1.9	6.3	1.2	15.7	15.7
39	280 mRL N-625	443.711	612.687	283.16	934.072	-	-	-	-	-	-	3.3	2.2	2.2	2.3	10.1	2.9	23.0	23.0
40	360 mRL N-575	691.856	571.744	361.998	1109.783	-	-	-	-	-	-	5.1	1.9	1.7	2.4	10.2	3.0	24.3	24.3
41	310 mRL N-575	599.298	570.302	312.205	1031.155	-	-	-	-	-	-	0.0	1.1	14.5	2.5	10.8	2.2	31.1	31.1
42	280 mRL N-566 / 280 mRL N-565	477.939	566.782	280.216	930.940	-	-	-	-	-	-	8.7	4.1	-0.1	2.2	10.7	2.1	27.7	27.7
43	280 mRL N-575	477.93	566.767	280.088	930.923	-	-	-	-	-	-	4.7	3.0	3.0	2.9	15.2	5.1	33.9	33.9
44	340 mRL N-525	690.858	517.961	341.284	1081.813	-	-	-	-	-	-	15.0	4.7	3.6	7.6	33.7	11.6	76.2	76.2
45	280 mRL N-525	516.675	517.291	282.226	933.020	-	-	-	-	-	-	0.0	2.4	8.6	3.2	15.2	5.0	34.4	34.4
46	310 mRL N-500 / 310mRL N-505	642.317	503.96	312.031	1032.644	-	-	-	-	-	-	3.3	2.1	2.5	2.0	9.9	3.2	23.0	23.0
47	380 mRL N-495	785.321	494.987	381.008	1155.113	-	-	-	-	-	-	14.4	4.7	3.7	7.7	33.9	12.0	76.4	76.4
48	280 mRL N-475	543.972	489.657	281.709	940.824	-	-	-	-	-	-	5.3	2.8	3.0	3.3	16.1	6.0	36.5	36.5
49	340 mRL N-450	721.892	446.466	341.342	1077.014	-	-	-	-	-	-	13	4.5	3.8	7.0	31.9	11.6	71.8	71.8
50	290 mRL N-425	579.941	436.863	291.420	945.622	-	-	-	-	-	-	9.5	3.7	4.1	5.3	27.1	11.2	60.9	60.9
51	310 mRL N-425	671.545	424.027	311.814	1021.899	-	-	-	-	-	-	11.7	4.4	3.9	6.7	-	-	-	-
52	290 mRL N-400	579.612	402.949	290.980	929.873	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53	380 mRL N-390	808.173	391.949	380.965	1135.526	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54	290 mRL N-375	600.952	382.203	291.020	940.283	-	-	-	-	-	-	0.0	4.4	14.9	6.5	34.0	34.0	34.0	34.0
55	350 mRL N-375	773.758	374.030	351.740	1097.017	-	-	-	-	-	-	4.8	2.8	3.0	3.3	15.7	6.1	67.3	67.3
56	130 mRL N-375/30 mRL N-362	323.015	361.908	131.137	512.194	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57	300 mRL N-350	620.449	349.812	300.631	945.350	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58	310 mRL N-325	693.52	325.354	311.112	1005.016	-	-	-	-	-	-	10.6	8.3	6.4	6.4	29.6	11.6	66.5	66.5
59	350 mRL N-310	791.998	309.229	352.601	1093.644	-	-	-	-	-	-	10.4	4.4	4.2	6.2	30.0	12.1	67.3	67.3
60	130 mRL N-300	371.055	295.583	132.971	530.512	-	-	-	-	-	-	10.0	4.6	4.4	5.9	30.2	12.4	67.5	67.5
61	380 mRL N-290	830.899	292.941	378.786	1126.481	-	-	-	-	-	-	8.8	4.5	2.1	5.4	18.5	7.0	45.4	45.4
						-	-	-	-	-	-	8.8	4.5	4.5	5.6	28.1	11.6	63.1	63.1

Sl No	Monitoring Station ID	Initial Coordinates as on 18.06.2024			Horizontal Distance (H) in m as on 18.06.2024	Horizontal Distance (H) in m as on 25.02.2026	Change in horizontal distance (i.e. AH) in cm							
		X	Y	Z			18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 25.02.26	18.06.24 to 10.12.25	10.12.25 to 25.02.26
62	300 mRL N-300	639.758	290.089	300.883	942.737	942.083	-	14.8	3.8	6.1	6.1	29.0	11.7	65.4
63	70 mRL N-250	321.954	254.290	73.050	471.373	470.899	10.7	2.8	2.3	5.1	5.1	19.6	6.9	47.4
64	310 mRL N-250	648.86	239.291	310.867	936.733	936.078	10.0	4.5	4.0	6.0	6.0	29.1	11.9	65.5
65	80 mRL N-225	345.785	231.096	81.644	488.843	488.335	11.3	2.8	2.3	5.8	5.8	20.7	7.9	50.8
66	350 mRL N-265	812.775	226.528	352.934	1092.906	1092.250	9.4	4.7	4.5	5.7	5.7	29.2	12.1	65.6
-67	130 mRL N-225	423.919	222.360	132.284	563.844	563.231	0.0	3.2	15.8	6.3	6.3	36.0	-	61.3
68	130 mRL N-225	423.99	222.227	132.330	716.588	715.994	10.8	3.5	-	-	-	-	-	59.4
69	310 mRL N-200	656.006	191.692	309.975	932.314	931.655	9.4	4.7	4.2	6.0	6.0	29.2	12.4	65.9
70	50 mRL N-175	351.285	178.744	52.076	485.789	485.195	12.8	3.6	2.8	6.6	6.6	23.7	9.9	59.4
71	30 mRL N-175	340.974	162.603	31.475	474.022	473.488	-	14.9	-	8.8	8.8	21.8	7.9	53.4
72	130 mRL N-150 / 130 mRL N-125	460.768	139.140	132.002	730.420	729.757	10.5	4.9	4.0	6.6	6.6	28.6	11.7	66.3
73	320 mRL N-150	665.859	136.911	320.748	931.899	931.226	9.1	4.9	4.4	6.1	6.1	29.9	12.9	67.3
74	70 mRL N-100	409.442	104.443	72.971	541.509	540.655	13.7	6.4	5.2	8.9	8.9	35.9	15.3	85.4
75	180 mRL N-100	538.021	100.041	182.677	800.065	799.370	6.1	3.9	2.1	4.7	4.7	52.7	-	69.5
76	320 mRL N-100	665.342	90.572	319.616	925.338	924.680	8.6	5.0	4.4	5.9	5.9	29.3	12.6	65.8
77	50 mRL N-75	391.342	74.769	52.224	525.485	524.616	13.8	6.7	5.9	8.4	8.4	35.8	16.3	86.9
78	130 mRL N-50 / 130 mRL N-75	464.006	66.006	130.478	722.539	721.917	8.9	5.1	4.2	6.2	6.2	26.5	11.3	62.2
79	200 mRL N-50	558.926	42.355	201.773	815.237	814.609	5.9	3.4	2.5	4.1	4.1	18.1	28.8	62.8
80	180 mRL N-50	540.13	35.402	181.467	796.293	795.082	6.2	3.1	2.6	3.1	3.1	15.9	30.2	61.1
81	250 mRL N-25	605.081	30.260	252.504	860.697	860.049	7.3	3.9	2.8	4.4	4.4	46.4	-	64.8
82	310 mRL N-00 / 310 mRL N-2	657.513	2.278	311.006	912.352	911.758	7.9	4.7	4.1	5.3	5.3	26.5	10.9	59.4
83	160 mRL S-25 / 165 mRL S-13	505.223	-13.354	167.097	760.034	-	4.4	3.0	1.8	3.1	3.1	13.7	-	-
84	130 mRL S-25	462.054	-21.245	131.166	716.974	716.226	6.1	4.3	2.2	4.8	4.8	19.8	37.6	74.8
85	30 mRL S-25 / 30 mRL S-30	369.479	-31.234	31.155	525.215	524.383	13.1	5.9	5.9	9.2	9.2	34.5	14.6	83.2
86	50 mRL S-25	388.451	-31.364	52.508	543.384	542.629	-	23.1	-	8.0	8.0	31.7	12.7	75.5
87	180 mRL S-50	535.569	-47.499	182.077	791.370	790.757	5.4	3.4	2.2	3.4	3.4	16.3	30.6	61.3
88	380 mRL S-50	858.712	-48.486	383.192	1114.255	1113.613	7.8	5.3	4.8	5.9	5.9	28.5	11.9	64.2
89	160 mRL S-50	488.441	-48.573	162.307	744.365	743.756	5.2	3.3	2.6	3.7	3.7	14.9	33.2	62.9
90	200 mRL S-50.5 / 200 mRL S-56	553.79	-56.464	202.177	810.061	809.442	5.8	3.5	2.3	3.8	3.8	46.5	-	61.9
91	200 mRL S-50	553.792	-56.467	202.184	810.064	809.446	6.2	3.3	2.5	3.5	3.5	46.3	-	61.8
92	190 mRL S-75	541.991	-73.190	192.304	799.485	798.858	5.2	3.5	2.1	3.4	3.4	16.9	31.6	62.7

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		X	Y	Z			18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 25.02.26	25.02.26 to 18.06.24			
93	360 mL S-95 / 360 mL S-94	841.036	-94.898	361.865	1099.306	1098.659	7.1	5.2	4.9	6.0	28.3	12.6	64.7			
94	200 mL S-100	548.744	-96.828	201.420	808.486	807.894	5.1	3.6	2.7	3.3	17.1	27.4	59.2			
95	30 mL S-100	361.528	-99.844	31.678	542.433	541.655	12.5	5.9	5.3	9.1	32.1	12.9	77.8			
96	260 mL S-100	601.827	-104.984	262.106	862.148	861.500	6.7	4.8	3.2	4.8	22.7	22.6	64.8			
97	50 mL S-100	380.175	-106.527	51.660	562.172	561.547	9.2	5.1	4.5	6.6	26.0	11.1	62.5			
98	130 mL S-125	451.918	-118.907	131.435	715.438	714.771	8.3	6.1	5.2	7.2	28.7	11.2	66.7			
99	300 mL S-125 / 300mRL S-122	642.653	-122.283	301.752	904.756	904.163	7.5	5.3	4.2	5.3	25.8	11.2	59.3			
100	180 mL S-125	527.964	-123.323	182.407	791.279	790.744	4.7	3.0	1.8	2.9	14.3	26.8	53.5			
101	70 mL S-125	396.303	-124.133	71.180	584.222	583.752	Initial	4.5	0.7	6.5	23.4	11.9	47.0			
102	340 mL S-125	698.034	-129.825	332.095	960.628	960.179	Initial	4.9	-0.8	5.2	23.0	10.6	44.9			
103	160 mL S-150	476.908	-141.139	161.916	743.806	743.256	5.1	3.4	2.0	3.0	12.4	29.1	55.0			
104	190 mL S-150	533.635	-148.959	193.102	801.019	800.488	5.1	3.4	2.2	3.3	14.7	24.4	53.1			
105	200 mL S-175 / 200 mL S-150	541.379	-165.186	201.935	811.638	811.067	5.1	3.2	2.5	3.0	15.4	27.9	57.1			
106	180 mL S-175 / 185mRL S-170	500.839	-170.144	184.497	772.940	-	4.5	3.4	2.1	2.9	14.1	-	-			
107	250 mL S-175	584.025	-173.783	252.388	855.142	854.541	6.1	4.3	3.2	4.1	19.9	22.5	60.1			
108	380 mL S-175	861.109	-176.428	380.355	1128.616	1127.993	7.1	5.1	5.0	5.7	27.2	12.2	62.3			
109	340 mL S-210 / 340 mL S-200	694.106	-211.405	341.842	970.562	969.930	7.6	5.3	5.0	6.0	27.2	12.1	63.2			
110	190 mL S-225	524.406	-228.413	192.484	809.914	809.544	5.0	3.6	2.7	3.6	15.8	6.3	37.0			
111	160 mL S-225	466.710	-231.983	161.748	755.624	-	4.6	3.4	-	5.7	-	-	-			
112	290 mL S-250 / 290mRL S-245	614.514	-245.468	289.353	901.294	900.792	5.9	4.5	3.8	4.5	21.8	9.7	50.2			
113	340 mL S-250 / 340 mL S-248	693.788	-247.993	341.980	978.596	977.964	7.4	5.6	5.0	5.9	27.1	12.2	63.2			
114	200 mL S-250	530.665	-251.222	201.043	822.407	821.891	6.1	4.5	3.2	9.2	20.2	8.4	51.6			
115	30 mL S-150	353.937	-167.013	32.047	567.129	566.623	Initial	5.3	0.0	7.4	26.7	11.2	50.6			
116	50 mL S-250 / 50 mL S - 256	363.805	-256.265	51.254	625.793	625.238	8.7	4.7	3.9	6.5	22.6	9.1	55.5			
117	70 mL S-250	380.496	-258.520	71.474	640.440	640.031	5.2	3.5	3.7	4.4	15.6	8.5	40.9			
118	360 mL S-275 / 360 mL S-273	807.105	-273.175	361.693	1094.631	1094.099	5.5	4.4	4.6	4.9	22.9	10.9	53.2			
119	340 mL S-275	769.888	-274.819	343.097	1058.98	1058.489	5.3	4.1	4.1	4.4	21.4	9.8	49.1			
120	260 mL S-300	580.469	-292.875	262.148	882.674	882.172	6.3	4.6	3.7	4.9	21.4	9.3	50.2			
121	190 mL S-300 / 195mRL S-300	494.014	-300.469	196.286	804.086	803.769	4.2	3.3	2.5	2.9	13.4	5.4	31.7			
122	30 mL S-302	317.062	-302.252	28.879	620.300	620.216	-	-	-	1.8	4.2	2.4	8.4			
123	340 mL S-310/340 mL S-300	685.882	-310.736	341.410	988.348	987.799	-	9.3	4.3	5.1	24.1	12.1	54.9			

Sl No	Monitoring Station ID	Initial Coordinates as on 18.06.2024			Horizontal Distance (H) in m as on 18.06.2024	Horizontal Distance (H) in m as on 25.02.2026	Change in horizontal distance (i.e. AH in cm)													
		X	Y	Z			18.06.24		12.09.24		07.01.25		22.04.25		07.07.25		10.12.25		18.06.24 to 25.02.26	
							to	to	to	to	to	to	to	to	to	to	to	to	to	to
124	30 mrl S-316	316.297	-316.575	29.459	629.730	629.688	-	-	-	-	-	-	-	-	-	-	-	-	-	
125	200 mRL S-325	524.291	-316.997	202.389	838.316	838.015	4.3	3.0	2.3	2.7	13.0	4.8	30.1	-	-	-	-	-	-	
126	50 mRL S-325	356.213	-318.349	51.979	659.906	659.567	-	11.6	-	3.8	13.0	5.5	33.9	-	-	-	-	-	-	
127	30 mRL S-325 / 30 mRL S - 324	332.123	-324.577	31.592	646.626	646.407	4.1	1.9	1.8	2.6	7.9	3.6	21.9	-	-	-	-	-	-	
128	30 mrl S-330	311.213	-330.446	30.532	636.005	635.941	-	-	-	-	1.3	2.8	6.4	-	-	-	-	-	-	
129	250 mRL S-350	563.311	-352.182	251.860	887.758	887.375	4.1	3.6	3.0	3.6	16.5	7.5	38.3	-	-	-	-	-	-	
130	60 mRL S-375	340.682	-362.237	61.803	679.334	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
131	50 mRL S-400 / 50 mRL S - 389	312.688	-389.620	51.611	680.681	680.497	3.1	2.1	1.8	1.5	7.0	2.9	18.4	-	-	-	-	-	-	
132	270 mRL S-400	576.309	-400.583	273.400	919.382	919.139	3.2	2.3	-1.9	6.6	9.7	4.4	24.3	-	-	-	-	-	-	
133	360 mRL S-410 / 360 mRL S-407	742.143	-407.295	361.872	1074.12	1073.864	3.0	2.7	2.5	2.1	10.8	4.5	25.6	-	-	-	-	-	-	
134	360 mRL S-410 / 350 mRL S-400	679.812	-413.027	351.77	1018.802	1018.575	2.7	2.5	2.3	1.9	9.5	3.8	22.7	-	-	-	-	-	-	
135	220 mRL S-425 / 230 mRL S - 415	512.302	-416.070	222.659	869.128	868.938	2.7	2.3	1.5	2.0	7.4	3.1	19.0	-	-	-	-	-	-	
136	210 mRL S-450	448.375	-449.520	212.142	830.572	-	2.6	2.7	1.6	1.5	-	-	-	-	-	-	-	-	-	
137	60 mRL S-475	283.162	-468.347	61.164	724.809	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
138	270 mRL S-475 / 270 mRL S-470	568.446	-469.423	271.325	943.991	943.823	2.5	1.9	-2.6	5.8	6.7	2.5	16.8	-	-	-	-	-	-	
139	260 mRL S-500 / 260 mRL S-490	510.922	-489.999	260.663	905.069	904.928	2.0	1.7	1.2	1.6	5.2	2.4	14.1	-	-	-	-	-	-	
140	360 mRL S-510 / 360 mRL S-500	642.510	-510.256	363.250	1028.563	1028.396	2.1	1.8	1.8	-	8.1	2.9	16.7	-	-	-	-	-	-	
141	220 mRL S-550	401.483	-555.205	221.970	854.816	-	2.0	1.6	0.7	-	-	-	-	-	-	-	-	-	-	
142	270 mRL S-575 / 270 mRL S-560	516.490	-561.982	273.710	949.924	949.807	1.2	1.9	-1.3	3.8	4.7	1.4	11.7	-	-	-	-	-	-	
143	230 mRL S-575 / 230 mRL S-570	439.191	-569.137	233.449	892.794	892.686	2.0	1.4	0.9	1.4	3.8	1.3	10.8	-	-	-	-	-	-	
144	360 mRL S-590	601.145	-591.878	363.298	1036.416	1036.284	1.7	1.5	1.6	1.3	5.0	2.1	13.2	-	-	-	-	-	-	
145	220 mRL S-625	364.912	-615.647	222.685	868.281	868.193	1.9	1.3	0.7	1.0	3.0	0.9	8.8	-	-	-	-	-	-	
146	360 mRL S-645 / 360 mRL S-650	570.341	-645.865	360.913	1043.259	1043.147	1.3	1.4	1.6	1.0	4.0	1.9	11.2	-	-	-	-	-	-	
147	230 mRL S-675 / 230mRL S-679	325.386	-679.526	231.578	887.843	887.779	1.4	0.9	0.6	0.7	2.4	0.4	6.4	-	-	-	-	-	-	
148	260 mRL S-700 / 260 mRL S - 693	425.554	-693.98	263.643	966.522	-	0.9	0.9	0.9	0.8	2.2	-	-	-	-	-	-	-	-	
149	360 mRL S-710 / 360 mRL S-700	527.983	-709.879	361.284	1051.719	1051.655	0.7	1.1	1.1	0.4	2.3	0.8	6.4	-	-	-	-	-	-	
150	360 mRL S-750	498.997	-750.129	361.505	1058.178	-	1.0	0.6	0.9	0.7	1.9	-	-	-	-	-	-	-	-	
151	360 mRL S-795	463.47	-794.121	362.194	1065.232	1065.168	0.8	0.7	1.1	0.5	2.6	0.7	6.4	-	-	-	-	-	-	

SI No	Monitoring Station ID	Initial Coordinates as on 18.06.2024			Horizontal Distance (H) in m as on 25.02.2026	Horizontal Distance (H) in m as on 25.02.2026	Change in horizontal distance (i.e. ΔH in cm)						
		X	Y	Z			18.06.24 to 12.09.24	12.09.24 to 07.01.25	07.01.25 to 22.04.25	22.04.25 to 07.07.25	07.07.25 to 10.12.25	10.12.25 to 25.02.26	18.06.24 to 25.02.26
152*	320 mrl N-185	729.571	187.569	320.969	1003.498	1003.498	-	-	-	-	-	Initial	-
153*	330 mrl N-15	754.922	13.886	331.067	1009.939	1009.939	-	-	-	-	-	Initial	-
154*	340 mrl S-165	753.912	-167.796	342.156	1021.364	1021.364	-	-	-	-	-	Initial	-
155*	340 mrl S-303	721.909	-303.975	340.973	1020.712	1020.712	-	-	-	-	-	Initial	-
156*	350 mrl S-465	669.202	-464.091	351.407	1030.660	1030.660	-	-	-	-	-	Initial	-
157*	100 mrl S-375	374.646	-376.968	102.366	713.674	713.674	-	-	-	-	-	Initial	-
158*	100 mrl S-250	407.919	-260.641	101.096	663.804	663.804	-	-	-	-	-	Initial	-
159*	BUND HW S-15	939.703	-18.478	410.155	1194.544	1194.544	-	-	-	-	-	Initial	-
160*	BUND HW S-105	953.033	-105.054	407.771	1211.758	1211.758	-	-	-	-	-	Initial	-
161*	BUND HW S-360	830.421	-360.788	399.906	1141.277	1141.277	-	-	-	-	-	Initial	-
162*	BUND HW S-250	899.485	-253.622	399.351	1180.228	1180.228	-	-	-	-	-	Initial	-
163*	BUND HW N-165	924.230	163.660	395.958	1191.375	1191.375	-	-	-	-	-	Initial	-
164*	BUND HW N-290	894.417	290.212	391.708	1187.136	1187.136	-	-	-	-	-	Initial	-
165*	BUND HW N-460	871.438	460.817	397.619	1219.707	1219.707	-	-	-	-	-	Initial	-

Note: * Initial Observation was taken in 25th February 2026.

Annexure-3: Measurement of coordinates and calculation of horizontal displacement of monitoring stations installed in dump

Sl No	Monitoring Station ID	Initial coordinates as on 19.06.2024			Z	Horizontal Distance (H) in m as on 19.06.2024	Horizontal Distance (H) in m as on 26.02.26	Change in horizontal distance (C.e. H) in cm								
		X	Y	Z				19.06.21 to 12.09.24	12.09.24 to 08.01.25	08.01.25 to 23.04.25	23.04.25 to 08.07.25	08.07.25 to 11.12.25	11.12.25 to 26.02.26	26.02.26 to 19.06.21		
1	C check point BS	-65.342	907.119	400.943		1368.361	1368.364	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	WD 435 mRL N-1875	-1401.497	1881.787	432.607		374.705	374.672	0.8	0.9	1.3	0.3	0.3	0.0	0.0	0.0	0.3
3	WD 435 mRL N-2100	-1392.678	2112.355	435.612		399.205	399.183	0.3	-0.5	2.7	-0.3	0.4	0.4	-0.4	0.0	3.1
4	WD 435 mRL N-2335	-1427.466	2335.374	434.851		497.828	497.894	-0.3	0.8	0.3	-5.0	0.4	0.4	-2.8	0.0	2.2
5	WD 455 mRL N-2375	-1376.429	2375.326	454.791		561.926	561.912	0.5	1.3	1.5	0.2	0.4	0.4	-2.5	0.0	-6.6
6	WD 455 mRL N-2275	-1371.881	2274.923	455.237		498.015	497.994	0.6	-0.6	1.0	2.5	0.4	0.4	-1.8	0.0	1.4
7	WD 455 mRL N-2050	-1343.433	2051.249	456.959		429.960	429.935	0.4	0.8	1.4	0.1	0.4	0.4	-0.6	0.0	2.1
8	WD 455 mRL N-1875	-1347.122	1889.624	455.392		426.203	426.153	1.3	0.9	2.4	-0.3	0.5	0.5	0.2	0.2	5.0
9	WD 455 mRL N-1780	-1353.190	1780.187	456.122		454.054	454.025	0.2	-0.6	2.3	-0.5	0.9	0.9	0.6	0.6	2.9
10	WD 410 mRL W-540	539.337	935.899	413.186		1079.737	1079.611	-0.6	0.8	11.0	2.4	0.9	0.9	-1.9	0.0	12.6
11	WD 410 mRL W-590	593.232	944.193	415.443		1072.498	1072.474	-1.2	1.3	0.0	0.0	1.3	1.3	1.0	1.0	2.4
12	WD 495 mRL W-715	712.901	1518.823	495.062		1618.544	1618.508	-1.3	-0.6	9.0	2.2	1.1	1.1	-6.8	0.0	3.6
13	WD 495 mRL W-630	629.313	1422.575	496.027		1533.630	1533.551	-0.9	0.8	8.2	1.2	1.2	1.2	-2.6	0.0	7.0
14	WD 495 mRL W-590	590.853	1390.695	494.698		1508.775	1508.667	-1.1	0.9	8.9	1.9	1.0	1.0	-0.8	0.0	10.8
15	WD 495 mRL W-525	526.423	1344.715	492.632		1477.240	1477.116	-0.6	-0.6	11.4	3.1	1.1	1.1	-2.0	0.0	12.4
16	WD 515 mRL E-130	129.887	1403.218	515.251		1668.251	1668.089	-1.3	0.8	13.3	3.0	1.2	1.2	-0.8	0.0	16.2
17	WD 515 mRL F-70	71.823	1412.578	515.691		1702.781	1702.779	-	-	Initial	3.2	1.7	1.7	-4.7	0.0	0.2
18	WD 515 mRL E-10	9.906	1417.841	515.757		1737.498	1737.385	-1.2	1.3	13.9	3.9	1.6	1.6	-8.2	0.0	11.3
19	WD 515 mRL W-50	-40.816	1413.526	516.512		1759.464	1759.268	-0.2	-0.6	16.3	3.2	1.8	1.8	-0.9	0.0	19.6
20	WD 515 mRL W-95	-96.951	1405.179	515.457		1781.797	1781.748	-	-	Initial	3.5	1.6	1.6	-0.2	0.0	4.9
21	WD 540 mRL W-75	75.126	1565.130	538.650		1837.820	1837.619	-0.6	0.8	15.1	3.7	1.9	1.9	-0.8	0.0	20.1
22	WD 540 mRL E-80	78.857	1501.760	539.033		1779.220	1779.041	-0.4	0.8	13.1	2.1	2.4	2.4	-0.1	0.0	17.9
23	WD 540 mRL E-25	22.504	1479.632	539.995		1785.461	1785.275	-0.3	-0.5	15.3	2.4	2.5	2.5	-0.8	0.0	18.6
24	WD 540 mRL W-45	-47.431	1477.036	540.243		1817.438	1817.229	-0.6	0.8	16.0	4.7	2.0	2.0	-2.0	0.0	20.9
25	WDN520 mRL W-380	-381.635	2564.220	519.025		388.905	388.862	0.0	1.3	0.1	-0.3	2.0	2.0	1.2	0.0	4.3
26	WDN535 mRL W-390	-389.587	2502.056	535.724		437.405	437.363	0.3	-0.5	3.6	-0.3	2.0	2.0	-2.9	0.0	2.2
27	WDN520 mRL W-500	-499.439	2512.074	519.713		385.705	385.679	0.3	0.8	0.3	0.4	2.0	2.0	-1.2	0.0	2.6
28	WDN535 mRL W-515	-517.463	2462.977	534.861		429.172	429.147	-0.3	0.8	0.4	-0.3	1.9	1.9	0.0	0.0	2.5
29	WDN535 mRL W-580	-577.465	2446.968	533.937		437.204	437.203	0.4	0.9	-0.2	0.0	0.3	0.3	-1.3	0.0	0.1
30	WDN535 mRL W-700	-696.097	2378.861	534.537		622.521	622.584	-0.7	-0.6	-4.5	-0.4	0.4	0.4	-0.5	0.0	-6.3
31	WDN534 mRL W-780	-778.152	2345.318	534.213		578.973	579.066	-1.0	0.8	-7.8	-0.5	-0.4	-0.4	-0.4	0.0	-9.3
32	WDN520 mRL W-895	-893.075	2365.267	518.808		484.347	484.376	-0.7	1.3	-7.4	2.4	2.4	2.4	1.6	0.0	-2.9
33	WDN520 mRL W-650	-650.620	2449.911	519.343		625.126	625.186	-1.1	-0.6	-5.7	2.2	0.1	0.1	-0.9	0.0	-6.0
34	WDN520 mRL W-800	-797.157	2387.007	518.663		537.230	537.255	-0.8	-0.6	-2.1	1.1	-0.3	-0.3	0.2	0.0	-2.5

Annexure-4: Measurement of coordinates and calculation of vertical displacement (i.e. subsidence) of different monitoring stations installed on surface and in pit

Point ID	Monitoring Station ID	Initial Coordinates as on 19.06.2024			Z Coordinate as on 26.02.2026	Vertical displacement (i.e. subsidence or ΔZ) in cm							
		X	Y	Z		19.06.24 to 12.09.24	12.09.24 to 08.01.25	08.01.25 to 23.04.25	23.04.25 to 08.07.25	08.07.25 to 11.12.25	11.12.25 to 26.02.26	19.06.24 to 26.02.26	
1	Check POINT	-238.28	-215.71	392.655	392.655	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	F/W Surface S-280	-304.500	-281.445	391.832	391.849	-	-	Initial	0.6	0.1	-2.4	-	-1.7
8	F/W Surface N-610	-320.888	607.837	397.480	-	-	-	Initial	1.4	0.2	-	-	-
11	F/W In Pit, 355mRL N-365	-214.608	364.252	355.317	355.349	5.0	2.0	-5.3	-0.2	0.0	-4.7	-	-3.2
12	F/W In Pit, 330mRL N-175	-147.256	175.926	336.907	336.926	5.0	-3.0	-2.5	1.4	0.8	-3.6	-	-1.9
14	F/W In Pit, 260mRL S-645	-	-	-	260.220	-	-	-	-	-	Initial	-	-
15	F/W In Pit, 220mRL S-421	-1.285	-421.593	222.082	222.137	29.0	7.0	-38.4	0.1	0.4	-3.6	-	-5.5
16	F/W In Pit, 180mRL S-100	56.028	-98.185	181.293	181.312	N.R.	0.0	-1.1	0.0	-0.3	-0.5	-	-1.9
17	F/W In Pit, 160mRL N-55	65.179	54.711	161.560	161.609	13.0	-1.0	-10.3	-0.6	0.9	-6.9	-	-4.9
18	F/W In Pit, 130mRL N-445	144.578	444.902	130.870	130.910	21.0	2.0	-19.5	0.6	0.4	-8.5	-	-4.0
19	F/W In Pit, 110mRL N-255	167.021	252.349	111.629	111.680	41.0	-3.0	-34.1	0.0	0.1	-9.1	-	-5.1
23	H/W In Pit, 200mRL S-350	511.345	-347.022	199.081	-	-35.0	7.0	-	-	-	-	-	-
26	H/W In Pit, 340mRL S-335	720.255	-333.293	340.597	340.406	-1.0	2.0	3.8	0.1	0.6	13.6	-	19.1
28	H/W In Pit, 310mRL N-210	699.388	207.959	311.069	310.632	-48.0	-3.0	-	-	94.7	-	-	43.7
29	H/W In Pit, 310mRL N-300	700.902	297.114	309.864	309.491	-65.0	-	-	-	-	-	-	-
30	H/W In Pit, 310mRL N-395	683.001	393.509	310.023	309.714	-37.0	-	-	-	102.3	-	-	37.3
31	H/W In Pit, 310mRL N-490	653.710	487.877	310.623	310.531	-6.0	-	-	-	67.9	-	-	30.9
32	H/W In Pit, 310mRL N-560	613.451	560.905	310.598	310.556	-3.0	-	-	-	15.2	-	-	9.2
33	H/W In Pit, 270mRL N-615	478.114	616.062	281.54	310.556	-3.0	-	-	-	7.2	-	-	4.2
34	H/W In Pit, 270mRL N-725	371.470	724.659	270.000	-	5.0	-	-	-	-	-	-	-
35	H/W In Pit, 270mRL N-780	313.912	778.942	270.104	-	-6.0	-	-	-	-	-	-	-
36	H/W In Pit, 270 mRL N-820	243.917	820.376	270.798	-	27.0	-	-	-	-	-	-	-
51	H/W SURFACE, N-660	727.676	660.039	386.747	386.722	22.0	-	-	-	-	-	-	-
52	H/W SURFACE, N-470	814.934	468.841	386.170	386.076	-2.0	-	2.1	0.7	0.0	1.7	-	2.5
53	H/W SURFACE, N-115	875.148	114.443	384.531	384.145	-5.0	7.0	-1.9	-0.3	0.0	9.6	-	9.4
54	H/W SURFACE, S-245	853.484	-245.721	381.831	381.481	-30.0	-1.0	40.6	3.9	0.0	25.1	-	38.6
55	H/W SURFACE, S-480	-	-	-	381.481	-21.0	2.0	27.9	3.8	0.1	22.2	-	35.0
56	H/W SURFACE, S-635	658.794	-632.865	381.042	382.260	0.0	-3.0	7.6	0.7	0.1	Initial	-	-
57	H/W SURFACE, S-165	1036.551	-166.216	384.765	381.031	-18.0	-1.0	23.1	2.9	0.1	-4.3	-	1.1
58	H/W SURFACE, N-280	972.675	282.997	385.219	384.592	8.0	2.0	-2.0	2.2	0.1	10.2	-	17.3
60	F/W Surface N-61	-350.458	61.232	393.908	385.046	60.0	-3.0	N.R.	-	-	7.0	-	17.3
62	F/W Surface N-830	-333.938	829.739	398.512	-	-7.0	2.0	4.8	0.1	0.1	-	-	-

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Point ID	Monitoring Station ID	Initial Coordinates as on 19.06.2024			Z (Coordinate as on 26.02.2026)	Vertical displacement (i.e. subsidence or AZ) in cm					
		X	Y	Z		19.06.24 to 12.09.24	12.09.24 to 08.01.25	08.01.25 to 23.04.25	23.04.25 to 08.07.25	08.07.25 to 11.12.25	11.12.25 to 26.02.26
63	F/W Surface N-905	-327.009	903.600	399.543	399.587	-5.0	7.4	0.4	0.1	-4.4	19.06.24 to 26.02.26
64	F/W In Pit ,260mRL, S-643	-50.385	-644.495	260.162	-	-	-	0.4	0.2	-	-
66	H/W In Pit ,220mRL, S-505	445.269	-505.317	217.107	-	14.0	7.0	-	-	-	-
67	H/W In Pit ,180mRL, S-175	515.579	-176.451	183.531	-	-4.0	-1.0	-	-	-	-
68	H/W In Pit ,320 mRL, N-125	687.254	126.646	319.338	-	-9.0	2.0	20.0	1.2	0.2	-
69	H/W In Pit ,340 mRL, S-225	740.050	-223.358	341.277	-	-12.0	-3.0	-	-	-	-
70	HW in pit 165 mRL, S-8	327.232	943.801	395.135	-	-5.0	2.0	-	-	-	-
71	HW in pit 165 mRL, S-8	520.228	-8.752	165.517	-	-6.0	2.0	-	-	-	-
72	H/W SURFACE, S-482	738.887	-482.140	382.377	-	22.0	-1.0	-14.0	0.0	0.2	-
73	H/W SURFACE, N-626	927.620	626.955	385.644	-	-2.0	2.0	-	3.7	-	-
74	H/W PIT, S-506	459.354	-506.680	222.812	385.607	-	-	-0.1	0.7	1.5	3.7
75	H/W PIT, S-348	493.685	-348.622	200.216	222.791	-	-	0.2	1.0	-	2.1
76	F/W In Pit, N-380	-	-	-	-	-	-	-	-	-	-
77	H/W IN PIT, S-350	-	-	-	131.739	-	-	-	-	Initial	-
					200.135	-	-	-	-	Initial	-

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Peak particle velocity monitoring data/Blast vibration data (Monitoring at UG) FTM of Oct'2025 to March'2026							
S.No	Date	Blast location (stope)	Monitoring location	Radial distance (m)	MCPD (kg)	PPV (mm/s)	Frequency (Hz)
1	7-Oct-25	-530L N142 A	-505L 2nd FWD near N202 Xcut	130	139	1.83	109
2	8-Oct-25	-505L N202 B	-505L 2nd FWD MFP	61	170	2.69	119
3	11-Oct-25	-505L N172 B	-505L 2nd FWD MFP	84	9	2.03	248
4	30-Oct-25	-505L S157	-505L North ED	410	104	2.44	147
5	6-Nov-25	-505L N172 P(B)	-530L N ED	166	98	0.32	110
6	8-Nov-25	-530L N142 P(B)	-530L N ED	180	142	0.54	112
7	10-Nov-25	-530L N52	-530L N ED	238	132	3.44	122
8	11-Nov-25	-480L S562	-530L N ED	748	113	0.82	210
9	12-Nov-25	-480L N307	-530L N ED	212	188	1.66	121
10	13-Nov-25	-530L S232	-530L N ED	441	66	2.86	145
11	04-Dec-25	-530L N142 B	-530L N ED	177	152	0.86	58
12	09-Dec-25	-480L N277 B	-530L N ED	191	63	0.69	64
13	16-Dec-25	-555L S262 A	-505L S ED	219	112	0.91	52
14	24-Dec-25	-480L N277 B	-530L N ED	185	158	0.8	51
15	16-Jan-26	-530L N187 P(A)	-530L N ED	116	74	2.78	93
16	23-Jan-26	-530L N23 A	-530L N ED	146	185	2.30	100
17	23-Jan-26	-555L S307 P(A)	-530L N ED	185	158	0.80	110
18	24-Jan-26	-530L N127 A	-530L N ED	98	92	1.98	189
19	9-Feb-26	-530L N187 A	-530L N ED	140	184	1.70	110
20	22-Feb-26	-505L N217 C	-530L N ED	185	159	1.90	120
21	23-Feb-26	-530L N23	-530L N ED	229	140	2.90	120
22	28-Feb-26	-505L S547 B	-530L N ED	436	152	1.62	104
23	5-Mar-26	-580L S172	-580L N Conveyor drive	320	9	1.28	146
24	7-Mar-26	-555L N187 B	-580L N Conveyor drive	276	163	2.10	123
25	29-Mar-26	-555L N97	-580L N Conveyor drive	213	9	2.60	135
26	29-Mar-26	-480L S607 B	-580L N Conveyor drive	648	115	1.02	230
27	30-Mar-26	-605L LAS Connection	-580L N Conveyor drive	189	9	1.78	110

Peak particle velocity

Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

- 1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and information regarding their installation shall be communicated to the CGWA within 33 days of grant of No Objection Certificate.
- 2) Proponents shall mandatorily get water flow meter calibrated from a authorized agency once in a year.
- 3) Construction of purpose-built observation wells (metered) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of observation wells are given in Annexure II of the guidelines.
- 4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water sample from bore wells/tube wells/dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/organic compounds etc. Water quality data shall be made available to CGWA through the web portal.
- 5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.
- 6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/NABL accredited lab.
- 7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.
- 8) Industries abstracting ground water in excess of 1.00 m³/d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.
- 9) Application for renewal can be submitted online from 60 days before the expiry of NOC. Ground water withdrawal, if any after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.
- 10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure discharge of effluents or any such matter as applicable.

General conditions:

- 11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).
- 12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).
- 13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premises.
- 14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereon.
- 15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.
- 16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.
- 17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is/are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.
- 18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.
- 19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 15 of Guidelines.
- 20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.
- 21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project merits and take decisions independently of the NOC.
- 22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.
- 23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/Court orders in cases related to ground water or any other related matters.
- 24) Proponents who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.
- 25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. as per CPCQ list, need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.
- 26) In case of new infrastructure projects having ground water abstraction of more than 20 m³/day, the firm/ventily shall ensure implementation of dual water supply system in the projects.
- 27) In case of infrastructure projects paved/paving area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.
- 28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid concentration of surface water.
- 29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
- 30) The NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).
- 31) In the self-compliance report, the PP shall submit details of Drilling Agency/ Agencies which has/ have constructed BW(s)/ TW(s) along with undertaking to the effect that all necessary measures have been taken as per directions of Hon'ble Supreme Court provided in Annexure-VII of guidelines dated 24.09.2020 in respect of abandoned/ failed BW(s)/ TW(s)/ Piezometer(s), if any. The PP's advised to engage regulated drilling agency/ agencies. In the event of any mishap/ unfortunate incident due to negligence in taking measures for prevention of accident due to being in close proximity to PP and concerned drilling agency shall jointly be held responsible and penal action as per extant Government rules shall be taken.

[Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.]

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jannagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: cgwa-noc.gov.in

पानी बचाये - जीवन बचाये
SAVE WATER - SAVE LIFE



भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Hindustan Zinc Ltd.		
Project Address:	Hindustan Zinc Ltd., Rampura Agucha Mines, Village - Agucha		
Village:	Aguncha	Block:	Hurda
District:	Bhilwara	State:	Rajasthan
Pin Code:			
Communication Address:	Hindustan Zinc Ltd., Rampura Agucha Mine, Village - Agucha, Tehsil- Hurda, Bhilwara, Hurda, Bhilwara, Rajasthan - 311022		
Address of CGWB Regional Office :	Central Ground Water Board Western Region, 6-a, Jhalana Doongri, Jaipur, Rajasthan - 302004		

1. NOC No.:	CGWA/NOC/MIN/REN/3/2023/7399	3. Category:	Over Exploited
2. Application No.:	21-4/2/RJ/MIN/2004	(GWRE 2020)	
4. Project Status:	Existing Ground Water	5. NOC Type:	3rd Renewal
6. Valid from:	08/07/2022	7. Valid up to:	07/07/2024
8. Ground Water Abstraction Permitted:			

Fresh Water		Saline Water		Dewatering		Total	
m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year
11700.00	4270500.00						

9. Details of ground water abstraction /Dewatering structures	Total Existing No.:6					Total Proposed No.:0				
	DW	DCB	BW	TW	MP	DW	DCB	BW	TW	MP
Abstraction Structure*	1	0	5	0	0	0	0	0	0	0
*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit										
10. Ground Water Abstraction/Restoration Charges paid (Rs.):	41646150.00									
11. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers		Monitoring Mechanism							
			Manual	DWLR**	DWLR With Telemetry					
**DWLR - Digital Water Level Recorder	2		0	1	1					

(Compliance Conditions given overleaf)
This is an auto generated document & need not to be signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jammagar House, Mansingh Road, New Delhi-110011
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SAVE WATER - SAVE LIFE

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Department of Water Resources, River Development and Ganga Rejuvenation
Central Ground Water Authority (CGWA)
Application for Issue of NOC to Abstract Ground Water (NOCAP)

**Application for Renewal of NOC to Dewater Ground Water for Mining Industry
(Application for Renewal of NOC)**

Application Number : 21-4/2/RJ/MIN/2004

Applied For Renewal : 4th

1. General Information:	
Water Quality:	Fresh Water
Purpose of Renewal Application:	Existing Ground Water
Application Type Category/ Type of Application	Base Metal Ores
2. Name of Mine/Project:	HINDUSTAN ZINC LTD
3. Location Details of the Mining Unit- (Attach Site, Approved Mining Plan, Toposketch of Surrounding 10km Radius Outside) (\$):	
Address Line 1 :	HINDUSTAN ZINC LTD.
Address Line 2 :	RAMPURA AGUCHA MINES
Address Line 3 :	VILLAGE - AGUCHA
State:	RAJASTHAN
District:	BHLWARA
Sub-District:	HURDA
Village/Town:	Aguncha
Latitude:	
Longitude:	
Area Type :	Non-Notified
Area Type Category :	Over Exploited
Whether industry is MSME:	No
4. Communication Address	
Address Line 1:	HINDUSTAN ZINC LTD.
Address Line 2:	RAMPURA AGUCHA MINES
Address Line 3:	P.O. - AGUCHA
State:	RAJASTHAN
District:	BHLWARA
Sub-District:	HURDA
Pincode:	311029
Phone Number with Area Code:	91 10 1000000000
Mobile Number:	91 8003097068
Fax Number:	
5. Details of Existing NOC issued by CGWA (enclose copy)	
NOC Letter No:	CGWA/NOC/MIN/REN/3/2023/7899
Date of Issuance:	09/01/2023
Validity (Start):	08/07/2022
Validity (End):	07/07/2024

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Reason for not applying for renewal before expiry of NOC Validity (Attach Affidavit):				
6. Change in Land Use Pattern after execution of Project and Surroundings (10 km Radius - Outside)				
Nil				
7. Land Use Detail of Project Area				
Land Use Details	Existing (sq meter)	Proposed (sq meter)	Grand Total (sq meter)	
Green Belt Area	5700.00	0.00	5700.00	
Open Land	2400.00	0.00	2400.00	
Road/ Paved Area	1180.00	0.00	1180.00	
Rooftop area of building/ sheds	2166.00	0.00	2166.00	
Total	11446.00	0.00	11446.00	
8. Whether there is a change in Topography of the Area after the execution of the Project:				
a) Regional				
b) Project Area				
9. Whether there is change in Drainage pattern of the area after the execution of the Project.				
a) Regional				
b) Project Area				
10. Present Townships / Villages within 10 km radius of the Project:-		Asawan, Amarpura, Paroli, Gobadi, Kant, Kothaj, Dhanwara		

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11. Whether the Groundwater Table will be Intersected by Activity :-		Yes								
(a) At What Depth (m bgl)		Pre-monsoon		Post-monsoon						
Minimum (m bgl)		7.82		3.68						
Maximum (m bgl)		22.88		16.95						
(b) Maximum Depth Proposed to Dewater (m bgl)		25.00								
(c) Groundwater Flow Direction (Attach Map)(§)		West to East								
(d) Any Other Information		Nil								
12. Total Water Requirement for various Purpose to be Mentioned		Existing (m ³ /day)	Additional (m ³ /day)	Existing (m ³ /year)	Additional (m ³ /year)					
Ground Water Required through Abstract Structure		11700.00		4270500.00						
Ground Water Abstracted on account of Dewatering / Mining Seepage		0.00		0.00						
Total Ground Water Withdrawal		11700.00		4270500.00	0					
13. Details of De-Watering Structure		(a) De-Watering Existing Structure								
Number of Existing Structures:		6								
S.No.	Type of Structure Name / Year of Construction	Depth (Meter) / Diameter (mm)	Depth to Water Level (Meters below Ground Level)	Discharge (m ³ /Hour)	Operational Hours/Day / (Days (Year)	Mode of Lift Name	Horse Power of Pump	Whether fitted with Water Meter	Whether Permission Registered with CGWA If so Details Thereof	
1	Dugwell / 1991	20.00 / 5000	3.20	553.00	20 / 365	Submersible Pump	100.00	Yes	Yes / Yes / Ref. Letter No.21-4 (2)WR/CGWA/2005-1205 dated 08/07/2013	
2	Borewell / 1991	110.00 / 200	23.00	130.00	1 / 1	Submersible Pump	70.00	Yes	Yes / Yes / Ref. Letter No.21-4 (2)WR/CGWA/2005-1205 dated 08/07/2013	
3	Borewell / 1991	110.00 / 200	23.00	130.00	1 / 1	Submersible Pump	70.00	Yes	Yes / Yes / Ref. Letter No.21-4 (2)WR/CGWA/2005-1205 dated 08/07/2013	

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	4 Borewell / 1991	110.00 / 200	23.00	130.00	1 / 1	Submersible Pump	70.00	Yes	Yes / Yes / Ref. Letter No.21-4 (2)/WR/CGWA/2005-1205 dated 08/07/2013
	5 Borewell / 1991	23.00 / 200	23.00	125.00	1 / 1	Submersible Pump	70.00	Yes	Yes / Yes / Ref. Letter No.21-4 (2)/WR/CGWA/2005-1205 dated 08/07/2013
	6 Borewell / 1991	110.00 / 200	23.00	125.00	1 / 1	Submersible Pump	70.00	Yes	Yes / Yes / Ref. Letter No.21-4 (2)/WR/CGWA/2005-1205 dated 08/07/2013

(b) De-Watering Requirement and Additional Structure Detail

Number of Proposed Structures:

0

SNo.	Type of Structure Name / Year of Construction	Depth (Meter) / Diameter (mm)	Depth to Water Level (Meters below Ground Level)	Discharge (m ³ /Hour)	Operational Hours/Day / Days/Year	Mode of Lift Name	Horse Power of Pump	Whether fitted with Water Meter	Whether Permission Registered with CGWA as per Details Thereof
------	-----------------------------------------------	-------------------------------	--------------------------------------------------	----------------------------------	-----------------------------------	-------------------	---------------------	---------------------------------	----------------------------------------------------------------

14. Details of Utilization of Pumped Water (Please Attach Details)(m³/year) (\$)

(a) Water Supply	Yes	11700.00	Mining and Beneficiation operations as well as domestic and office drinking along with C&R supply.
(b) Agriculture	No		
(c) Green Belt Development	No		
(d) Suppression of Dust	No		
(e) Recharge	No		
(f) Any Other Item	Water balance is incorporated in IAR.		

15. Monitoring of Ground Water Regime (Attach Map(\$))

(a) Location Details of the Wells / Piezometers (Latitude, Longitude, Reduced Level)	Attached
(b) Number of Wells / Piezometers	12
(c) Attach Details of GW Level of Observation Wells / Piezometers(At Least for One Year)(\$)	Attached
(d) General Quality of GW in the Area & Surroundings (\$)	Attached

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(e) Any Other Item											Nil
16. Give the details of change in groundwater regime and quality after execution of the project (Attach detailed report with Map showing GW flow direction(\$))											
Attached											
17. Proposed Pump / Pumping Groundwater Outside the Mine Pit for Domestic or Other Use (If so, give Details):											
Number of Existing Structures:											0
S.No.	Type of Structure Name / Year of Construction	Depth (Meter) / Diameter (mm)	Depth to Water Level (Meters below Ground Level)	Discharge (m3/Hour)	Operational Hours (Day) / Days (Year)	Mode of Lift Name	Horse Power of Pump	Whether fitted with Water Meter	Whether Permission Registered with CGWA/If so Details Thereof		
Number of Additional Structures:											0
S.No.	Type of Structure Name / Year of Construction	Depth (Meter) / Diameter (mm)	Depth to Water Level (Meters below Ground Level)	Discharge (m3/Hour)	Operational Hours (Day) / Days (Year)	Mode of Lift Name	Horse Power of Pump	Whether fitted with Water Meter	Whether Permission Registered with CGWA/If so Details Thereof		
18. (a). Compliance to the Condition prescribed in the NOC											
S.No.	Conditions given in NOC			Compliance Conditions Applicable			Status of Compliance				
1	Area Specific Plantation			Not Applicable			As per CTO/EO/mine plan plantation has been ensured.				
2	Domestic Water / School Sanitation			Not Applicable							
3	Groundwater quality monitoring - Pre monsoon and Post monsoon			Yes			The groundwater (GW) quality monitoring was conducted during both pre-monsoon and post-monsoon periods to analyze the changes in water quality parameters.				
4	Maintenance of recharge structures			Yes			Maintaining village ponds and recharge shafts in 84 villages for sustainable water management and groundwater recharge.				
5	Number of Piezometers as per NOC and Water Level Record			Yes			There are two piezometers. One is with DWLR and other is with DWLR with telemetry.				
6	Number of Tubewells/Borewells as per NOC			Yes			There are 6 no. of tubewells (GW abstraction structure) as per NOC.				
7	Piezometer fitted with AWLRs with telemetry as per NOC			Yes			One piezometer is fitted with DWLR with telemetry.				

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8	Quantum of Groundwater as per NOC	Yes	Quantum of Groundwater as per NOC 11700 KLD.
9	Recharge through ponds	Yes	recharged 3.72 MCM
10	Recycle and reuse of water	Yes	Tailing dam water is recycled back to the beneficiation plant and reused. Domestic waste water is treated in STPs and reused in plantation/horticulture.
11	RWH and AR structures implemented	Yes	RWH and AR structures implemented and maintained
12	Submission of Compliance report to the Region	Yes	Self compliance and self inspection report submitted online.
13	Water conservation measures	Yes	Water conservation measures are taken regular basis.
14	Water Security Plan of villages	Not Applicable	
15	Well monitored around the plant premises	Yes	12 piezo/keywells are monitored monthly basis.
16	Wells fitted with water meter and IS Record	Yes	Wells fitted with telemetry.

(D). Compliance to the Condition prescribed in the NOC - Other

Sl.No	Conditions given in NOC	Status of Compliance
-------	-------------------------	----------------------

No Record Found

19. Gainful utilization of pump water:-

Utilization of pumped water is discussed in CHR.

20. Details of Rainwater Harvesting and Artificial Recharge Measures for Groundwater Recharge in the Area:-

Report Attached

MINING USE- Self Declaration

I hereby certify that the data and information furnished above are true to the best of my knowledge and belief and I am aware that if any part of the data / information submitted is found to be false or misleading at any stage, the application will be rejected outright.

I hereby declare that all the mandatory documents prescribed in the application form have been uploaded and no blank /irrelevant documents have been uploaded. I am also aware that any false/ wrong submission /uploading of document will lead to rejection of my application without any notice.

It is to certify that no case related to ground water withdrawal/ contamination is pending against the industry/ project/ unit as on date. Any such case filed against the company/ project/ unit in respect of ground water withdrawal/ contamination during the pendency of this application shall be immediately brought to the notice of CGWA.

I hereby undertake that in case any environmental compensation/ penalty is imposed on the firm by any statutory authority, I shall comply with the decision of such authority.

1. Application Proforma is subject to modification from time to time.

2. Application is submitted online on website <http://cgwa-noc.gov.in> to following office.

Regional Director, Central Ground Water Board Western Region, 6-A, Jhalana Doongri, JAIPUR, RAJASTHAN, 302004

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3. Incomplete application will be summarily rejected.

Scanned copy of last page of application with signature and seal should be attached at prescribed place before submission of application.

4. Receipt of Processing Fee of Rs. 5000 00/- (Rupees Five Thousand Only) submitted through NON TAX RECEIPT PORTAL (<https://bharatresh.gov.in/>) should be attached along with hard copy of application.

Processing Fee:-

Bharat Kosh Transaction Ref. No. : 2603240038433

Bharat Kosh Transaction Date : 26/05/2024

Note:- The Processing Fee is Non-Refundable. Applicant should ensure and Check Eligibility of Submission of Application and Required Documents before Submitting Online Application.

5. Hard copy of application required:	No		
6. Ground Water Quality Approved	Not Define	Ground Water Charge Required:	Not Define
Ground Water Charge Receive:	No	Ground Water Charge Amount:	
		Ground Water Area Amount:	

Attached Files:

1). Groundwater flow Direction Map: (Refer:11-C)

S.No	Attachment Name	File Name
1	GW_Flow_Map	GW_Flow_Map.docx

2). GW Level of Observation Wells / Piezometer : (Refer:15-C)

S.No	Attachment Name	File Name
1	GW_Level_Piezomet	GW_Level_Piezomet.docx

3). General Quality of Ground Water in the Area : (Refer:17-D)

S.No	Attachment Name	File Name
1	GW_Quality	GW_Quality.pdf

4). Changes in Topography : (Refer: 8)

S.No	Attachment Name	File Name
1	Change in Topograpy	Change in Topograpy.docx

5). Changes in Drainage Pattern : (Refer: 9)

S.No	Attachment Name	File Name
1	Change in Drainage	Change in Drainage.docx

6). Reason for Not Applying for Renewal before Expiring NOC : (Refer: 5)

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No Attachment Found

7). Existing NOC : (Refer: 5)

S.No	Attachment Name	File Name
1	11700 NOC	11700 NOC.pdf

8). Compliance to the Condition prescribed in the NOC : (Refer: 17-a)

S.No.	Conditions given in NOC	Attachments		
		S.No.	Attachment Name	File Name
1	Area specific Plantation		No Attachment Found	
2	Domestic Water School Sanitation		No Attachment Found	
3	Groundwater quality monitoring - Pre monsoon and Post monsoon		No Attachment Found	
4	Maintenance of recharge structures		No Attachment Found	
5	Number of Piezometers as per NOC and Water Level Record		No Attachment Found	
6	Number of Tubewells Borewells as per NOC		No Attachment Found	
7	Piezometer fitted with A/WLRs with telemetry as per NOC		No Attachment Found	
8	Quantum of Groundwater as per NOC		No Attachment Found	
9	Recharge through ponds		No Attachment Found	
10	Recycle and reuse of water		No Attachment Found	
11	RWH and AR structures implemented		No Attachment Found	
12	Submission of Compliance report to the Region		No Attachment Found	
13	Water conservation measures		No Attachment Found	
14	Water Security Plan of villages		No Attachment Found	
15	Well monitored around the plant premises		No Attachment Found	
16	Wells fitted with water meter and its Record		No Attachment Found	

9). Compliance to the Condition prescribed in the NOC - Other : (Refer: 17-b)

S.No.	Conditions given in NOC	Attachments		
		S.No.	Attachment Name	File Name

10). Extra Attachment :

Government of India
Ministry of Jal Shakti
Department of Water Resources, River Development and Ganga Rejuvenation
Central Ground Water Authority (CGWA)
Application for Issue of NOC to Abstract Ground Water (NOCAP)

Application for Renewal of NOC to Dewater Ground Water for Mining Industry
(Application for Renewal of NOC)

Application Number : 21-4/2/RJ/MIN/2004

Applied For Renewal : 4th

S.No	Attachment Name	File Name
1	Self_Compliance_Filled	Self_Compliance_Filled.pdf
2	Self_Inspection_Filled	Self_Inspection_Filled.pdf
3	Piezo Keywells	Piezo & Keywells.pdf
4	CTE_CTO_Merged	CTE_CTO_Merged.pdf
5	STP_Affidavit	STP_Affidavit.pdf

11). Bharat Kosh Receipt (Processing Fee):

S.No	Attachment Name	File Name
1	Renewal fees_Banas_06_06_2004	Renewal fees_Banas_06_06_2004.pdf

12). Application with Signature and Seal:

S.No	Attachment Name	File Name
1	Application_Seal_Signed_Authorisation_Letter	Application_Seal_Signed_Authorisation_Letter.pdf

13). MSME certificate in case of MSME:

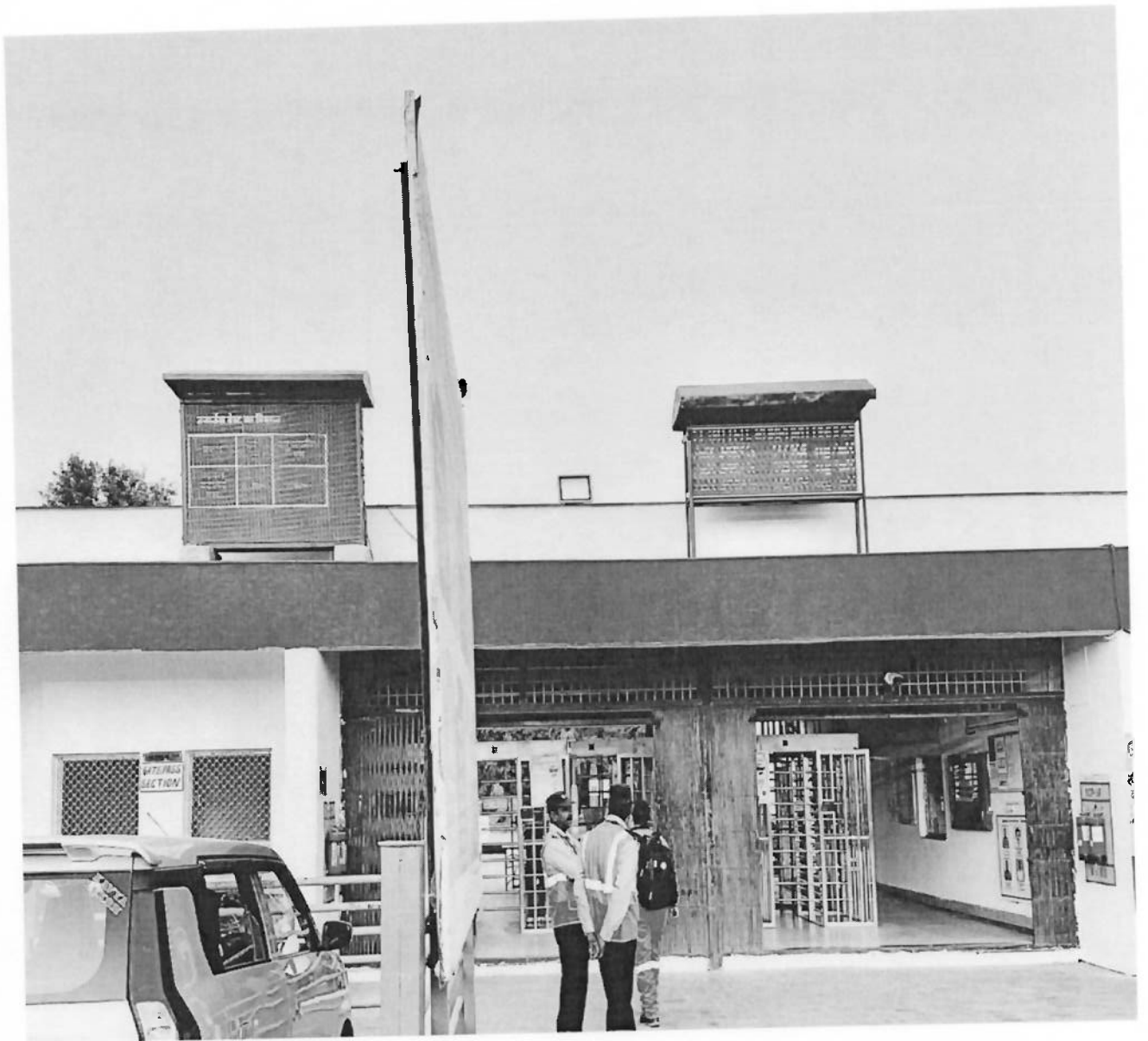
No Attachment Found!

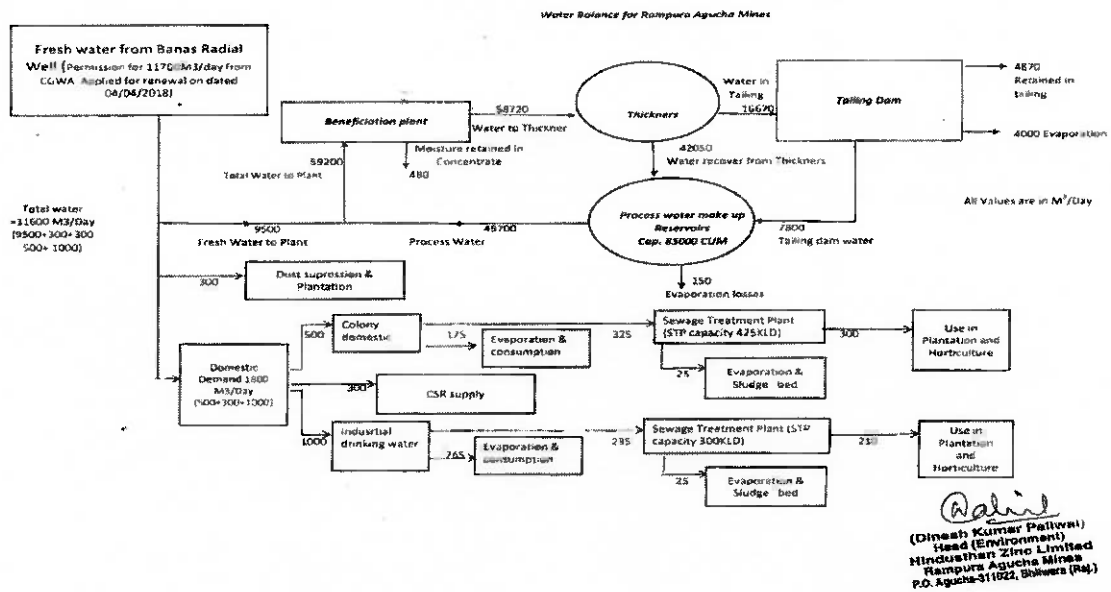
Date :
Place :

Name & Signature of the applicant:
(With official seal)

Associated User : HZLRA0001
Submitted By User : HZLRA0001
Submission Date : 04/07/2004

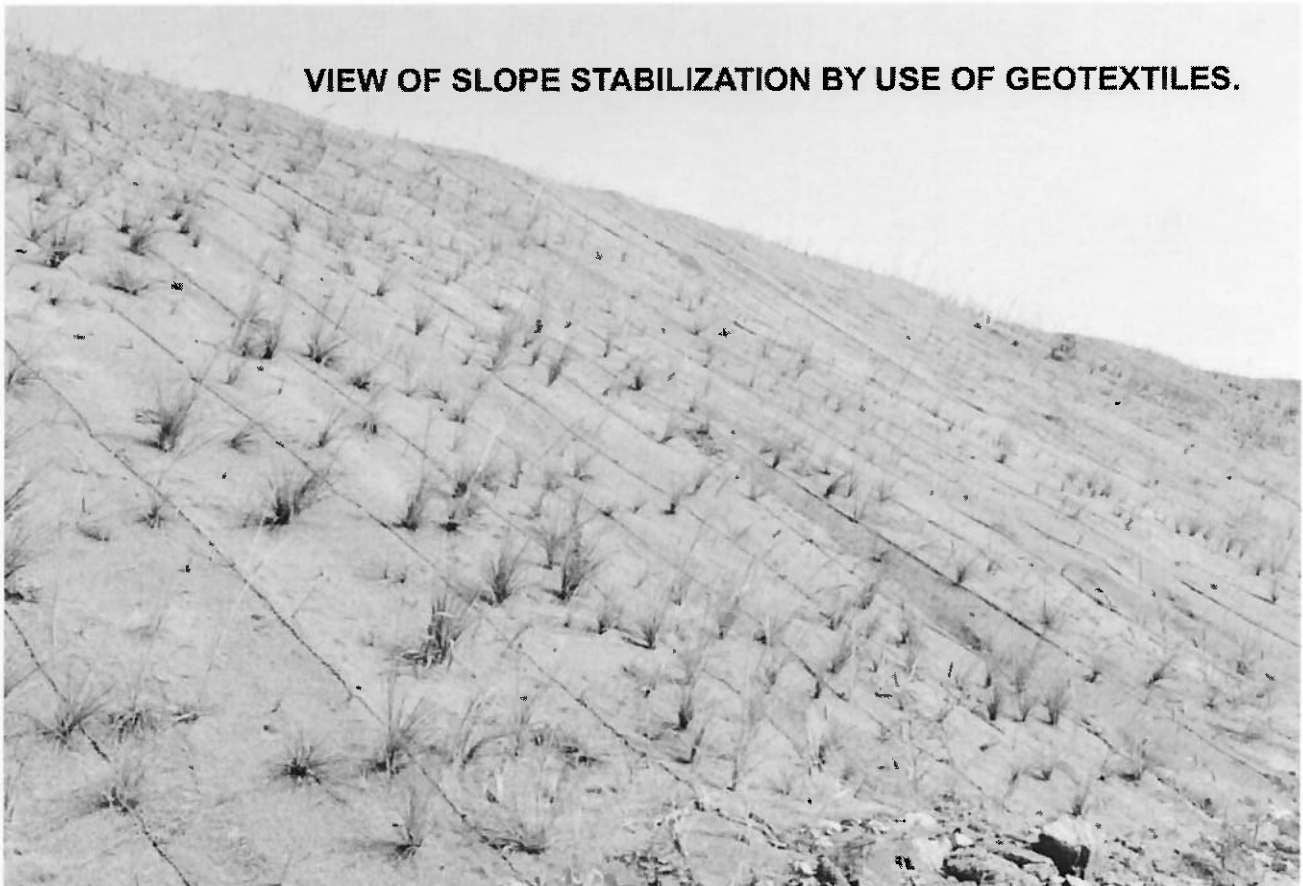
* In case signed by any authorized signatory, the details of the signatory with the authorization shall be enclosed.





Water Balance

VIEW OF SLOPE STABILIZATION BY USE OF GEOTEXTILES.



Geotextiles



HINDUSTAN ZINC
Zinc & Silver of India

Mine code: 270020

RA Mine/VTC/F.18/2026/1320,1321,1322

Dated: 02/02/2026

To

1. The Director General of Mines Safety

Office of DGMS, Barwa Road
DHANBAD, JHARKHAND
PIN: 826001

2. The Dy. Director General of Mines Safety, NW Zone

Hiran Magri Sector-6, Jhamarkotra Main Road, Udaipur-313002 (Raj)

3. The Director of Mines Safety

Office of DGMS
Anasagar Link Road
AJMER Region-1, RAJASTHAN
Pin: 305001

Sub.: Submission of Annual Return in Form "T" for the year 2025

Sir,

Please find enclosed the Annual Return Form "T" for the year ending 31st December- 2025, in respect of Rampura Agucha Lead and Zinc Underground Mine of Hindustan Zinc Limited.

Enclosed as above

Thanking you

Mine Manager
Sincerely yours
Rampura Agucha
Lead and Zinc Underground Mines
Post-Agucha-311022
Dist.-Bhilwara (Raj.)

Basant Kishore Mahanta
Basant Kishore Mahanta
Mine Manager

Rampura Agucha Lead Zinc Underground Mine | Hindustan Zinc Limited

[FORM - T]

[See Rule 29P (i)]

Annual Return for the year ending on the 31st December – 2025

1. Name of Mines Rampura Agucha Lead Zinc Underground Mine.
2. Postal address of Mines M/S Hindustan Zinc Limited,
Rampura Agucha Mines
P.O. Agucha
Dist. Bhilwara (RAJ.) Pin: 311022
3. Date of opening of Mine 15.01.2010
4. Date of closing (if closed) Not applicable
5. Situation of Mine (District/State) Bhilwara/Rajasthan
6. Name of Owner, Postal address Sh. Arun Misra
CEO & Whole time Director.
Hindustan Zinc Limited
Yashad Bhawan,
UDAIPUR – 313004

7. Number of person medically examined:

Type of ME	Number of persons required to be Medically examined during 2025		Number of persons Medically examined during 2025	
	OWN	CONT	OWN	CONT
IME	As per requirement		56	1215
PME	304	637	304	637

8. Number of persons declared Medically unfit NIL

9. Categorization of the persons Declared unfit NIL

Certified that the information has been given above, is correct to the best of my knowledge.

Date: 02.02.2026

Signature:
Name : **Basant Kishore Mahanta**
Designation: "Mine Manager"

Mine Manager
Hindustan Zinc Limited
Rampura Agucha
Lead and Zinc Underground Mines
Post-Agucha 311022
Dist. Bhilwara (raj.)



Covered conveyer belt



HZL/RAM/ENV/2020-21/789

Dated : 28.08.2020



To,
The Director,
Ministry of Environment, Forest and Climate Change,
Regional Office (Central Region),
Kendriya Bhawan,
5th Floor, Sector "H", Aliganj,
Lucknow – 226024

Subject: Submission of study report in in compliance of the FC amendment No: J-11015/267/2008-LA.II(M) dated 28.02.2020 of M's Hindustan Zinc Limited in the mine lease area of 1200 Ha located in village Agucha, Tehsil Hurda, District Bhilwara, Rajasthan.

Sir,

Additional specific condition No. 3 in the above mentioned amendment letter is read as below:

"PP shall engage suitable agency for conducting subsidence study for increasing the depth of working from 1000mbgl to 1500mbgl. The report shall be submitted to Ministry within 6 months."

In compliance of this condition, study has been conducted by Central Institute for Mining & Fuel Research (CSIR-CIMFR). Copy of the study report "Numerical Modelling Studies for Subsidence Prediction at Rampura Agucha Mine, HZL" is attached herewith for perusal please.

Thanking You,

Yours faithfully,

(Sajal Shah)
 SBU Director,

Director, Agucha SBU
 Hindustan Zinc Limited
 Rampura Agucha Lane
 PO- Agucha
 Dist. - Bhilwara (Raj.)

CC: **The Member Secretary,**
IA – Division (Non-Coal Mining)
Vayu Block, 3rd Floor, Indira Paryavaran Bhawan,
Ministry of Environment, Forest & Climate Change
Jorbagh Road, New Delhi-110003.

Hindustan Zinc Limited

Rampura Agucha Mines, P.O. Agucha, Dist. Bhilwara (Rajasthan) - 311 022
 M +91-9001294956-57, F +91-1483 229012 www.hzindia.com

Registered Office : Yashad Bhawan, Udaipur (Rajasthan) 313 004
 CIN No. L27204RJ1966PLC001208

O/c - Env.

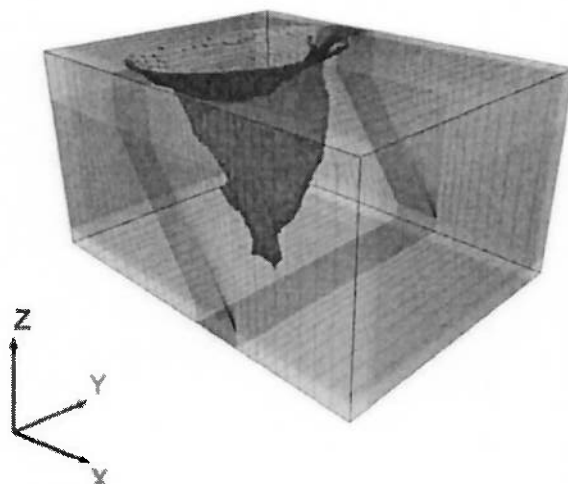


CENTRAL INSTITUTE OF MINING & FUEL RESEARCH
(*Council of Scientific & Industrial Research*)
Barwa Road, Dhanbad – 826 001, Jharkhand
Nagpur Research Center, Unit-1
17/C, Telenkhedi Area, Civil Line, Nagpur 440001, Maharashtra

Report on

**Numerical Modelling Studies for Subsidence Prediction at Rampura Agucha
Mine, HZL**

PO No.: 2353084587 / 5100027984 Date:07.04.2020



Proj. No. SSP/N/493/2020-2021

July – 2020



Rajasthan State Pollution Control Board
 4, Institutional Area, Jhalana Doongari, Jaipur-302 004
 Phone: 0141-5159600,5159695 Fax: 0141-5159697
 website: www.rpcb.nic.in
 Registered

File No F(Mines)/Bhilwara(Hurda)/1(1)/2009-2010/ 4792
 Order No 2009-2010/Mines/401

Date: 21/1/2010

M/s Hindustan Zinc Limited
 (Rampura Agucha Mine), P.O.- Agucha, Bhilwara,
 District :Bhilwara

Sub: Grant of Consent to Establish under section 21(4) of Air (Prevention & Control of Pollution) Act, 1981 and under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 for your Major Mineral Mine at near Village-Agucha, Tehsil-Hurda, District- Bhilwara (M.L.No.-1/2000).

Ref: (i) Your applications dated 22/11/2009
 (ii) Received on 27/11/2009

Sir,

In view of the details submitted vide your above referred applications/ documents, the Consent to Establish under section 21(4) of Air (Prevention & Control of Pollution) Act,1981 and under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 is hereby granted for carrying mining activities. This consent is subject to the following stipulations:-

- 1 That this consent is being granted in favour of M/s. Hindustan Zinc Limited, a Mine of Major Mineral having M.L.No.-1/2000 in an area measuring 1200 Hectares at/near Village-Agucha ,Tehsil-Hurda,District-Bhilwara.
- 2 That this consent is valid for a period from 18/01/2010 to 17/01/2013 , or commencement of production whichever is earlier.
- 3 That this consent is valid for following mining activities :-

Mineral	Permitted Mining Capacity
1 LEAD ZINC ORE MINING	6.150 MILLION TONNES PER ANNUM
2 BENEFICIATION PLANT FOR LEAD - ZINC ORE	6.500 MILLION TONNES PER ANNUM

- 4 That you shall achieve following standards in ambient air in mine area / mining activities.

Pollutant	Standards for Ambient Air	Standards for mining activity
SPM	500 µg/M ³	SPM = 600 µg/M ³ (To be measured between 3 to 10 meters from mining activity)
SO _x	120 µg/M ³	
NO _x	120 µg/M ³	
CO	5000 µg/M ³	



Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159600,5159695 Fax: 0141-5159697
website: www.rpcb.nic.in
Registered

File No F(Mines)/Bhilwara(Hurda)/1(1)/2009-2010/

Order No 2009-2010/Mines/401

Date:

- 5 That the Mining unit shall maintain zero discharge status of waste water from the premises. No trade effluent shall be discharged inside/outside mine premises.
- 6 That the occupier/operator of mine shall ensure that all the conditions imposed in the Environmental Clearance granted by the **Ministry of Environment & Forests, Government of India**, vide letter No J-11015/267/2008-IA.II (M) dated 11/12/2009 shall be strictly complied with.
- 7 That the occupier/operator of mine shall ensure that all the conditions imposed in the permission of Central Ground Water Authority granted vide its letter No **21-4(2)/WR/CGWA/2008-632 & 21-4(2)/WR/CGWA/05-417** dated **06/08/2008 & 13/05/2008** shall be strictly complied.
- 8 That you shall not operate the mine without obtaining **Consent to Operate** from the Board.
- 9 That this **Consent to Establish** is for mining of product as mentioned above in **M.L.No.-1/2000** and a separate **Consent to Establish** is required to be taken for Mineral Separation Plant/process if any and for any addition/ modification/ alteration or change in process.
- 10 That the lessee shall develop plantation in atleast 33% of the total lease area to maintain ambient air quality around the mine and the Action Plan for plantation submitted by you, shall be implemented.
- 11 That you will implement all the pollution control measures as per EIA/EMP Report.
- 12 That the top soil shall be stored at earmarked site only shall be utilized for plantation on reclaimed OB dumps.
- 13 The overburden generated during mining shall be stacked at earmarked site as per Approved Mining Plan & as per recommendations of Central Institute of Mining & Fuel Research, Dhanbad. The over burden dump shall be reclaimed by plantation of suitable native plant species.
- 14 Catch drains/ Siltations ponds of appropriate size shall be constructed to arrest silt and sediments flows from mine pits & overburden dumps. Garland drains of adequate size, properly designed shall be constructed around the mine pit & dump yard. Garland drain should be provided with siltation pond.
- 15 Regular monitoring of subsidence, vibration shall be carried out & if any subsidences is observed appropriate measures be undertaken to avoid any loss of life and material and be reported to Board.
- 16 That the HZL shall carryout conditioning of mined ore with water to mitigate fugitive dust emission.
- 17 That Ore Beneficiation plant effluent shall be treated upto prescribed standards & tailing slurry shall be transported in close pipe line to tailing dam.
- 18 That all other general conditions (1 to 21) enclosed as **Annexure** shall be strictly complied with.



Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159600,5159695 Fax: 0141-5159697
website: www.rpcb.nic.in
Registered

File No F(Mines)/Bhilwara(Hurda)/1(1)/2009-2010/

Order No 2009-2010/Mines/401

Date:

19 That this Consent is subject to the conditions as stated above and general conditions as stated in Annexure. Further, the mining unit will comply with the provisions of the Air (Prevention & Control of Pollution) Act, 1981 & Water (Prevention & Control of Pollution) Act, 1974 and any such conditions as may be specified from time to time by the State Board under the provisions of the aforesaid Acts.

This bears approval of the competent authority.

Encl: As Above

Yours Sincerely


Group Incharge-Mines

Copy To:-

- 1 Director, Department of Mines & Geology, Government of Rajasthan, Udaipur..
- 2 Mining Engineer, Department of Mines & Geology, Government of Rajasthan, Bhilwara.
- 3 Regional Officer, Regional Office, Rajasthan State Pollution Control Board, Bhilwara- please ensure compliance of Consent Conditions.
- 4 Master File, Consent to Establish, Group Mine, Rajasthan State Pollution Control Board, Jaipur.

Group Incharge-Mines



राजस्थान राज्य प्रदूषण नियंत्रण मण्डल RAJASTHAN STATE POLLUTION CONTROL BOARD

Annexure

Consent to Establish under Air & Water Acts - Mining Units

General Conditions:-

1. That this consent shall be subject to the condition that you shall operate the mining activities in the area as per the mining right allowed by the Mining Department in the Mining Lease only.
2. That this consent shall be subject to the directions/orders passed in various Mining/Environment related Writ Petitions by Hon'ble High Court and the Hon'ble Supreme Court.
3. That you shall provide the necessary infrastructure facilities including equipment for the monitoring of ambient air in accordance with the directions given to you by the Pollution Control Board's officials from time to time.
4. That Mining Unit shall undertake the phased restoration, reclamation and rehabilitation of lands as per established practices & procedures (provisions of Mine Closure Plan in case of Major Minerals) affected by prospecting or mining operations and shall complete this work before the conclusion of such operations and the abandonment of prospects or mines.
5. That overburden shall be stored in a systematic manner that it does not obstruct the natural drainage pattern of the area. It may be used for back filling. The land shall be identified for disposal of overburden at environmentally compatible site.
6. That Mining unit shall strictly comply with the Mining Plan and Eco Friendly Mining Plan as submitted to & approved by the competent authority. (Eco Friendly Mining Plan for Minor Mineral & mining plan for Major minerals & marble, Granite Mines).
7. That the water spray and sprinkling system so installed should always be maintained in order to utilize the same for dust suppression.
8. That the domestic effluent if any, shall be treated and disposed of with properly designed septic tank followed by soak pit as per prescribed standard.
9. That Air Emissions shall conform to the standards prescribed under the Environment (Protection) Act, 1986.
10. That noise level shall be kept as detailed below and under no circumstances, it shall exceed the prescribed limit:-
 - a. Day time (6.0 AM to 9.0 PM) - 75 dB A (leq)
 - b. Night time (9.0 PM to 6.0 AM) - 65 dB A (leq)
11. That this consent should not be treated as NOC or approval for mining in forest area, if any, falling in the lease and relevant permission under provisions of the Forest (Conservation) Act, 1980 shall be obtained from the competent authority.

4, इन्स्टीट्यूशनल एरिया, झालाना डूंगरी, जयपुर
4, Institutional Area, Jhalana Doongri, Jaipur
Phone : 2709980, 2705731, 2707285 PBX 2711263, 2711329, 2711831, 2707938
Fax : 2710647, 2709980, 2704578

12. That for Diesel Generator Set, acoustic enclosure/acoustic treatment shall be provided to meet the prescribed norms w.r.t. noise as per the Gazette Notification of Ministry of Environment & Forests dated 02.01.99. Adequate stack height with D.G. Sets shall also be provided and maintained. Noise from the Diesel Generator Sets shall be controlled by providing an acoustic enclosure or by treating the room acoustically. The acoustic enclosure/acoustic treatment of room should be designed for minimum 25 dB (A) Insertion Loss or for meeting the ambient noise standards, whichever is on the higher. The measurement for Insertion Loss may be done at different points at 0.5 metre from the acoustic enclosure/room and then averaged. The Diesel Generator Sets should also be provided with proper exhausts muffler with Insertion Loss of minimum 25 dB (A). The stack height for the Diesel Generator Sets shall be as notified under the EP Act, 1986.
13. That the Industry shall comply with provisions of the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and the Hazardous Waste (Management & Handling) Rules, 1989 and related amendments, as applicable.
14. That this consent is valid, subject to fulfillment of all the other statutory requirements in other Law/Acts/Rules as applicable.
15. That the industry shall submit quarterly compliance of all the above stated conditions to this office.
16. That the unit shall submit Water Cess returns in case the water consumption is more than 10 KLD under provisions of the Water (Prevention & Control of Pollution) Cess Act, 1977 and as amended from time to time.
17. That notwithstanding anything contained in this letter of consent, the State Board hereby reserves to it, the right and power under section 21(6) of the Air (Prevention & Control of Pollution) Act, 1981 & under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review anyone/or all the conditions imposed here-in-above and to make such variations as deemed fit for the purpose of Air Act & Water Act.
18. That this consent, under no circumstances, be construed as conferment of any property or any interest in the lease area. It is only confined for the purpose of regulation of provisions of the Air Act & Water Act
19. That any incorrect information submitted in the consent application form shall make the industry liable for legal action under section 38 of the Air Act & under section 43 of the Water Act.
20. That in case of failure to comply with any of the consent conditions stated as above, the consent issued to the industry shall automatically stand revoked without any notice.
21. That this Consent will not exempt you from any legal action for the past violations, if any, of the Act/Rules/Notifications/Circulars etc.


(Group Incharge-Mines)



Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159600,5159695 Fax: 0141-5159697
website: www.rpcb.nic.in
Revised Consent

File No F(Minas)/Bhilwara(Hurda)/1(1)/2009-2010/3922-3926

Order No 2011-2012/Mines/1149

Date: 01/09/2011

M/s Hindustan Zinc Limited

(Rampura Agucha Mine), P.O. - Agucha, Bhilwara,

District :Bhilwara

Sub: Grant of Consent to Establish under section 21(4) of Air (Prevention & Control of Pollution) Act, 1981 and under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 for your Major Mineral Mine at near Village-Agucha, Tehsil-Hurda, District- Bhilwara (M.L.No-1/2000).

Ref: (i) Your applications dated 22/11/2009
(ii) Received on 27/11/2009

Sir,

In view of the details submitted vide your above referred applications/ documents, the Consent to Establish under section 21(4) of Air (Prevention & Control of Pollution) Act,1981 and under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 is hereby granted for carrying mining activities. This consent is subject to the following stipulations:-

- 1 That this consent is being granted in favour of M/s. Hindustan Zinc Limited, a Mine of Major Mineral having M.L.No- 1/2000 in an area measuring 1200 0000 Hectares at/near Village-Agucha ,Tehsil-Hurda, District-Bhilwara.
- 2 That this consent is valid for a period from 18/01/2010 to 17/01/2013, or commencement of production whichever is earlier.
- 3 That this consent is valid for following mining activities :-

Mineral	Permitted Mining Capacity
1 LEAD ZINC ORE MINING	6.1500 MILLION TONNES PER ANNUM
2 BENEFICIATION PLANT FOR LEAD - ZINC ORE	6.5000 MILLION TONNES PER ANNUM



Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159600,5159695 Fax: 01-11-5159697
website: www.rpcb.nic.in
Revised Consent

File No F(Mines)/Bhilwara(Hurda)/1(1)/2009-2010/3922-3926

Order No 2011-2012/Mines/1149

Date: 01/09/2011

- 4 That you shall achieve following standards in ambient air in mine area / mining activities.

Pollutant	Standards for Ambient Air	Standards for mining activity
SPM	500 $\mu\text{g}/\text{M}^3$	SPM = 600 $\mu\text{g}/\text{M}^3$
SO ₂	120 $\mu\text{g}/\text{M}^3$	(To be measured between 3 to 10 meters from mining activity)
NO _x	120 $\mu\text{g}/\text{M}^3$	
CO	5000 $\mu\text{g}/\text{M}^3$	

- 5 That the Mining unit shall maintain zero discharge status of waste water from the premises. No trade effluent shall be discharged inside/outside mine premises.
- 6 That the occupier/operator of mine shall ensure that all the conditions imposed in the Environmental Clearance granted by the Ministry of Environment & Forests, Government of India, vide letter No J-11015/267/2008-IA.II (M) dated 11/12/2009 shall be strictly complied with.
- 7 That the occupier/operator of mine shall ensure that all the conditions imposed in the permission of Central Ground Water Authority granted vide its letter No 21-4(2)/WR/CGWA/2008-632 & 21-4(2)/WR/CGWA/05-417 dated 06/08/2008 & 13/05/2008 shall be strictly complied.
- 8 That you shall not operate the mine without obtaining Consent to Operate from the Board.
- 9 That this Consent to Establish is for mining / processing / beneficiation of product as mentioned above in M.L.No-1/2000 and a separate Consent to Establish is required to be obtained for any other Mineral mining/ processing/ beneficiation Plant/process if any and for any addition/ modification/ alteration or change in process.
- 10 That you will implement all the pollution control measures as per EIA/EMP Report.
- 11 That the top soil shall be stored at earmarked site only shall be utilized for plantation on reclaimed OB dumps.
- 12 Catch drains/ Siltation ponds of appropriate size shall be constructed to arrest silt and sediments flows from mine pits & overburden dumps. Garland drains of adequate size, properly designed, shall be constructed around the mine pit & dump yard. Garland drain should be provided with siltation pond.
- 13 Regular monitoring of subsidence, vibration shall be carried out & if any subsidence is observed appropriate measures be undertaken to avoid any loss of life and material and be reported to Board.



Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159500, 5159595 Fax: 0141-5159897
website: www.rpcb.nic.in

Revised Consent

File No F(Mines)/Bhilwara(Hurda)/1(1)/2009-2010/3922-3926

Order No 2011-2012/Mines/1149

Date: 01/09/2011

- 14 That Ore Beneficiation plant effluent shall be treated upto prescribed standards & tailing slurry shall be transported in close pipe line to tailing dam.
- 15 That the HZL shall carry out conditioning of mined ore with water to mitigate fugitive dust emission.
- 16 The overburden generated during mining shall be stacked at earmarked site as per Approved Mining Plan & as per recommendations of Central Institute of Mining & Fuel Research, Dhanbad. The overburden dump shall be reclaimed by plantation of suitable native plant species.
- 17 That the lessee shall develop plantation in atleast 33% of the total lease area to maintain ambient air quality around the mine and the Action Plan for plantation submitted by you, shall be implemented.
- 18 That this revised consent letter shall supersede the earlier consent letter no F(Mines)/Bhilwara(Hurda)/1(1)/2009-2010/4792-4796 dated 21/01/2010
- 19 That all other general conditions enclosed as Annexure shall be strictly complied with.
- 20 That this Consent is subject to the conditions as stated above and general conditions as stated in Annexure. Further, the mining unit will comply with the provisions of the Air (Prevention & Control of Pollution) Act, 1981 & Water (Prevention & Control of Pollution) Act, 1974 and any such conditions as may be specified from time to time by the State Board under the provisions of the aforesaid Acts.
- 21 That the grant of this Consent to Establish is issued from the environmental angle only, and does not absolve the project proponent from the other statutory obligations prescribed under any other law or any other instrument in force. The sole and complete responsibility, to comply with the conditions laid down in all other laws for the time-being in force, rests with the industry/ unit/ project proponent.
- 22 That the grant of this Consent to Establish shall not, in any way, adversely affect or jeopardize the legal proceedings, if any, instituted in the past or that could be instituted against you by the State Board for violation of the provisions of the Act or the Rules made thereunder.

This bears approval of the competent authority.

Encl: As Above

Yours Sincerely


Group Incharge-Mines



Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159600,5159695 Fax: 0141-5159697
website: www.rpcb.nic.in
Revised Consent

File No F(Mines)/Bhilwara/Hurda/1(1)/2009-2010/3922-3926

Order No 2011-2012/Mines/1149

Date: 01/09/2011

Copy To -

- 1 Director, Department of Mines & Geology, Government of Rajasthan, Shastri Circle, Udaipur.
- 2 Mining Engineer, Department of Mines & Geology, Government of Rajasthan, Bhilwara.
- 3 Regional Officer, Regional Office, Rajasthan State Pollution Control Board, Bhilwara- please ensure compliance of Consent Conditions.
- 4 Master File, Consent to Establish, Group Mine, Rajasthan State Pollution Control Board, Jaipur.

Group Incharge-Mines



Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302004

Annexure

Consent to Establish under Air & Water Acts - Mining Units

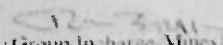
General Conditions:-

1. That this consent shall be subject to the condition that you shall operate the mining activities in the area as per the mining right allowed by the Mining Department in the Mining Lease only.
2. That this consent shall be subject to the direction/orders passed in various Mining Environment related Writ Petitions by Hon'ble High Court and the Hon'ble Supreme Court.
3. That you shall provide the necessary infrastructure facilities including equipment for the monitoring of ambient air in accordance with the directions given to you by the Pollution Control Board's officials from time to time.
4. That Mining Unit shall undertake the phased restoration, reclamation and rehabilitation of lands as per established practices & procedures (provisions of Mine Closure Plan in case of Major Minerals) affected by prospecting or mining operations and shall complete this work before the conclusion of such operations and the abandonment of prospects or mines.
5. That overburden shall be stored in a systematic manner that it does not obstruct the natural drainage pattern of the area. It may be used for back filling. The land shall be identified for disposal of overburden at environmentally compatible site.
6. That the project proponent will stack the top soil separately and will use it for plantation and reclamation of overburden dumps.
7. That Mining unit shall strictly comply with the Mining Plan and Eco Friendly Mining Plan as submitted to & approved by the competent authority. (Eco Friendly Mining Plan for Minor Mineral & mining plan for Major minerals & marble, Granite Mines).
8. That the water spray and sprinkling system so installed should always be maintained in order to utilize the same for dust suppression.
9. That the domestic effluent if any, shall be treated and disposed of with properly designed septic tank followed by soak pit as per prescribed standard.
10. That Air Emissions shall conform to the standards prescribed under the Environment (Protection) Act, 1986.
11. That noise level shall be kept as detailed below and under no circumstances, it shall exceed the prescribed limit:-

a. Day time	(6.0 AM to 9.0 PM)	- 75 dB A (leq)
b. Night time	(9.0 PM to 6.0 AM)	- 65 dB A (leq)
12. That this consent should not be treated as NOC or approval for mining in forest area. If any, falling in the lease and relevant permission under provisions of the Forest (Conservation) Act, 1980 shall be obtained from the competent authority.
13. That the Industry shall comply with provisions of the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and the Hazardous Waste (Management & Handling) Rules, 1989 and related amendments, as applicable.
14. That this consent is valid, subject to fulfillment of all the other statutory requirements in other Law/Acts/Rules as applicable.

P.T.O.

15. That for Diesel Generator Set, acoustic enclosure/acoustic treatment shall be provided to meet the prescribed norms w.r.t. noise as per the Gazette Notification of Ministry of Environment & Forests dated 02.01.99. Adequate stack height with D.G. Sets shall also be provided and maintained. Noise from the Diesel Generator Sets shall be controlled by providing an acoustic enclosure or by treating the room acoustically. The acoustic enclosure/acoustic treatment of room should be designed for minimum 25 dB (A) Insertion Loss or for meeting the ambient noise standards whichever is on the higher. The measurement for Insertion Loss may be done at different points at 0.5 metre from the acoustic enclosure/room and then averaged. The Diesel Generator Sets should also be provided with proper exhausts muffler with Insertion Loss of minimum 25 dB (A). The stack height for the Diesel Generator Sets shall be as notified under the EI Act, 1986.
16. That the industry shall submit quarterly compliance of all the above stated conditions to this office.
17. That the unit shall submit Water Cess returns in case the water consumption is more than 10 KLD under provisions of the Water (Prevention & Control of Pollution) Cess Act, 1977 and as mentioned from time to time.
18. That notwithstanding anything contained in this letter of consent, the State Board hereby reserves to it, the right and power under section 21(6) of the Air (Prevention & Control of Pollution) Act, 1981 & under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review anyone/or all the conditions imposed here-in-above and to make such variations as deemed fit for the purpose of Air Act & Water Act.
19. That this consent, under no circumstances, be construed as conferment of any property or any interest in the lease area. It is only confined for the purpose of regulation of provisions of the Air Act & Water Act.
20. That any incorrect information submitted in the consent application form shall make the industry liable for legal action under section 38 of the Air Act & under section 43 of the Water Act.
21. That in case of failure to comply with any of the consent conditions stated as above, the consent issued to the industry shall automatically stand revoked without any notice.
22. That this Consent will not exempt you from any legal action for the past violations, if any, of the Act/Rules/Notifications/Circulars etc.
23. That the Drills shall be operated with water injection system i.e. wet drilling be carried out during mining or the drills shall be operated with dust extractors.
24. That Gullies drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mineral and overburden dumps to prevent run off of water and flow of sediments.
25. That the Project Proponent shall construct Retaining Wall and Siltation Pond of appropriate size around the overburden dumps.
26. That the controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented, and permission from the Director General Mine Safety and the Director Explosives.


 (Group Incharge Mines)



Head Office (Mines)
Rajasthan State Pollution Control Board
4, Institutional Area, [halana Doongari, Jaipur-302 004
Phone: 0141-2716814,2716813 Fax: 0141-2716814



Registered

File No F(CPM)/Bhilwara(Hurda)/2(1)/2019-2020/7113-7117

Order No 2022-2023/Mines/10762

Date: 28/02/2023

Unit Id : 11,660

M/s Hindustan Zinc Limited

(Rampura Agucha Mine), P.O.- Agucha, Bhilwara.

District :Bhilwara

Sub: Grant of Consent to Operate under Section 21(4) of Air (Prevention & Control of Pollution) Act, 1981 and under Section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 for your Major Mineral Mine at near Village-Agucha, Tehsil-Hurda, District- Bhilwara (M.L.No-8/1999).

Ref: (I) Your applications dated 28/10/2022
(II) Received on 28/10/2022

Sir,

In view of the details submitted vide your above referred applications/ documents, the Consent to Operate under Section 21(4) of Air (Prevention & Control of Pollution) Act, 1981 and under Section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 is hereby granted for carrying mining activities. This consent is subject to the following stipulations:-

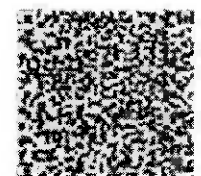
- 1 That this consent is being granted in favour of M/s. Hindustan Zinc Limited, a Mine of Major Mineral having M.L.No.- 8/1999 in an area measuring 1200.0000 Hectares at/near Village-Agucha, Tehsil-Hurda, District- Bhilwara.
- 2 That this consent is valid for a period from 01/03/2023 to 29/02/2028
- 3 That this consent is valid for following mining activities :-

Mineral	Permitted Mining Capacity
1 Lead & Zinc Ore Mining	6.1500 MILLION TONNES PER ANNUM

- 4 That the project proponent will comply with the Standard as prescribed vide the Ministry of Environment, Forest and Climate Change notification no. GSR 826(E) dated 16th November, 2009 with respect to National Ambient Air Quality standards.

Signature valid

Digitally signed by: Mohan Chand
Date: 2023.02.28 11:06:15T
Reason: I am the author
Location:





Head Office (Mines)
Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 604
Phone: 0141-2716814,2716813 Fax: 0141-2716814

Registered

File No F(CPM)/Bhilwara(Hurda)/2(1)/2019-2020/7113-7117

Order No 2022-2023/Mines/10762

Date: 28/02/2023

Unit Id : 11,060

- 5 That this consent to establish/consent to operate is only for carrying out mining of mineral/ore and not for any processing/beneficiation or crushing/grinding of ore/mineral for which a separate application for consent to establish and/or consent to operate should be submitted. The project proponent is required to obtain separate consent to establish and consent to operate for carrying out mining of other mineral(s), if any or processing/beneficiation of such mineral(s) and for any addition/modification/alteration or change in process.
- 6 That this Consent to Operate is for mining / processing / beneficiation of product as mentioned above in M.L.No.-8/1999 and a separate Consent to Operate is required to be obtained for any other Mineral mining/ processing/ beneficiation Plant/process if any and for any addition/ modification/ alteration or change in process.
- 7 That the occupier/operator of mine shall ensure that all the conditions imposed in the Environmental Clearance granted by the Ministry of Environment , F o r e s t a n d Climate C h a n g e v i d e l e t t e r s dated 11/12/2009,22/08/2014,22/12/2014,28/12/2015 and 28/02/2020 are strictly complied with.
- 8 That this consent is valid for production of Lead & Zinc Ore Mining @ 6.15 Million Tonnes per Annum. For any change in product and/or increase in capacity/lease area, the mine has to seek fresh Environmental Clearance, consent to establish & consent to operate.
- 9 That the lease holder shall get the CAAQMS stations configured with the RSPCB OCEMS latest by 30.04.2023, else, Environmental Compensation shall be levied as per norms of RSPCB.
- 10 That plantation shall be developed so as to cover at least 33% of the total land use for mining and allied activities as given in Approved Mining Plan and shall be maintained at all the time to maintain ambient air quality around the mine.
- 11 That the lessee shall submit monitoring report of Ambient Air Quality within the lease area, once in 3 months.
- 12 That the entire water (dewatering in the mine) shall be reused after desludging for mining operations (drilling etc). No water shall be discharged outside the mining lease area.
- 13 That haul roads should be regularly graded and compacted. Regular water sprinkling should be carried out on haul roads to minimize dust generations.
- 14 That adequate measure shall be taken for control of fugitive emissions from the areas prone to air pollution.

Signature valid

Digitally Signed by: Jyoti Chaud
Date: 2023.02.28 11:00 IST
Reason: Succeeded
Location:





Head Office (Mines)
Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-2716814, 2716813 Fax: 0141-2716814

Registered

File No F(CPM)/Bhilwara(Hurda)/2(1)/2019-2020/7113-7117

Order No 2022-2023/Mines/10762

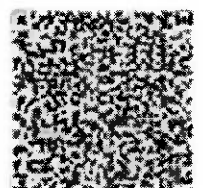
Date: 28/02/2023

Unit Id : 11,060

- 15 That you shall not operate any stone crusher/mineral grinding/mineral processing plant within said lease without obtaining prior consent of the State Board.
- 16 That this consent to operate shall not be valid, if the lessee has not obtained permissions required, if any, from NBWL/Forest Department etc. with respect to Wild Life Sanctuary /National Parks/ Critical Tiger Habitats in compliance of various orders passed by any other law/act/rule/regulation or order of MoEF&CC and/or any Court/Tribunal time to time.
- 17 That regular water sprinkling should be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as on haul road, loading and unloading points and transfer points.
- 18 That the mine shall not allow making any obstacles to any natural water flow i.e., natural mallah/steam carrying rain water to any water body.
- 19 That the mine shall not allow unauthorized disposal of any solid waste on land inside or outside the premises.
- 20 That this consent to operate shall be subject to compliance of direction/order passed by Courts of Law in the matter, if any.
- 21 That the lessee should dump the overburden in such a manner that it does not get washed away to nearby water tanks and lakes etc. during rainy season.
- 22 This consent shall be subject to validity of mining lease.
- 23 That all other general conditions enclosed as Annexure shall be strictly complied with.
- 24 That this Consent is subject to the conditions as stated above and general conditions as stated in Annexure. Further, the mining unit will comply with the provisions of the Air (Prevention & Control of Pollution) Act, 1981 & Water (Prevention & Control of Pollution) Act, 1974 and any such conditions as may be specified from time to time by the State Board under the provisions of the abovesaid Acts.
- 25 That the grant of this Consent to Operate is issued from the environmental angle only, and does not absolve the project proponent from the other statutory obligations prescribed under any other law or any other instrument in force. The sole and complete responsibility, to comply with the conditions laid down in all other laws for the time-being in force, rests with the industry/ unit/ project proponent.

Signature valid

Digitally signed by Manoj Chand Gupta
Date: 2023.02.28 11:09:15
Reason: Unauthenticated
Location:





Head Office (Mines)
Rajasthan State Pollution Control Board
4, Institutional Area, (Jhalana Doongari, Jaipur-302 004
Phone: 0141-2716814,2716813 Fax: 0141-2716814

Registered

File No F(CPM)/Bhilwara(Hurda)/2(1)/2019-2020/7113-7117

Order No 2022-2023/Mines/10762

Date: 26/02/2023

Unit Id : 11,060

26 That the grant of this Consent to Operate shall not, in any way, adversely affect or jeopardize the legal proceedings, if any, instituted in the past or that could be instituted against you by the State Board for violation of the provisions of the Act or the Rules made thereunder.

27 That the grant of this consent to establish/operate is issued from the environmental angle only, and does not absolve the project proponent from the other statutory obligations prescribed under any other law or any other legal instrument in force. The sole and complete responsibility, to comply with the conditions laid down in all other laws for the time being in force, rests with the industry/unit/project proponent.

This bears approval of the competent authority.

Encl: As Above

Yours sincerely,

Group Incharge-Mines

(A): Copy To:-

- 1 Director, Department of Mines & Geology, Government of Rajasthan, Shastri Circle, Udaipur..
- 2 Regional Officer, Regional Office, Rajasthan State Pollution Control Board, Bhilwara-please ensure compliance of the consent conditions and monitor time to time
- 3 Mining Engineer, Department of Mines & Geology, Government of Rajasthan, Bhilwara-To Inform that this consent has been issued from the environmental angle only, and ensuring compliance of any other law/act/rule/regulation or order of any Court / Tribunal is the sole responsibility of the project proponent and the concerned departments
- 4 Master File .

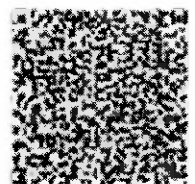
(B):

- 1 The Additional POCF (WL) and Chief Wildlife Warden, Aranyk Bhawan, Jhalana Institutional Area, Jaipur/DCP(WL), Bhilwara, To inform that this consent has been issued from the environmental angle only, and ensuring compliance of any other law/act/regulation or order of any Court /Tribunal is the sole responsibility of the project proponent and the concerned departments

Group Incharge-Mines

Signature valid

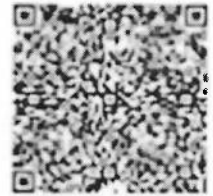
Digitally signed by Mohan Chand
Digit
Date: 2023.02.28 11:09 IST
Reason: I am Approved
Location:



Valid Mine CTO



Head Office (HDF)
Rajasthan State Pollution Control Board
 4, Institutional Area, Jhalana Doongari, Jaipur-302 004
 Phone: 0141-5159600,5159695



Registered

File No : F(HDF)/Bhilwara(Hurda)/1(1)/2023-2024/1629-1631

Order No : 2023-2024/HDF/9370

Date: Jun 14 2023 3:32PM

Unit Id : 11060

M/s Hindustan Zinc Limited

(Rampura Agucha Mine), P.O.- Agucha, Bhilwara.,
 District Bhilwara

Sub: Consent to Operate under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under Section 21(4) of Air (Prevention & Control of Pollution) Act, 1981.

Ref: Your application for Consent to Operate dated 28/10/2022 and subsequent correspondence.

Sir,

Consent to Operate under the provisions of Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 (hereinafter to be referred as the Water Act) and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981, (hereinafter to be referred as the Air Act) as amended to date and rules & the orders issued thereunder is hereby granted for your Hindustan Zinc Limited Rampura Agucha Mines Beneficiation Plant situated at PO - Agucha Agucha Tehsil Hurda District Bhilwara, Rajasthan, subject to the following conditions:-

- 1 That this Consent to Operate is valid for a period from 01/03/2023 to 29/02/2028.
- 2 That this Consent is granted for manufacturing / producing following products / by products or carrying out the following activities or operation/processes or providing following services with capacities given below:

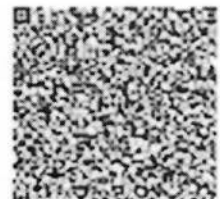
Particular	Type	Quantity with Unit
Lead Zinc Ore Beneficiation	Activity	6.50 MILLION TONNES PER ANNUM

- 3 That this Consent to Operate is for existing plant, process & capacity and separate Consent to Establish/Operate is required to be taken for any addition / modification / alteration in process or change in capacity or change in fuel.
- 4 That the quantity of effluent generation along with mode of disposal for the treated effluent shall be as under:

Page 1 of 11

Signature valid

Digitally signed by **Rajesh Mahapat**
 Date: 2023.06.14 15:33:22 IST
 Reason: See Attached
 Location:





Head Office (HDF)
Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159600,5159695

Registered

File No : F(HDF)/Bhilwara(Hurda)/1(1)/2023-2024/1629-1631

Order No : 2023-2024/HDF/9370

Date: Jun 14 2023 3:32PM

Unit Id : 11060

Type of effluent	Max. effluent generation (KLD)	Recycled Qty of Effluent (KLD)	Disposed Qty of effluent (KLD) and mode of disposal
Domestic Sewage	235.000	NIL	210.000 To be treated by STP and to be utilized in plantation and horticulture within the factory premises
Trade Effluent	16670.000	7,800.000	NIL

- 5 That the sources of air emissions along with pollution control measures and the emission standards for the prescribed parameters shall be as under:

Sources of Air Emissions	Pollution Control Measures	Prescribed	
		Parameter	Standard
Primary Crusher New(750TPH)	ADEQUATE STACK HEIGHT , Bag Filter , WATER SPRAYERS , WET SCRUBBER , WITH ADEQUATE STACK HEIGHT	Particulate Matter	150 mg/Nm ³
Primary Crusher Old(700TON/HR)	ADEQUATE STACK HEIGHT , Bag Filter , WATER SPRAYERS , WET SCRUBBER , WITH ADEQUATE STACK HEIGHT	Particulate Matter	150 mg/Nm ³

Page 2 of 11

Signature valid

Digitally signed by Rajeev Mathur
Date: 2023.06.14 15:33:22 IST
Reason: Digitally signed
Location:





Head Office (HDF)
Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159600,5159695

Registered

File No : F(HDF)/Bhilwara(Hurda)/1(1)/2023-2024/1629-1631

Date: Jun 14 2023 3:32PM

Order No : 2023-2024/HDF/9370

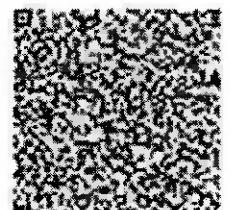
Unit Id : 11060

Secondary Crusher(500TON/HR)	ADEQUATE STACK HEIGHT , Bag Filter , WATER SPRAYERS , WET SCRUBBER , WITH ADEQUATE STACK HEIGHT	Particulate Matter	150 mg/Nm3
Two DG Sets (5MW each)(10MW)	ACOUSTIC ENCLOSURE , ADEQUATE STACK HEIGHT	CO Particulate Matter NOx NMHC	150 mg/Nm3 75 mg/Nm3 710 ppm 100 mg/Nm3

- 6 That the Hindustan Zinc Limited Rampura Agucha Mines Beneficiation Plant plant will comply with the standards as prescribed vide MoEF notification No. GSA 826(E) dated 16th November, 2009 with respect to National Ambient Air Quality Standards
- 7 That the Trade Effluent shall be treated before disposal so as to conform to the standards prescribed under the Environment (Protection) Act-1986 for disposal into Inland Surface Water. The main parameters for regular monitoring shall be as under:

Signature valid

Digitally signed by Rajeev Mahesh
Date: 2023.06.14 17:33:22 IST
Reason: Digitally signed
Location:





Head Office (HDF)
Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159600,5159695

Registered

File No : F(HDF)/Bhilwars(Harda)/1(1)/2023-2024/1629-1631

Date: Jun 14 2023 3:32PM

Order No: 2023-2024/HDF/9370

Unit Id : 11060

Parameters	Standards
Total Suspended Solids	Not to exceed 100 mg/l
pH Value	Between 5.5 to 9.0
Oil and Grease	Not to exceed 10 mg/l
Ammonical Nitrogen (as N)	Not to exceed 50 mg/l
Biochemical Oxygen Demand (3 days at 27°C)	Not to exceed 30 mg/l
Chemical Oxygen Demand	Not to exceed 250 mg/l
Nitrate (as NO ₃)	Not to exceed 50 mg/l

4. That the Trade Effluent shall be treated before disposal so as to conform to the standards prescribed under the Environment (Protection) Act-1986 for disposal into Inland Surface Water . The main parameters for regular monitoring shall be as under

Page 4 of 11

Signature valid

Digitally signed by Rajeev Mahesh
Date: 2023.06.14 17:33:22 IST
Reason: Signed
Location:





Head Office (HDF)
Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159600,5159695

Registered

File No : F(HDF)/Bhilwara(Hurda)/1(1)/2023-2024/1629-1631

Order No : 2023-2024/HDF/9370

Date: Jun 14 2023 3:32PM

Unit Id : 11060

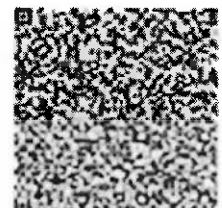
Parameters	Standards
Total Suspended Solids	Not to exceed 100 mg/l
pH Value	Between 5.5 to 9.0
Oil and Grease	Not to exceed 10 mg/l
Biochemical Oxygen Demand (3 days at 27°C)	Not to exceed 30 mg/l
Lead (as Pb)	Not to exceed 0.1 mg/l
Cadmium (as Cd)	Not to exceed 2.0 mg/l
Copper (as Cu)	Not to exceed 3.0 mg/l
Zinc (as Zn)	Not to exceed 5.0 mg/l
Nickel (as Ni)	Not to exceed 3.0 mg/l
Cyanide (as CN)	Not to exceed 0.2 mg/l
Fluoride (as F)	Not to exceed 2.0 mg/l
Sulphide (as S)	Not to exceed 2.0 mg/l
Iron (as Fe)	Not to exceed 3.0 mg/l
Chlorides	Not to exceed 1000 mg/l
Chemical Oxygen Demand	Not to exceed 250 mg/l

- 9 That this consent to operate is valid for operation of Lead Zinc Ore Beneficiation plant of 6.5 Million Ton Per Annum capacity. The industry has to seek fresh consent to establish for any change in product/by product/process/service/activity and modification/alteration.
- 10 That total capital investment as on 30.09.2022 as per the C.A. certificate submitted by you is Rs. 103564 (Lakh) which includes the cost of Land, Building, Plant & Machinery and miscellaneous assets.
- 11 That the industry shall comply with all the conditions of Environmental Clearance (E.C) issued by the Ministry of Environment, Forest & Climate Change (MoEF&CC), Government of India, vide letters no. J-11015/267/2008-IA.II(M) dated 11.12.2009

Page 5 of 15

Signature valid

Digitally signed by Anshu Mahnet
Date: 2023.06.14 17:33:22 IST
Reason: I am the issuer





Head Office (HDF)
Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159600,5159695

Registered

File No : F(HDF)/Bhilwara(Hurda)/1(1)/2023-2024/1629-1631

Order No : 2023-2024/HDF/9370

Date: Jun 14 2023 3:32PM

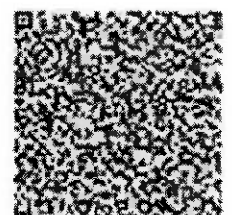
Desk Id : 11060

- 12 That Hazardous Waste as defined under schedule IV of Hazardous & others Waste (Management, and Transboundary Movement) Rules, 2016 shall not be used as raw material without obtaining prior registration & authorization from the State Board.
- 13 That total water consumption/requirement for lead Zinc Ore Benefication Plant shall not exceed to 9500 KLD which will be met from Banas Radial Wells.
- 14 That industry shall comply with all the conditions of CGWA permission/NoC issued by Central Ground Water Authority, Ministry of Water resource Govt of India vide letter no. 21-4/2/RJ/MIN/2004 dated 08.04.2022.
- 15 That water flow meters shall be provided and maintained at all suitable points to measure quantity of water received from Banas radial wells and water consumption for different purposes. Record of the same shall be maintained on daily basis.
- 16 That unit shall treat 235 KLD domestic sewage at sewage treatment plant of 300 KLD capacity (for mines and beneficiation plant) that entire treated sewage shall be reused for plantation and horticulture purpose and unit shall maintain zero liquid discharge outside the premises.
- 17 That the total quantity of trade effluent shall not exceed from 16670 KLD. Out of 16670 KLD , 7800 KLD will be recycled/reclaimed from tailing dam and remaining 4870 KLD retained in the tailing dam.
- 18 That waste water generated from tailing dam will be reused/recycled completely in mill/process.
- 19 That the industry shall take utmost precaution to cater seepage from tailing dam and ensure complete recycle of seepage water in process only.
- 20 That the industry shall explore & carry out some scientific and technical study with reputed experienced organization in the field for catering of seepage from tailing dam.
- 21 That the industry shall re-circulate the decanted water from the tailing dam and shall maintain Zero Discharge Status from tailing dam.
- 22 That the effluent from the ore beneficiation plant shall be treated to conform to the prescribed standards and the tailing slurry shall be transported through a closed pipeline to the tailing dam.
- 23 That the industry shall maintain the stability and safety of the tailing dam as assessed by CWPRS and NIRM
- 24 That no waste water (domestic & trade effluent) will be discharged inside or outside the factory premises in to a stream or well or sewer or on land in any case and complete zero discharge status shall be maintained.

Page 8 of 11

Signature valid

Digitally signed by Anshu Mahesh
Date: 2023.06.14 15:33:22 IST
Reason: Digitally signed
Location:





Head Office (HDF)
Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159600,5159695

Registered

File No : F(HDF)/Bhilwara(Hurda)/1(1)/2023-2024/1629-1631

Date: Jun 14 2023 3:32PM

Order No : 2023-2024/HDF/9370

Unit Id : 11060

- 25 That separate energy meter & hour meter shall be provided and maintained at all the air pollution control measures and record of daily running hours of pollution control measures and daily energy consumption shall be maintained in log book.
- 26 That for the control of fugitive emission guidelines / code of practice as issued by CPCB will be followed.
- 27 That the industry shall maintain stack of adequate height at crusher and air pollution control measures shall be operated regularly and efficiently to achieve the prescribed emission standards as per condition no.4.
- 28 That adequate infrastructure facility for stack emission monitoring shall be maintained at the stack of crushers.
- 29 That stack of adequate height as per norms and acoustic enclosure shall be maintained with two DG Sets of 5 MW KYA each.
- 30 That unit shall provide permanent safe infrastructure facility for stack monitoring with stack attached with two DG set (5MW each) within a month.The unit shall deposit bank guarantee for the same immediately.
- 31 That no additional source of air emission shall be installed without prior consent from the State Board.
- 32 That all the raw materials and products shall be stored in closed sheds.
- 33 That cemented roads shall be provided and maintained properly inside the premises to minimize fugitive emissions due to vehicular movement.
- 34 That water sprinkling and cleaning of haul roads by vacuum cleaner shall be done regularly to control the fugitive emissions generated due to vehicular movement.
- 35 That dust suppression system shall be maintained to minimize fugitive dust emission in Lead Zinc Ore handling area & at various transfer points and closed conveyor belts shall be used for the transfer of material to reduce the fugitive emissions.
- 36 That unit shall provide flexible curtains vertically attached with crusher house shed(material feeding hopper points) so as to minimize escape of fines in addition to water spray nozzles at feeding hopper.
- 37 That the industry shall maintain dust collection and extraction system to control fugitive dust emissions at all the transfer points & loading/unloading areas.
- 38 That regular monitoring of ground water particularly in respect to heavy metals shall be carried out by establishing adequate numbers of piezometric well around tailing dam.
- 39 That adequate arrangements shall be made to avoid flow of pollutants along with rain water.

Page 7 of 11

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Head Office (HDF)
Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
Phone: 0141-5159600,5159695

Registered

File No : F(HDF)/Bhilwara(Hurda)/1(1)/2023-2024/1629-1631

Order No: 2023-2024/HDF/9370

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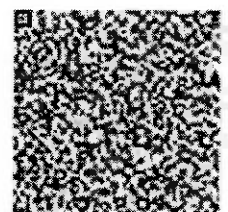
Unit Id : 11063

- 40 That the industry shall carryout effluent sampling/stack monitoring/ambient air quality monitoring and submit quarterly analysis report from the State Board laboratory/laboratory recognized by Ministry of Environment, Forests & Climate Change (MoEF&CC), Government of India
- 41 That industry shall comply with the provisions of Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2016 & Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 (as notified under Environment (Protection) Act, 1986 and record of daily hazardous waste generation and its disposal shall be maintained.
- 42 That the precautions/measures shall be taken for minimization of exposure to the workers involved in handling/processing of the lead and lead bearing material.
- 43 That the unit shall periodically examine their workers at least once in year for lead level in blood as well as urine. Persons with higher lead levels (greater than 45 µg/dl) should be shifted immediately to non-lead activity areas and given special medical treatment till the lead levels come back to acceptable level.
- 44 That the industry shall install and maintain adequately designed rain water harvesting structure for recharge of ground water in and around the area.
- 45 That the plantation of local species in the 33% of total area of the project shall be carried out & maintained.
- 46 That the industry shall get policy renewed from time to time under Public Liability Insurance Act (PLIA) and submit its copy to the Board
- 47 That the industry shall obtain Environmental Clearance from competent authority under EIA Notification dated 14.09.2006 before establishing any such activity which attracts Environmental clearance under EIA Notification dated 14.09.2006.
- 48 That unit shall submit time bound proposal along with Bank guarantee (10% of total cost of dry tailing facility) within one month, for installation of dry tailing facility instead of simple charge of waste water and tailings into tailing dam.
- 49 That unit shall ensure check and restore ambient air quality monitoring machines as per CAAQMS protocol and if required may be purchase proper CAAQMS machinery setup and ensure online connectivity with RSPCB Server and submit evidence based compliance to the State Board within a period of one month. That unit shall deposit Bank Guarantee for the same immediately.
- 50 That the industry shall submit the quarterly compliance report of all the above conditions to the State Board.

Page 4 of 11

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Phone: 0141-5159600,5159695

Registered

File No : F(HDF)/Bhilwara(Hurda)/1(1)/2023-2024/1629-1631

Order No: 2023-2024/HDF/9370

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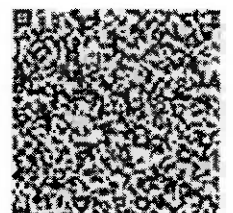
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- 51 That unit shall install PTZ camera and Online flow meter with the Tailing dam inlet and tailing dam reuse line, within one month, so as to ensure complete reuse of waste water in accordance with water balance submitted That unit shall deposit Bank Guarantee (10% of total cost of PTZ camera and online flow meter) immediately.
- 52 That PTZ cameras should be installed at the locations to cover entire area of tailing dam.
- 53 That unit shall complete the work related to replacement of monkey ladder to safe monitoring infrastructure monitoring facility for the stack attached with Primary Crusher-New (750 TPH) within one month and submit the evidence based report to the State Board. That unit shall deposit Bank Guarantee for the same immediately.
- 54 That unit shall comply with all the provisions of MSHIC Rules, 1989 and amended so and also with PII Act, 1991.
- 55 That unit shall expedite completion of Hydro geological survey and isotopic analysis study.
- 56 That notwithstanding anything provided hereabove, the State Board shall have the power and reserves its right, as contained under Section 27(2) of the Water Act and under Section 21(6) of the Air Act to review anyone or all of the conditions imposed here in above and to make such variation as it deems fit for the purpose of Air Act & Water Act.
- 57 That the grant of this Consent to Operate is issued from the environmental angle only, and does not absolve the project proponent from the other statutory obligations prescribed under any other law or any other instrument in force. The sole and complete responsibility to comply with the conditions laid down in all other laws for the time being in force, rests with the industry/unit/project/proponent.
- 58 That the grant of this Consent to Operate shall not, in any way, adversely affect or jeopardize the legal proceeding, if any, instituted in the past or that could be instituted against you by the State Board for violation of the provisions of the Water Act and Air Act or the Rules made thereunder.
- 59 That the Project Proponent shall comply with provisions of the E-waste (Management) Rules, 2016 and ensure that e-waste generated by them is channelized through collection centre or dealer of authorized producer or dismantler or recycler or through designated take back service provider of the producer to authorized dismantler or recycler.
- 60 That the Project Proponent shall maintain record of e-waste generated by them in Form-2 and make such records available for scrutiny by the Board.

Page 9 of 11

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Rajasthan State Pollution Control Board
4, Institutional Area, Jhalana Doongari, Jaipur-302 004
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Date: Jun 14 2023 3:32PM

Order No: 2023-2024/HDF/9370

Unit Id : 11060

- 61 That the Project Proponent shall file annual returns in Form-3, to the Board on or before the 30th day of June following the financial year to which that return relates.
- 62 That the transportation of e-waste shall be carried out as per the manifest system whereby the transporter shall be required to carry a document (Three copies) prepared by the sender, giving the details as per Form-6.
- 63 That the Project Proponent shall comply with provisions of the Batteries (Management and Handling) Rules, 2001 (as amended) and submit half yearly returns (as bulk consumer, importer, auctioneer, recycler as the case may be) to the State Board as provided under Rule 10(2) (i) of the Battery (Management and Handling) Rules, 2001 (as amended). In case the Project Proponent is not a bulk consumer even then the used batteries shall be returned to the authorized dealers or recyclers only.
- 64 That the record of batteries purchased and sold/ returned to registered dealers and/ or authorized recyclers shall be maintained and made available to the officers of the Board during inspections.

This Consent to Operate shall also be subject, besides the aforesaid specific conditions, to the general conditions given in the enclosed Annexure. The Project Proponent will comply with the provisions of the Water Act and Air Act and to such other conditions as may, from time to time, be specified, by the State Board under the provisions of the aforesaid Act(s). Please note that, non compliance of any of the above stated conditions would tantamount to revocation of Consent to Operate and Project Proponent / occupier shall be liable for legal action under the relevant provisions of the said Act(s).

This bears approval of the competent authority.

Yours sincerely,

Group Incharge (HDF)

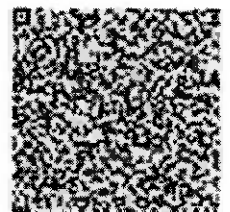
(A): Copy to:-

- 1 Regional Officer, Regional Office, Rajasthan State Pollution Control Board, Bhilwara ensure the compliance of conditions of its Consent to Operate.
- 2 Master File

Page 10 of 11

Signature valid

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Head Office (HDF)
Rajasthan State Pollution Control Board
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File No : F(HDF)/Bhilwara(Hurda)/1(1)/2023-2024/1629-1631

Order No : 2023-2024/HDF/9370

Date: Jun 14 2023 3:32PM

Unit Id : 11060

Group Incharge(HDF)

Page 11 of 11

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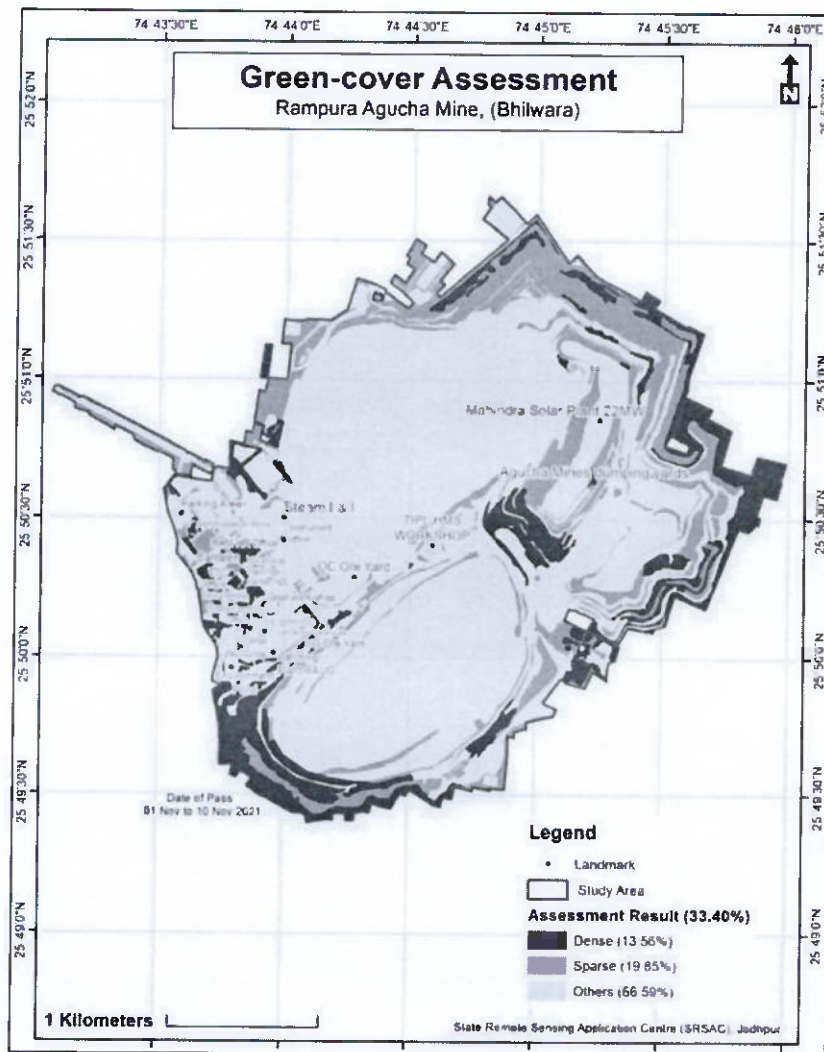
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Tailing close pipeline

Green Cover Assessment

For Rampura Mine, Agucha of Hindustan Zinc Limited
located in Rajasthan



By

State Remote Sensing Application Centre (SRSAC)
Department of Science & Technology (DST), Government of Rajasthan
Subhash Nagar, Pal Road, Jodhpur – 342008 (Raj.)

January 2023

**This report is the outcome of the study conducted at
SRSAC, Jodhpur, Rajasthan.**

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Preface

State Remote Sensing Application Centre (SRSAC) of the Department of Science & Technology, Government of Rajasthan, endeavours to make the best possible use of remote sensing and Geographic Information System (GIS) technologies towards fostering sustainable development in Rajasthan.

In Rajasthan, the remote sensing activities started with the establishment of Aerial Photo Interpretation Laboratory (APIL) in 1979 as a part of the centrally sponsored Desert Development programme, to assist soil and water conservation planning in the State, under State Agriculture Department. Later on, in 1985 looking to the multi-disciplinary utilities of Remote Sensing technology, the laboratory was transferred to the State Department of Science and Technology and renamed as State Remote Sensing Application Centre (SRSAC).

SRSAC functions to fulfil the following objectives:

- To regularly generate a databank consisting of temporal and spatial databases.
- To generate information systems for natural resources.
- To interact with various user agencies for the formulation and implementation of developmental planning, using remote sensing technique.
- To undertake short term and long term experimental and operational remote sensing studies for various natural resources, infrastructure, and urban planning.
- To collaborate/interact with national-level remote sensing institutes like National Remote Sensing Centre (NRSC), Hyderabad, Space Application Centre (SAC), Ahmedabad, Regional Remote Sensing Centres (RRSC's) to carry out joint projects.
- To popularize remote sensing and GIS by organizing training-courses/workshops/seminars for different state user departments, technocrats, students, etc.

The Centre has been catering to the natural resource survey, monitoring and planning needs of the State since past more than three decades. Assistance is regularly provided to the user departments in the State for planning the development activities using Remote Sensing and GIS techniques. The Centre has long been collaborating with Indian Space Research Organisation (ISRO), Department of Space, Govt. of India for executing state level projects using space-based information support.

Four major categories of projects being carried out at SRSAC are:

1. Generating numerous geospatial layers for information support

Building natural resources information system, Land-use & land-cover (LULC) mapping, crop acreage estimation, surficial waterbodies mapping, groundwater quality mapping, wasteland mapping, land-degradation mapping, wetland mapping, forest blocks mapping, geomorphological & lineaments mapping, infrastructural mapping, cadastral mapping, administrative boundaries demarcation

2. Planning various natural resources management and development planning activities

Supporting decentralized rural development planning, forecasting agricultural outputs, Panchayat Samiti wise master-plan of water-harvesting-structure sites, silt prevention studies in Pushkar Lake, conservation planning of Jodhpur lift canal

3. Monitoring the landscape through change detection activities

Watersheds monitoring, waterbodies monitoring, river-flow change analysis, monitoring the crop-residue-burning, eco-sensitive zone monitoring, LULC change detection around mining areas, wasteland change analysis, forest cover change analysis, encroachment studies, industrial green cover assessment

4. Capacity building of the user departments / students / common man

Organizing trainings/courses/workshops/seminars, preparing atlases such as Resource Atlas of Rajasthan, Ground Water Atlas of Rajasthan, Watershed Atlas of Rajasthan, Ayurvedic Medicinal Plants Atlas of Rajasthan, Soil Resource Atlas of Rajasthan, exclusive workshops for spatial empowerment of Panchayati Raj Institutions

The Centre aims to move forward from information support towards decision support for sustainable development and management of natural resources along with infrastructure development and urban planning through the application of remote sensing and GIS technology.

This report is an outcome of the study that was conducted by the Centre to assess the green cover area within the boundaries of Rampura Agucha Mine, of Hindustan Zinc Limited, Rajasthan, using remote sensing and GIS technologies.

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List of abbreviation

DST	Department of Science & Technology
ESA	European Space Agency
GIS	Geographic Information System
Gol	Government of India
GoR	Government of Rajasthan
HRSI	High-Resolution Satellite Imagery
IRS	Indian Remote Sensing Satellite
ISRO	Indian Space Research Organization
NDVI	Normalized Difference Vegetation Index
NIR	Near-Infrared
NRSC	National Remote Sensing Centre
SRSAC	State Remote Sensing Application Centre

1. Introduction

Hindustan Zinc, a Vedanta Group Company, is one of the world's largest and India's only integrated producer of Zinc-Lead and Silver. The Company has its headquarters at Udaipur in the State of Rajasthan where it has its Zinc-Lead mines and smelting complexes. Hindustan Zinc is self-sufficient in power with captive thermal power plants and has ventured into green energy by setting up wind power plants. The Company is ranked 1st in Asia-Pacific and globally 5th in Dow Jones Sustainability Index in 2021 amongst Mining & Metal companies. Hindustan Zinc is a certified Water Positive Company and is the only Indian company to be recognized at the S&P Global Platts Metal Award 2022.

The company has embarked on an ambitious sustainability journey, led by its Sustainability Goals 2025, driven by its vision of 'ZERO HARM, ZERO DISCHARGE, ZERO WASTE.' These Sustainability Goals were developed by the company as an action agenda for accomplishing its overarching long-term goal of creating positive impacts across the value chain.

Green cover is the area with tree plantation and is intended to reduce pollution from the surrounding air. Both gaseous and particulate pollutants can get absorbed if an appropriate green cover is maintained. As per the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India, green belt is to be developed and maintained to minimize the impact due to air pollution and noise pollution in the environment. A minimum of 33% of the area is to be kept for green belt development.



2. Objective

The objective of the study presented here was to perform geospatial mapping of the study area for demarcation of the area under green (vegetation) cover, along with the approximation of tree count.

3. Study Area

The study area for the report presented here is Rampura Mine, Agucha located in Bhilwara District of Rajasthan.

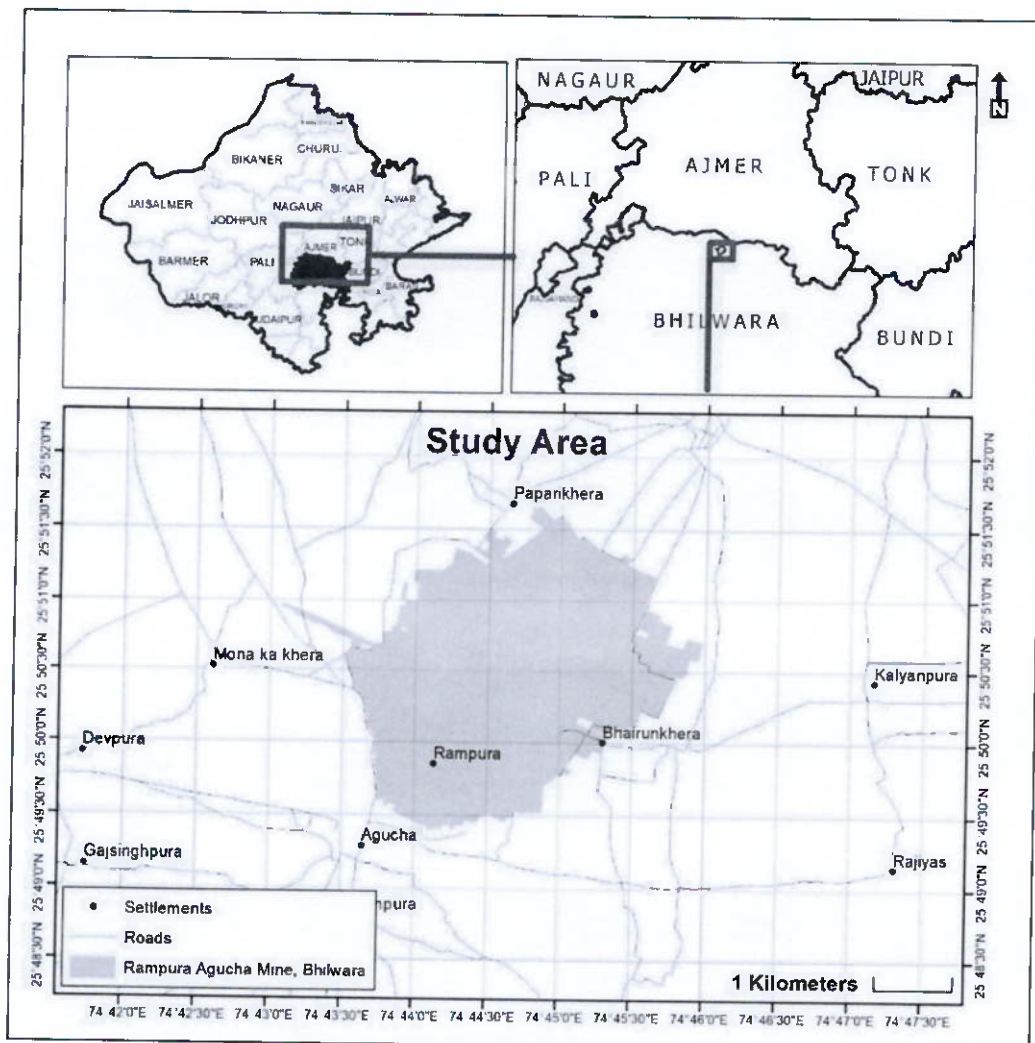


Figure 1: Study area

4. Datasets used

4.1 Satellite data

The green cover analysis was performed on Copernicus Sentinel-2 surface reflectance (Level-2a) data of date ranging from 1st November 2021 to 10th November 2021 (Figure 2). During the analysis, six bands were utilized, namely, Blue, Green, Red, Near-infrared, Shortwave Infrared-1 and Shortwave Infrared-2 (band numbers 2, 3, 4, 8, 11 and 12). The spatial resolution of the bands 2, 3, 4 and 8 was of the order 10 m, while for bands 11 and 12, it was 20 m. Additionally, IRS-Cartosat-2E satellite image dataset of spatial resolution 0.65 m panchromatic / 2 m multispectral was used as the reference.

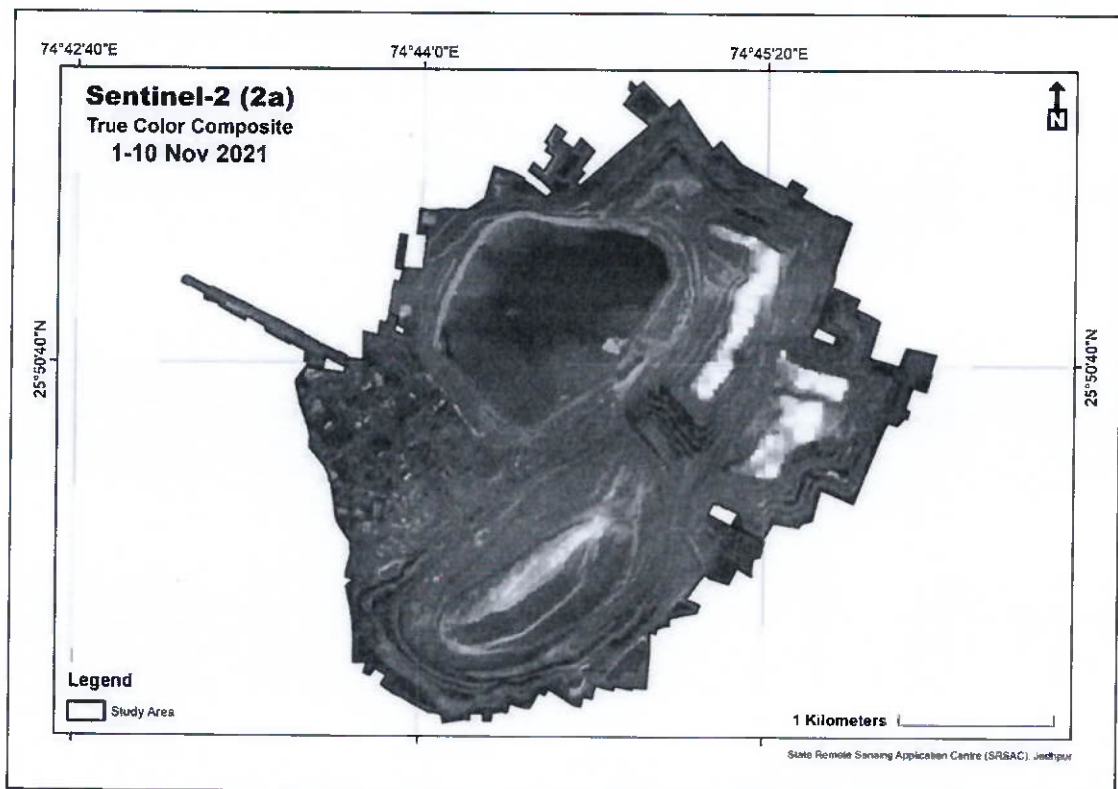


Figure 2: True color composite of Sentinel-2(2a) satellite data (between 1 to 10 Nov 2021) that was used for green-cover assessment

4.2 Field data

Field visit was conducted in the month of 20th April 2023, wherein, geo-tagged field photographs were acquired in order to support the ground truth requirements during the analysis. A few of the ground truth photographs are shown in Annexure 1.

5. Methodology

The study consisted of the following steps in the methodology (Figure 3):

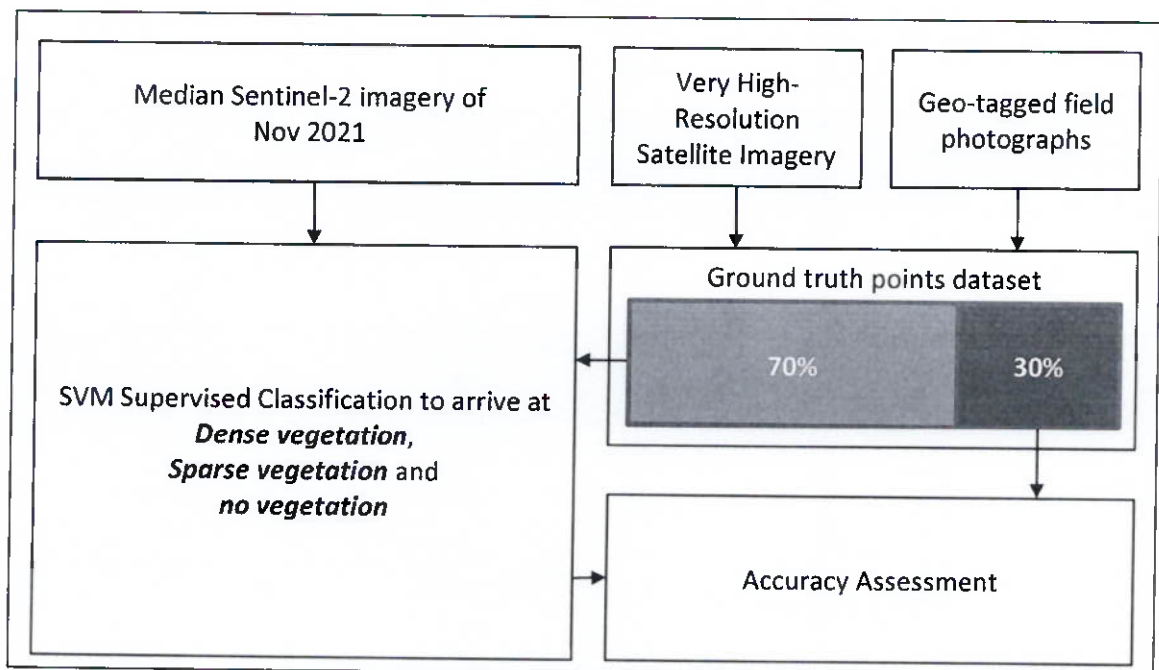


Figure 3: Overall methodology

1. **Designing the classification scheme:** A three-class classification schema was designed that consisted of (i) dense green-cover, (ii) sparse green-cover / new plantation and (iii) other classes.
2. **Procurement/processing of primary satellite images:** As mentioned in Section 4.1, the Copernicus Sentinel-2 satellite image composite was prepared for the purpose of

green cover analysis. This composite was prepared using the images from the month of November 2021 due to the following reasons.

- For the month of November, the agricultural cropped regions show a low/nil value of NDVI as during this period, Kharif crops are mostly harvested and Rabi crops are not grown to the stage where vegetation is significant.
- Vegetation detected in this month imagery is inclusive of both – permanent and seasonal vegetation.
- **Preparing a ground truth points dataset:** A set of ground truth points was the prime requisite for validating the results of the study. The ground truth information was carefully compiled from various data sources, such as field photographs, drone-based images and very high-resolution satellite imagery. Field visit was conducted for collecting geotagged field photographs. Very high-resolution satellite data from Cartosat-2 series of satellites was procured from NRSC Data Centre of Indian Space Research organization (ISRO). This highly detailed satellite data was referred while preparing a geospatial points layer that was called as the ground truth points dataset (Figure 4). One part (about 70%) of the total ground truth points was used for training the classifier model, while the other part (about 30%) of the total ground truth points was utilized while performing the accuracy assessment. The training dataset was used to sample the input Sentinel-2 satellite imagery.



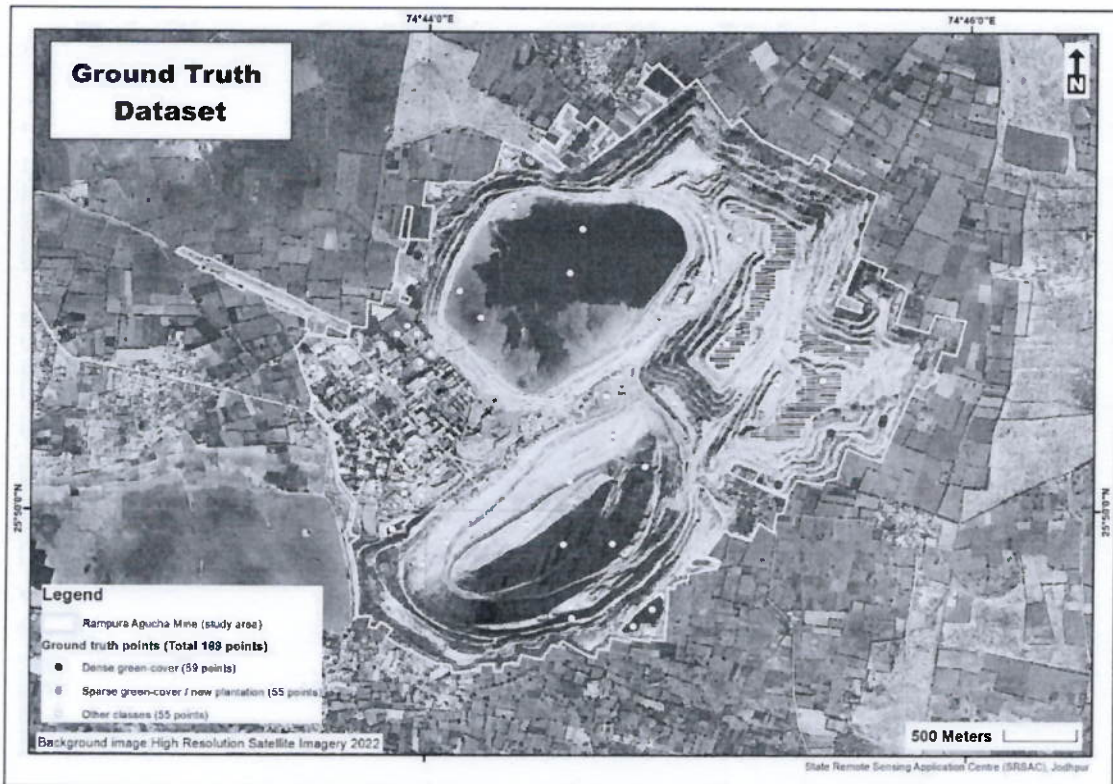


Figure 4: Ground truth dataset comprising a total of 169 points distributed across the study area

- Classification using the Support Vector Machine (SVM) classifier:** The SVM classifier was used for the green cover analysis. The details of this classifier can be found in Pal and Mather (2005). SVM classifier was trained using the above sampled training dataset. Using the trained SVM classifier model, the unknown pixels from the Sentinel-2 satellite imagery were classified. The output classified image was tested for the accuracy of classification using the testing ground truth dataset. Kappa accuracy of assessment was determined. Class-wise area statistics were determined.

6. Results and Discussion

The resultant classified image is as shown in Figure 5. The result was tested for the accuracy using an independent set of testing ground truth dataset as mentioned in the previous section.



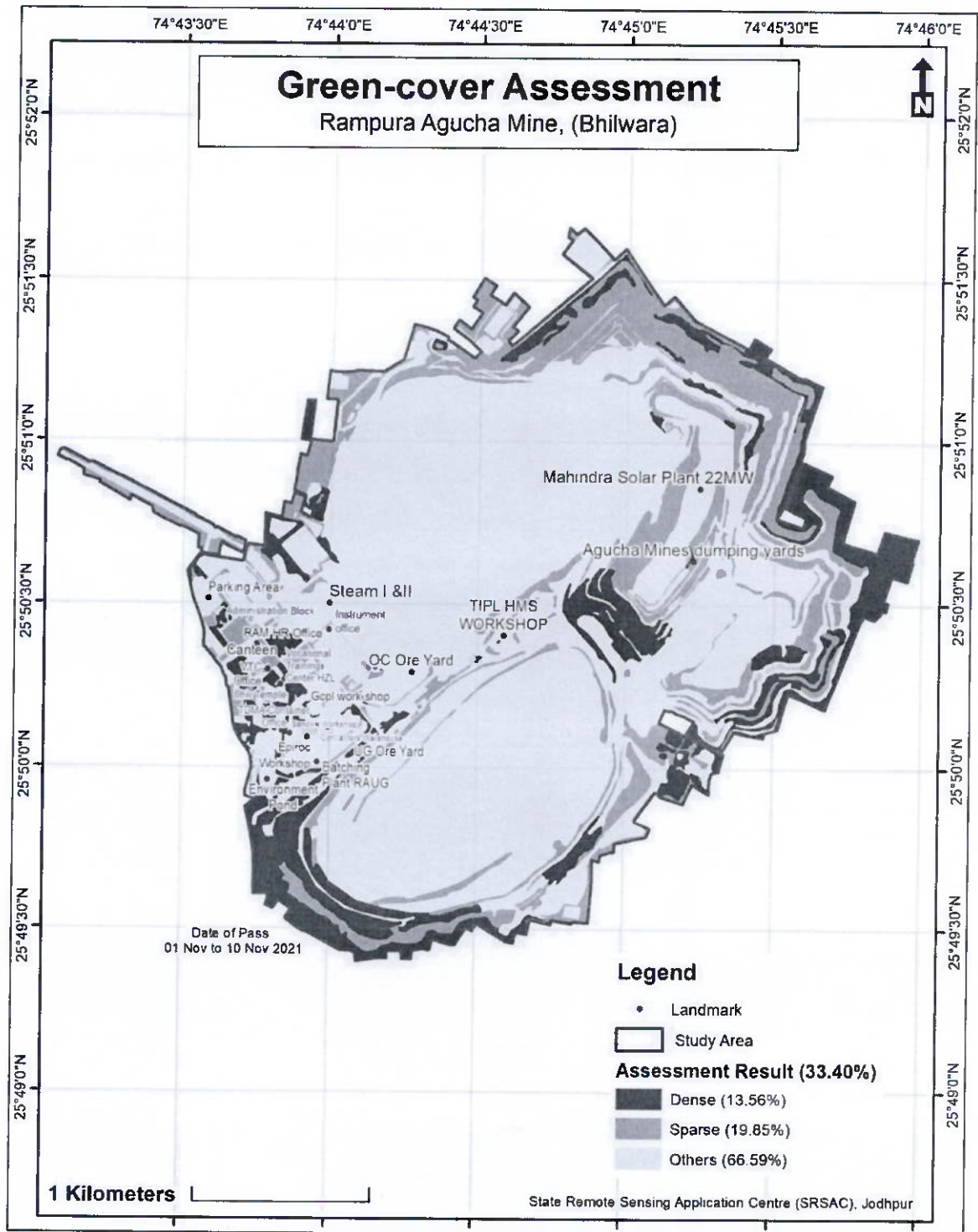


Figure 5: Assessment results

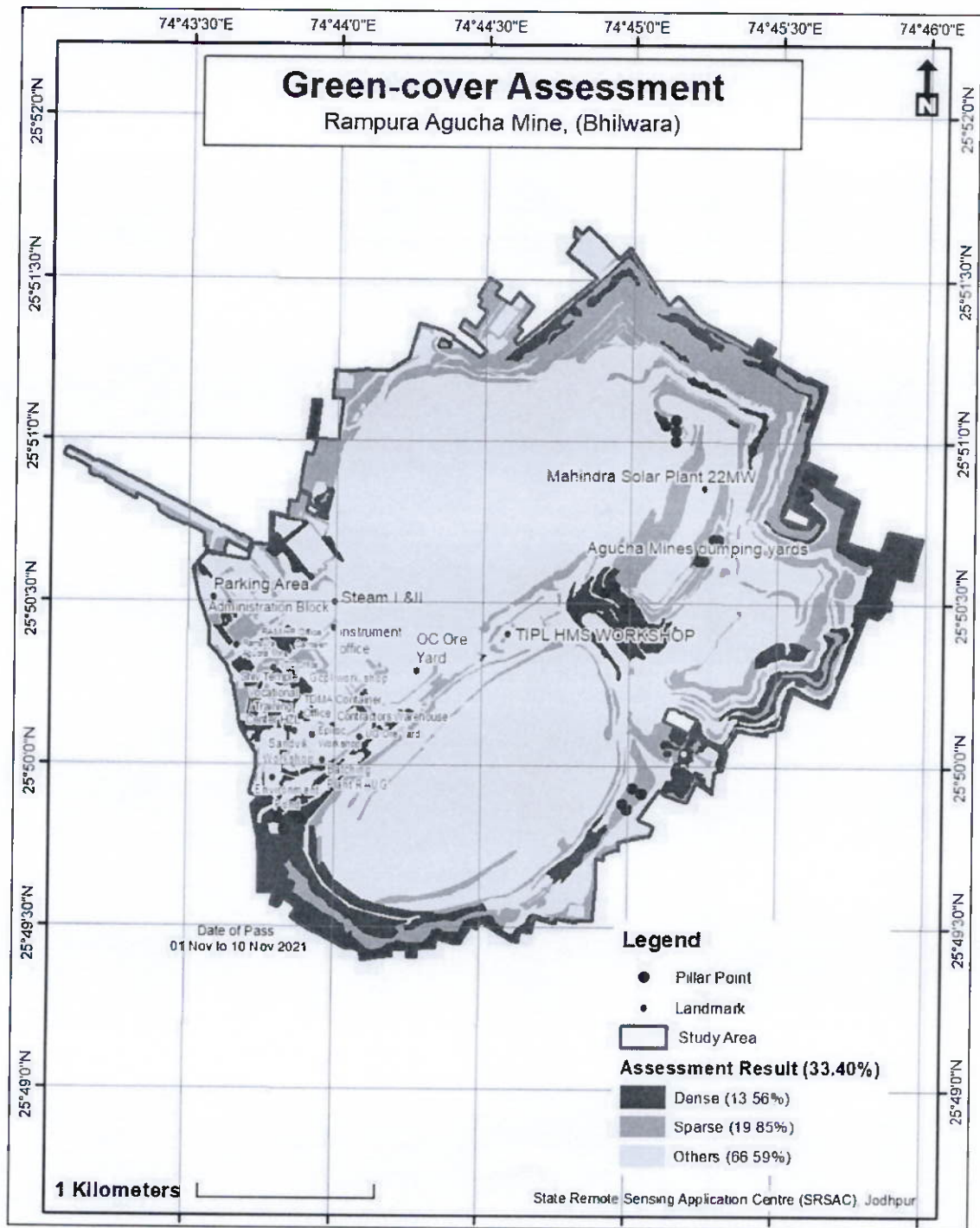


Figure 6: Tree Count Pillar Points

Table 2: Results

S. No.	Category	Area		Total Green Area (Ha.)	Total Green Cover %
		Hectares	Percentage		
1.	Dense	138.06	13.56	340.16 Ha.	33.40 %
2.	Sparse	202.10	19.85		
3.	Others	678.00	66.59		
Total Area		1018.16			

Table 2: Tree Count Dense

Site	Area Type	Tree (.50 Ha)	Average (1+2+3/3)	Tree in 1 Ha.
1	Dense	1980	$5053/3 = 1684.33$	$1684.33 \times 2 = 3368.67$
2	Dense	1703		
3	Dense	1370		
Total Count		5053	Total Count in 1 Ha.	3369 (Rounding off)

Table 3: Tree Count Sparse

Site	Area Type	Tree (.50 Ha)	Average (1+2+3/3)	Tree in 1 Ha.
1	Sparse	734	$1699/3 = 566.33$	$566.33 \times 2 = 1132.67$
2	Sparse	530		
3	Sparse	435		
Total Count		1699	Total Count in 1 Ha.	1133 (Rounding off)

Table 4: Tree Count Study Area

S. No.	Category	Area		Total Trees (Approx.)
		Hectares	Tree Count	
1.	Dense	1	3369	6,94,103
2.	Sparse	1	1133	
				$138.06 \times 2047 = 4,65,124$
				$202.10 \times 1133 = 2,28,979$

7. Conclusion

Green cover area estimation was carried out using Sentinel-2 image of date range from 1st to 10th of November 2021 with Cartosat-2E satellite imagery of Feb 2022 as reference. The analysis was also supported by the field-based ground truth information. Supervised learning-based image classification approach was adopted for classifying the input Sentinel-2 satellite imagery into three class-categories named dense, sparse and no green cover. The resultant classified image was tested for accuracy with respect to the ground truth dataset. As per the results, as on 10th November 2021, the total green cover area within the boundaries of Rampura Mine, Agucha was calculated to be 33.40 % of the total area.

8. References

Drisy, J., & Roshni, T. (2018). Spatiotemporal variability of soil moisture and drought estimation using a distributed hydrological model. In *Integrating disaster science and management* (pp. 451-460). Elsevier.

Pal, M., & Mather, P. M. (2005). Support vector machines for classification in remote sensing. *International journal of remote sensing*, 26(5), 1007-1011.



Figure 7: Layout Plan Agucha Zinc Colony

9. Annexure-1: Field Photographs









10. Flora of Rampura Mine












<p>Peepal (Ficus religiosa or sacred fig) Native: India</p>  <ul style="list-style-type: none"> The tree is one of the most sacred trees in India, and is often found in the vicinity of temples and monasteries. It is a large tree with a spreading canopy and a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color. 	<p>Banyan (Ficus benghalensis) Native: Indian Subcontinent</p>  <ul style="list-style-type: none"> The tree is one of the most sacred trees in India, and is often found in the vicinity of temples and monasteries. It is a large tree with a spreading canopy and a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color.
<p>Arjun (Terminalia arjuna) Native: India</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color. 	<p>Bottle Brush (Callistemon) Native: Australia</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color.
<p>Gulmohar (Derris indica) Native: India</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color. 	<p>Sheesham (Dalbergia sissoo) Native: Indian Subcontinent</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color.
<p>Nerium (Adiantum indicum) Native: Indian Subcontinent</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color. 	<p>Malabar Nut or Almond (Albizia leonensis) Native: Indian Subcontinent</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color.
<p>Kadam or Barflower Tree (Neolamarckia cadamba) Native: South & Southeast Asia</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color. 	<p>Indian Redwood (Chalresia salutaris) Native: India, Bangladesh and Sri Lanka</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color.
<p>Caruar (Anisome variegata) Native: South/Southern Asia</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color. 	<p>Copperpod (Pithecolobium platycarpum) Native: Southeast Asia</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color.
<p>Sheesham (Morus alba) Native: China</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color. 	<p>Badam or Almond (Prunus Amygdalus) Native: Iran</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color.
<p>Blackboard Tree (Antonia salutaris) Native: Southern China, tropical Asia and Australasia</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color. 	<p>Cassia (Cassia fistula) Native: Indian Subcontinent</p>  <ul style="list-style-type: none"> The tree is a large, spreading tree with a thick, gnarled trunk. The leaves are alternate, ovate, and have a prominent midrib. The flowers are small and green, and are borne in a large, terminal panicle. The fruit is a small, round, green drupe that ripens to a yellowish-brown color.

Figure 8: Flora Of Rampura Mine

11. Annexure-2: Details of Plantations

Azadirachta Indica

Saraca Indica

Plumeria Pudica

Hyophorbe Lagenicaulis

Hibiscus Rosa-Sinensis

Cascabela Thevetia

Dalbergia Sissoo

Ficus Benjamina

Millettia Pinnata

Cycas Revoluta

Delonix Regia

Phoenix Dactylifera

Alstonia Scholaris

Araucaria Columnaris

Acacia Nilotica

Nerium Indicum

Psidium Guajava

Terminalia Arjsuna

HINDUSTAN ZINC LIMITED

RAMPURA AGUCHA MINES

Under Mines Rules 1955 (29F(2) and 29L) Form 'O'
REPORT OF MEDICAL EXAMINATION UNDER RULE 29 B

Mob

Certificate No

Certified that Shri / Smt / S/o, D/o

Employed as in Rampura Agucha Mine, Form No. D has been examined for an initial / periodical Medical examination.

He/She appears to be years of age The findings of the examining authority are given in the attached sheet it is considered that Shri/Smt.

(a) is medically fit for any employment in mines

(b) is suffering from is medically unfit for

(i) any employment below in mine or

(ii) any employment below ground, or

(iii) any employment or work

(c) is suffering from and should get it's disability cured/controlled and should be again examined within a period of months

*He/she will appear for re-examination with the result test of

..... and the opinion of

..... specialist from He/she*may be permitted/not permitted to carry on his duties during the period

Space for affixing

passport size

Photograph of
the candidate

Signature of the examining
Authority

Place

Date

Name and designation (in block letters)


 Certificate No. :
 Name :
 Identification Marks :

1. Cardiological Assessment

Auscultation	S1	
	S2	
	Additional Sound	
Electrocardiograph (12 leads) findings :		Normal/Abnormal

Enclosed ECG

2. Neurological Assesment

Findings	Normal/Abnormal
Superficial Reflexes	
Deep Reflexes	
Peripheral Circulation	
Vibrational Syndromes	

3. ILO Classification of Chest Radiograph :

Profusion of Pneumoconiotic Opacities	Grades	Types

Enclosed Chest Radiograph

4. Audiometry Findings :

Conduction Type	Left Ear	Right Ear
Ear Conduction	Normal/Abnormal	Normal/Abnormal
Bone Conduction	Normal/Abnormal	Normal/Abnormal

Enclosed Audiometry Report.

5. Pathological/Microbiological Investigations :

S.No.	Tests	Findings
1.	Blood - TLC, DC, HB, ESR, Plateiets	WNL/Abnormal
2.	Blood Sugar - Fasting & PP	WNL/Abnormal
3.	Lipid Profile	WNL/Abnormal
4.	Blood Urea, Creatinine	WNL/Abnormal
5.	Urine Routine	WNL/Abnormal
6.	Stool Routine	WNL/Abnormal

6. Special Tests For Mine Exposure

S. No.	Findings	
Neurological Disturbances	Speech Defect	Present/Not Present
	Tremor	Present/Not Present
	Adiadocokinesia	Present/Not Present
	Emotional Changes	Present/Not Present

7. Any other Special Test Required :
Result of Lung Function Test (Spirometry)

Parameters	Predicted Value	Performed Value	% of Predicted
Forced Vital Capacity (FEV)			
Forced Vital Capacity 1 (FEV 1)			
FEV 1/FEV			
Peak Primary Flow			

Spirometry Report Enclosed

Signature of the Examination Authority