



SPEED POST

Ref: HZL/Kayad/ENV/MOEF/2022-23/95

November 26, 2022

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

Sub: Six monthly environmental compliance report from April- 2022 to Sep- 2022.

Ref: Env clearance vide No. : J-110115/47/2012-IA.II (M) dated 5th Feb, 2018.

Dear 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 of **April-2022 to Sep-2022** is for your kind perusal. Soft copy of compliance is also mailed and uploaded in the website.

Thanking you,

Yours faithfully

K.C. MEENA Director (SBU) industan Zinc Ltd. Kayad Mine-305023 Dist.-Ajmer (Raj.) (K.C. Meena)

Director- SBU Kayad Mine

Cc to: In -Charge (Zonal office) Central Pollution Control Board, Vithal Market, Paryavaran Parisar, E-5, Arera Colony, Bhopal, -462 016 (MP)

Member Secretary Rajasthan Pollution Control Board 4 Institutional Area, Jhalana Doogri Jaipur (Raj) -302004

The Regional officer Rajasthan Pollution Control Board Regional Office, SPL-II, RIICO Industrial Area, Phase-V, Kishangarh, Dist. Ajmer-305801

Hindustan Zinc limited, Kayad Mine, Village – Kayad, Ajmer -305023, Rajasthan, INDIA T- 01456626231 www.hzlindia.com CIN L27204RJ1966PLC001208

Hindustan Zinc Limited Kayad Mine, Ajmer

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Environment Clearance Compliance Report: -

Name of the project: Kayad Lead- Zinc Underground Mine, M/S Hindustan Zinc Limited, Village kayad, Distt. Ajmer, Rajasthan.

Environmental Clearance letter no: J-11015/47/2012-IA.II (M) dated 5th Feb, 2018. Period of Compliance report: April 2022 to September 2022

S.no	A. Specific Conditions	Compliance Status				
1.	Environmental Clearance is Granted Subject to Under Noted Hon'ble Supreme Court Judgment Date 02.08.2017					
2.	Environmental Clearance is Granted Subject to Final Outcome of Hon'ble Supreme Court of India, Hon'ble High Court of Rajasthan and other Court of Law, if any, as May be Applicable to this project.	Noted				
3.	This Environmental Clearance is subject to obtaining Requisite NBWL Clearance from the Standing Committee of National Board for Wildlife, if any, Applicable for this Mining Project	Not Applicable				
4.	No Mining Activities Will be Allowed in Forest area, if any, for which the Forest Clearance is not Available.	No forest involved in mine lease area.				
5.	This Project Shall obtain Consent to Operate from the State Pollution Control Board, Rajasthan and effectively implement all the Conditions Stipulated therein.	Consent to Operate was granted by Rajasthan State Pollution Control Board Vide Ir no. F(Mines)/Ajmer(Ajmer)/303(1) /2017-2018 / 9550 - 9554 dated 17.02.2018 valid till 31.01.2023 Annexure -VI All the conditions are being implemented effectively. CTO renewal application submitted on dated 23/09/2022				
6.	The Proponent should install online Ambient Air Quality Monitoring System and there should be system for display of digital AAQ data within 03 months at least at three locations as per wind direction. Online provisions of pH and Turbidity meters at discharge points of STP and ETP and also at water storage pond in the mining area may be made; Project Proponent should display the result digitally in front of the main Gate of the mine site.	Online Ambient Air Quality Monitoring system installed and AAQ data digital displayed outside gate. pH and Turbidity meters at discharge point of STP and at a water storage pond in mining area installed and result				

		digitally displayed. Annexure- VIII, No ETP at Kayad Mine .
7.	The Project Proponent has to take care of gullies formed on slopes. Dump mass should be consolidated with proper filling/leveling with the help of dozer/compactors. The report on slope and stability monitoring should be sent to MoEF & CC and its Regional office every six- month.	Waste generated from Mining operations is being reused for back filling. No waste is accumulated at site.
8.	The reclamation at waste dump sites shall be ecologically sustainable. Scientific reclamation has been followed. The local species may be encouraged and species are so chosen that the slope, bottom of the dumps and top of the dumps are able to sustain these species. The aspect of the dump is also a factor which regulates some climatic parameters and allows only species adapted to that micro climate. This may be recommended to be studied by hiring Expert Ecology Group.	Waste generated from Mining operations is being reused for back filling. No waste is accumulated at site.
9.	There is need for regular monitoring of invertebrates and aquatic life of water bodies including the reservoir located close to the mining lease to establish that fish and other animals including the water is not 'contaminated with heavy metal. There could be a research on "bio accumulation of heavy metals in invertebrates" to completely establish that there is no impact of mining.	Study get done from M/s NEERI Nagpur and Report submitted. Annexure -VII
10.	A specialized Institution may be hired to carry out ecological survey on the plant species to evaluate their growth in terms of stunted, deformed and seed viability. The sensitive species and indicator species to heavy metal pollution may be screened out and plantation accordingly designed. Similarly, uptake of Zinc, Cadmium and lead etc. by crops and vegetables grown in the crop lands around the mining lease may be studied. Bottom sediment analysis of ponds, wells and Rivers to ascertain the level of accumulation of heavy metal may be done.	Study get done from specialized Institution M/s National Environmental Engineering Research Institute (NEERI), Nagpur and Report submitted.
11.	The Proponent shall conduct an Occupational health study with respect to the pressure impact on ear drums as person goes underground and implement the recommendations.	Occupational health study with respect to the pressure impact on ear drums as person goes underground conducted inhouse as well as from M/s Sure Safety. Report submitted.
12.	Project Proponent shall carry out vibration studies well before approaching any such habitats or other buildings to evaluate the zone of influence and impact of blasting on the neighborhood. Within 500 meters of such sites vulnerable to blasting vibrations, avoidance of use of	Blasting being carried out during day time only and the vibration study is being done regularly by M/s CIMFR, Dhanbad. Annexure-XV

	explosives and adoption of alternative means of mineral extraction. A provision for monitoring of each blast should be made so that the impact of blasting on nearby habitation and dwelling units could be ascertained. The covenant of lease deed under Rule 31 of MCR 1960 provides that no mining operations shall be carried out within 50 meters of public works such as public roads and buildings or inhabited sites except with the prior permission from the Competent Authority.	No secondary blasting being carried out at site.
13.	Main haulage road in the mine should be provided with permanent water sprinklers and other roads should be regularly wetted with water tankers fitted with sprinklers. The material transfer points should invariably be provided with Bag filters and or dry fogging system. Belt-conveyors should be fully covered to avoid air borne dust; Use of effective sprinkler system to suppress fugitive dust on haul roads and other transport roads shall be ensured,	Mine haul road is being wetted through water tankers fitted with sprinklers. Annexure-XI No Permanent water sprinkler. Belt-conveyor at CRF is fully covered to avoid air borne dust. Ensured effective sprinkling system to suppress fugitive dust on haul and transport roads.
14.	The monitoring of PM2.5 in the vehicle emission shall be conducted to improve the mine environment and report submitted to the Regional Office of the MoEFCC.	The monitoring of PM2.5 in ambient air near vehicular movement is conducted but not able to monitor PM 2.5 in vehicular emission due unavailability of technology/ instruments.
15.	The Project Proponent reported that there are seven Schedule-1 species viz. Peafowl (Pavo cristatus), Osprey (Pandion haliaetus), Tawny eagle (Aquila rapax), Crested honey buzzard (Pernisptilorhynchus), Shikra (Accipiter badius), Leopard (Pantherapardus), Indian pangolin (Manis crassicaudata) in the study area. The PP shall implement the Conservation Plan and enhance the budget for implementation of Conservation Plan for Schedule I Specie and also increase the budget for plantation/green development. The Proponent shall implement the Wildlife Conservation Plan along with the funds so allocated with consultation of Chief Wild Life Warden of the State Govt. A copy of action plan shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office, Lucknow and the Chief Wild Life Warden of the State Govt.	Conservation plan has been developed for Schedule-1 namely Peafowl (Pavo cristatus) and has been approved by the additional Principal Chief Conservation of Forest and Chief wildlife warden Jaipur, Rajasthan and implemented the same. Action plan along with its implementation status report being submitted to RO MOEF & CC & Chief wild life warden of State Government.
16.	Proponent shall carry out monitoring of lead in the blood samples of the employees and the villagers in the areas surrounding the mine in their schedule of health check-up. The nearby water bodies shall be monitored every six months and report submitted to Regional office of the MoEFCC to ascertain impact due to lead contamination.	Lead in the blood samples of the employees carried out during their PME and villagers are monitored. Anne-XVI. Water samples analysis of nearby water bodies carried out regularly and report submitted.
	Implementation of Action Diag on the investories divises the	Boing implemented

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	complete all the tasks as per the Action Plan submitted with budgetary provisions during the Public Hearing.	
18.	Implementation of the outcome of study with regard to "optimization of blast design parameter for the safety and stability of surface structures and subsequent monitoring of vibration on the surface structures for their long term stability" which was carried out by Central Institute of Mining and Fuel Research should be ensured.	 The Implementation of CIMFI study report is being ensured. Regular vibration studies conducted through CIMFR Peak Particle Velocity within ranging between 1.0 to 15.00 mm/sec Due care is taken in blast design explosives use, selection o detonators and delay to ensure safe vibration limit.
19.	Continuous monitoring of radioactive elements, if any, shall be undertaken till entire mine is dewatered and report has to be submitted to MoEFCC Regional Office. Periodic monitoring of any adverse impact of Radon and its daughter products on any worker should be included in the Occupational Health Monitoring Programmed.	The monitoring of radioactive element done, and report already submitted to MoEFCC Regiona Office. No radioactive element trace in analysis. Periodic monitoring of any adverse impact of Radon and its daughter products on any worker included in the Occupational Health Monitoring Programmed
	B. Standard conditions	0.0
1.	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment, Forest and Climate Change 5 years in advance of final mine closure for approval.	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted 5 years in advance.
2.	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment, Forest and Climate Change.	Assured to comply
3.	No change in the calendar plan including excavation, quantum of mineral and waste should be made.	Being ensured as per Mine Plan.
4.	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water) for the project.	Renewal application submitted for permission. Recommendation by CGWB to CGWA done. NOC approved and valid till 09/10/2024. Surface water monitoring report attached Annexure XVI
5.	Mining shall be carried out as per the provisions outlined in mining plan approved by Indian Bureau of Mines (IBM) as well as by abiding to the guidelines of Directorate General Mines Safety (DGMS).	Ensuring the Mining as per the Mine Plan approved by IBM and as per the guideline of DGMS
6.	The lands which are not owned by Proponent, mining will be carried out only after obtaining the consents from all the concerned land owners as per the provisions of the Mineral Concession Rules, 1960 and MMDR Act, 1957	Ensured to comply

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7.	Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use. Pattern and report submitted to Ministry of Environment, Forest and Climate Change its Regional Office.	Digital processing of the entire lease area using remote sensing technique carried out M/s J.M. Envionet Pvt. Ltd. and Report submittedvide letter no HZL/Kayad/Enc/MoEF/22-23/94 dated 23 /11/2023 Annexure -XIV
8.	The critical parameters as per the Notification 2009 such as Pm, .10,. PM 2.5 NOx and Sox etc. 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. 3-20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.	The critical parameters such as PM10, PM 2.5, NOx and Sox etc. in the ambient air are being monitored within the impact zone, peak particle velocity at Kayad Village being monitored regularly. Zero discharge is being maintained. PM 10, PM 2.5, NOx monitoring data and peak particle velocity data are being uploaded on website of the company as well as display board on main gate of the company.
9.	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of Phyllo and PM2.5 such as haul road, loading and unloading point and transfer points. Fugitive dust emissions from all the sources shall be controlled regularly. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed under National Ambient Air Quality Standards (NAAQS) or by the Central Pollution Control Board in this regard. Monitoring of Ambient Air Quality to be carried out based on the Notification 2009, as amended from time to time by the Central Pollution Control Board.	An effective safeguard measure has been taken and regular water spraying on the haul road, loading and unloading area are being carried out. Ambient Air Quality parameters maintained and monitored as per National Ambient Air Quality Standards (NAAQS) or by the Central Pollution Control Board. Monitoring data enclosed as
10.	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The project proponent shall ensure that no natural water course and/or water resources shall be obstructed due to any mining operations. The monitoring shall be carried out four times in a year pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected 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.	Regular monitoring of ground water level and quality is being carried out in and around the mine lease by establishing a network of existing wells and piezometers. No natural water course / water resources obstructed due to mining operations. The Water level and water quality Annexure -l.
11.	Regular monitoring of the flow rate of the springs and perennial allays 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,	No springs and perennial allay flowing in and around the mine lease.

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12.	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. Regular monitoring of water quality upstream and downstream of water bodies shall be carried out and record of monitoring data should be maintained and submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.	Regular monitoring of water quality upstream and downstream of water bodies carried out and analysis report Enclosed Annexure-I
13.	Transportation of the minerals by road passing through the village shall not be allowed. A 'bypass' road should be constructed (say, leaving a gap of at least 200 meters) for the purpose of transportation of the minerals so that the impact of sound, dust and accidents could be mitigated. The project proponent shall bear the cost towards the widening and strengthening of existing public road network in case the same is proposed to be used for the Project. No road movement should be allowed on existing village road network without appropriately increasing the carrying capacity of such roads.	Transportation of the lead & zinc ore is being done by road which is passing through Highways.
14.	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 light/night hours.	Ensured the biological clock of the villagers by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limit for day and night. Annexure-III.
15.	Main haulage road in the mine should be provided with permanent water sprinklers and other roads should be regularly wetted with water tankers fitted with sprinklers. The material transfer points should invariably be provided with Bag filters and or dry fogging system. In case of Belt-conveyors facilities the system should be fully covered to avoid air borne dust; Use of effective sprinkler system to suppress fugitive dust on haul roads and other transport roads shall be ensured.	Mine haul road is being wetted through water tankers fitted with sprinklers. Annexure- XI No Permanent water sprinkler. Effective sprinkling system is in place to suppress fugitive dust on haul road. Belt-conveyor at CRF is fully covered to avoid air borne dust.
16.	Sufficient number of Gullies to be provided for better management of water. Regular Monitoring of pH shall be included in the monitoring plan and report shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly bases.	Mine water monitored regularly and report attached as Annexure - IV. Regular pH Monitoring Report enclosed Annexure-V.
17.	There shall be planning, developing, and implementing facility of rainwater harvesting measures on long term basis and	Rainwater harvesting is being done and water recharge

		implementation of conservation measures to augment ground water resources in the area in consultation with Central Ground Water Board.	structure made in consultation with CGWA. Annexure- XII
	18.	The Project Proponent has to take care of gullies formed on slopes. Dump mass should be consolidated with proper filling/leveling with the help of Dozer/compactors.	No dump mass, all the waste used in backfilling purpose.
	19.	The reclamation at waste dump sites shall be ecologically sustainable. Scientific reclamation shall be followed. The local species may be encouraged and species are so chosen that the slope, bottom of the dumps and top of the dumps are able to sustain these species. The aspect of the dump is also a factor which regulates some climatic parameters and allows only species adapted to that micro climate.	No waste dumps. All the mine waste reused for backfilling in underground.
	20.	The top soil, if any, 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. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time. The maximum height of the dumps shall not exceed 8m and width 20 m and overall slope of the dumps shall be maintained to 45°. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface runoff. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. The entire excavated area shall be backfilled and afforested. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis.	The top soil stored at earmark location of 9000 CuM soil in 645 Sq M and developed a beautiful garden on it. All the waste utilized in the mine void refilling. No such OB Dump.
2	21.	Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and OB dumps to prevent run off of water and flow of sediments directly into the river and other water bodies. The water so collected should be utilized for watering the mine area, roads, Green belt development etc. The drains shall be regularly desilted Particularly after monsoon and maintained properly. The drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and over burden dumps to prevent run off of water and flow of 'sediments directly into the river and other Water bodies 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 shall be constructed at the corners of the garland drains and desilted at regular intervals.	Catch drains and siltation ponds constructed to collect and prevent run off water and flow of sediments directly into the river and other water bodies. Water so collected used for dust suppression in mine area haul roads, green belt development, recharge etc . The drain and settling pond are being regularly de-silted and maintained properly.

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22.	Plantation shall be raised in a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around water body, along the roads etc. by planting the native species in consultation with the local DFO/Agriculture Department and as per CPCB Guidelines. The density of the trees should be around 2500 plants per ha. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.	Plantation has been raised around boundary of acquired area along the road etc. and included the native species. More than 33% Greenbelt has been developed in mine area. Annexure -XIII
23.	Project Proponent shall follow the mitigation measures provided in Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th 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", if any, applicable to the project.	Being ensured
24.	The Project Proponent shall make necessary alternative arrangements, where required, in consultation with the State Government to provide alternate areas for livestock grazing, if any. In this context, Project Proponent should implement the directions of the Hon'ble Supreme Court with regard to acquiring grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded against felling and plantation of such trees should be promoted.	Ensured
25.	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna, if any, spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department, A copy of action plan shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office.	A nursery has been developed within mine area for rare plant's species and other medicinal plants. Same being included in yearly plantation program to improve their existence.
26.	As per the Company Act, the CSR cost should be 2 % of average net profit of last three years. Hence CSR expenses should be as per the Company Act/Rule for the Socio Economic Development of the neighborhood Habitats which could be planned and ,executed by the Project Proponent more systematically based on the 'Need based door to door survey' by established Social Institutes/Workers. The report shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly bases.	The baseline needs assessment Survey done.
27.	Provision shall be made for the housing of construction labor within the site with all necessary infrastructure and facilities such as Mel 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.	The facilities are provided like Canteen, Toilets, STP Annexure IX, and safe drinking water and a permanent Doctor for their health care and crèche etc.

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28.	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations	Regular monitoring of the noise in work environment is being carried
	of HEMM, etc. should be provided with ear plugs / muffs.	operations of HEMM are being ensured with ear muffs.
29.	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	Oil and grease trap have been installed at vehicle washing area and clean water reuse for vehicle washing- Annexure-X. Mine water reused for drilling and dust suppression, CRF Plant. Zero discharge Maintained.
30.	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.	Job specific PPE are mandatory for all workers and regular training being given on safety and health aspect.
31.	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	A separate environmental management department is in place under control of SBU Director.
32.	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office.	The funds earmarked for environmental protection measures and kept in separate account. The expenditure from April 2022 to September 2022 has been incurred Rs 44.19 Lacs to implement the Environmental Management Plan.
33.	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.	No additional land is required for proposed expansion.
34.	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment, Forest and Climate Change, its Regional Office, Central Pollution Control Board and State Pollution Control Board.	Being Complied
35.	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	The project will extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
30.	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing them proposal.	Complied
37.	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/Tehsildar's Office for 30 days.	Complied

38.	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter Informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment, Forest and Climate Change at www.environmentclearance.nic.inand a copy of the same should be forwarded to the Regional Office.	Complied
14.	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.	Assured to comply
15.	Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the Provisions of the Environment (Protection) Act, 1986.	Assured to Comply
16.	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/ High Court of Rajasthan and any other Court of Law relating to the subject matter.	Assured to Comply
17.	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Assured to Comply

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K.C. MEENA Director (SBU) Hindustan Zinc Ltd. Kayad Mine-305023 Dist.-Ajmer (Raj.)

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HINDUSTAN ZINC LIMITED

KAYAD MINE

PIEZOMETER WATER ANALYSIS REPORT

	P-1		P-	2	P-	P-3 P-4		4	P-5	
Parameters	Jun-22	Sep-22	Jun-22	Sep-22	Jun-22	Sep-22	Jun-22	Sep-22	Jun-22	Sep-22
pН	8.09	6.81	8.14	6.9	7.52	6.85	7.96	7.78	8.6	8.32
Hardness	1588.24	1528.3	1372.55	1169.81	872.55	622.64	529.41	489.8	558.82	530.61
Iron	0.08	0.1	0.07	0.1	BDL	0.03	BDL	BDL	0.4	BDL
Chloride	1349.94	1296.41	674.97	743.6	597.83	479.43	303.74	283.74	482.12	440.29
TDS	4276	4038	3349	3574	3674	3389	1429	1368	1755	1602
Copper	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDI
Sulphate	338.57	302.4	157.14	211.5	403.5	462.5	142.8	136.2	173.2	155.8
Cadmium	BDL	BDL	BDL	BDL	BDL	bdl	BDL	BDL	BDL	BDI
Lead	BDL	BDL	BDL	BDL	BDL	bdl	BDL	BDL	BDL	BDI
Zinc	BDL	0.02	0.09	0.02	0.02	0.02	BDL	BDL	0.02	0.03
Alkalinity	343	392	382.2	392	32.4	343	323.4	312.84	264.6	237.6
Nickel	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDI
Cyanide	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDI
Cobalt	BDL	BDL	BDL	BDL	BDL	BDL.	BDL	BDL	BDL	BDI
TSS	22	25	15	29	17	22	17	14	14	11
Total solid	4298	4063	3364	3593	3691	3411	1446	1382	1769	1613

All figureas are in mg/l except pH

Annexure I (1/3)

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Parameters	Kay	Kayad Village U/S		Gagy	wana Village	D/S	Ch	atri Village	D/S	Lohagal Village U/S		
	Baseline	Jun-22	Sep-22	Baseline	Jun-22	Sep-22	Baseline	Jun-22	Sep-22	Baseline	Jun-22	Sep-22
pН	7	7.7	7.79	7.1	8.1	8.31	7.5	7.04	6.99	6.9	7.8	7.17
Hardness	245	388.24	98.11	306	133.33	109.43	1366	774.51	735.85	1233	465.69	415.09
Iron	0.33	BDL	BDL	0.19	BDL	BDL	0.2	BDL	BDL	0.18	BDL	BDL
Chloride	92	168.74	66.53	536	59.78	45.01	1842	732.82	709.35	1060	385.7	313.09
TDS	598	642	293	812	247	263	4746	1949	1913	4512	1628	1597
Mg	-	41.93	10.09		16.2	7.34	ੁ	42.88	59.6	-	55.99	43.85
Copper	0.03	BDL	BDL	<0.01	BDL	BDL	< 0.01	BDL	BDL	<0.01	BDL	BDL
Sulphate	54.9	34	33	302	31.14	28.62	512.6	165.2	136.25	666.8	72.8	67.5
Cadmium	<0.01	BDL	BDL	<0.01	BDL	BDL	<0.01	BDL	BDL	<0.01	BDL	BDL
Arsenic	<0.01	BDL	BDL	<0.01	BDL	BDL	< 0.01	BDL	BDL	< 0.01	BDL	BDL
Lead	0.01	BDL	BDL	0.01	BDL	BDL	0.01	BDL	BDL	0.01	BDL	BDL
Zinc	2.76	BDL	BDL	0.1	BDL	BDL	0.06	BDL	BDL	0.32	BDL	BDL
Alkalinity	272	323.4	98	456	109.76	94.08	524	294	352.8	486	450.8	441
TSS		6	7	-	4	2	7	8	9	-	7	6
Cobalt	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Mercury	<0.001	BDL	BDL	<0.001	BDL	BDL	BDL	BDL	BDL	< 0.001	BDL	BDL
Cyanide	<0.02	BDL	BDL	<0.02	BDL	BDL	BDL	BDL	BDL	<0.02	BDL	BDL
Nickel	BDL	BDL	BDL	BDL	BDL	BDL	0.02	BDL	BDL	BDL	BDL	BDL
Total solid	-	648	300	-	251	265	3260	1957	1922	-	1635	1603

All figureas are in mg/l except pH

	Water level of Piezometers & open wells Annexure I (3/3)										
S.No.	Source Code	Location with land mark	Lattitude	Longitude	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	
1	P-1	Piezometer-1, near VTC- HZL	N26*31'44.1"	E74*41'19.2"	12.36	14.3	13.4	12.1	8.20	10.10	
2	P-2	Near mine dumped area, HZL fuel pump	N26"31'56.9"	E74°41'41.1"	23.2	21.2	24.3	20.1	19.20	16.20	
3	P-3	Plantation area, nursery, near other collapsed bore well	N26*32'10.0"	E74°41'44.4"	18.1	17.2	18.2	14.2	13.00	11.20	
4	P-4	New drilled bore well, near ANFO Mixing plant, HZL boundary wall corner	26°32'02.0''	74*41'45.2"	4.3	7.5	9.3	12.1	7.30	7.50	
5	P-5	New drilled bore well, DG Set area	26"31'40.3"	74°41'29.1"	15.3	17.4	18.3	16.2	15 30	11.20	
6	W-1	Man Singh Raghuveer singh Chandawal, Kayar/ Naeem Bhutta	N26*33'25.7"	E74°41'45.9"	32.6	32.4	35.1	24.2	19.80	21.70	
7	W -2	Gurjar Well Near Abkar Minar and ARG opp SK associates	N26*32'48.6"	E74°42'24.8"	22.9	31.5	33.9	23.1	18.20	22.40	
8	W-3	Near Talab area, land planning by propoerty dealers/ poltary farm	N26"32'08.3"	E74°42'27.7"	12.5	12.3	11.3	10	9.20	12.80	
9	W-4	Mohan Gurjar Well Kayad	N26*31'11.7"	E74°41'02.7"	2.9	4.9	26	2.2			
10	W-5	Near outside HZL boundary wall, near outside HZL road area	N26*31'52.7"	E74°41'36.0"	14.5	13.9	14.8	12.5	1.5	3.7	
11	W-6	Near Govt. School/Mr. Sultan Master, Kamurdin Nizam ji Kayar	N26°31'38.7''	E74*41'11.3"	20.9	22	23.9	20.5	20.50	18.70	

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HINDUSTAN ZINC LIMITED

AMBIENT AIR MONITORING

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Location->	-			Mine	A							Annexur	e-11	
month-yes	Forthalah	SPM	PM	PATE	ATER				Kayad					
	let	124.6	10	1012.0	SO1	NO,	CO	SPM	PMun	PM2.5	SO.	NO	60	
Apr-22	De d	174.6	71.7	34.9	3.9	12.2	320.0	228.0	76.2	44.33	4.1			
	41md	182.7	71.0	34.6	2.2	11.1	310.0	220.0	76.2	44.22	4.1	12.9	370.0	
May-22	lat	233.4	75.2	38.9	5.6	44.5	310.0	227.0	/5.4	43.0	2.4	14.7	310.0	
	Elnd	187.1	75.6	26.7	3.6	19.2	310.0	174.3	71.5	31.3	4.2	11.8	310.0	
	lat	178.3	75.6	20.7	4.0	16.5	310.0	139.7	68.1	31.8	4.9	16.2	320.0	
Jun-22	11md	103.4	73.6	25,6	4.8	15.7	260.0	177.2	77.0	39.8	5.0	15.4	280.0	
	1	123.4	82.4	34.2	3.8	13.9	280.0	225.3	70.7	34.7	3.0	13.4	280.0	
Jul-22	203	\$5.9	42.4	25.3	5.2	13.1	260.0	85.3	10.1	34.7	3.9	11.3	260.0	
	lind	124.4	42.0	16.8	3.2	12.3	100.0	33.2	39.1	24.0	2.8	10.5	250.0	
A	lst	93.0	36.5	23.7	3.6	42.3	190.0	105.3	37.3	19.4	3.7	12.1	180.0	
Aug-11	Ilnd	102.9	AAS	10.0	2.0	12.8	170.0	108,4	46.3	24.7	2.0	8.6	170.0	
	1st	130.3	44.5	19.9	2.6	13.3	190.0	81.5	35.1	18.0	3.6	8.8	170.0	
Sep-22	11 4	139.3	66.7	27.1	3.9	12.5	330.0	122.4	54.6	24.0	2.0	12.2	170.0	
	Isna	135.9	59.4	24.2	3.7	12.4	240.0	172.4	56.2	24.0	3.0	13.3	280,0	
							2.40.5	17.5.4	30.5	76.7	2.8	12.9	350.0	

Location->				Loh	agal								
month-yes	Forthnight	SPM	PM	PM2.5	50.	NO				Gagy	vana –		
	Ist	211.6	13.0	22.0	201	100	co	SPM	PM10	PM2.5	SO ₁	NO,	CO
Apr-22	Und	2330	72.0	33.9	4.6	12.1	310.0	232.5	73.9	33.2	4.2	13.0	330.0
	1104	209.3	62.4	34.6	4.2	11.6	320.0	175.0	78.6	36.4	4.0	11.0	330.0
May-22	15	181.9	73.4	27.3	4.3	12.5	340.0	190.3	70.8	30.4		11.5	330.0
	IInd	183.1	74.2	31.8	4.4	14.9	280.0	140.0	70.0	30.8	4.2	13.2	310.0
1	1st	180 1	73.4	34.6	5.1	15.0	2.60.0	198.9	/5.3	25.5	4.6	15.7	310.0
Jun-11	IInd	186.1	69.0	33.0	3.4	15.8	310.0	175.1	68.7	36,6	5.4	16.5	320.0
1000	10	80.1	09.0	32.2	.4.1	12.0	250.0	205.4	68.9	42.8	5.2	12.0	270.0
Jul-22	13.	89.7	39.9	22.1	2.4	10.2	270.0	121.9	47.3	23.5	4.1	11.2	210.0
	lind	105.0	41.3	16.5	4.0	12.5	180.0	98.3	38.6	19.9	2.0	125	210.0
Aug-22	ist	98.1	46.3	24.0	2.1	8.8	106.0	09.2	41.3	24.2	3.9	12.5	1/0.0
	lind	106.8	52.4	20.5	2.6	10.0	100.0	20.5	41.3	29.2	3.7	9.4	150.0
	İst	158.5	65.9	36.5	2.0	10.5	160.0	90.8	42.9	22.5	2.6	10.0	150.0
Sep-22	Tied	133.4	03 7	20.3	3.0	13.0	260.0	118.7	55.5	26.8	2.3	13.5	310.0
	14-96	133.4	57.5	24.7	3.1	13.3	310.0	120.5	55.4	29.4	39	12.1	330.0

Location-	>			Chu	tri		
month-yes	Forthuight	SPM	PM10	PM2.5	SO1	NO,	CO
A	İst	218.0	81.7	28.0	3.4	13.6	370.0
Apr-11	IInd	223.4	78.9	36.3	5.3	11.4	360.0
	İst	216.2	72.8	36.1	4.0	11.3	310.0
May-22	IInd	177.9	72.3	26.1	4.5	15.4	290.0
les. 22	lat	157.8	76.5	31.5	4.9	11.8	250.0
Jun-22	find	178.4	69 1	36.1	2.8	16.1	260.0
	lst	123.5	47.6	23.6	5.6	13.6	250.0
Jul 22	ilnd	85.1	4/6	19.4	4.1	12.1	170.0
	lat .	100 1	51.4	23.2	2.1	8.4	160.0
Aug-22	IInd	103.5	38.9	19.0	2.2	9.6	180.0
	Ist	112.0	50.6	15.8	2.8	13.2	280.0
Sep-22	lind	160 7	64.0	26.1	42	12.9	310.0



	HINDUSTAN ZING LIMITED												
					1111000	AVAD MIN	CIMITED						
					,		E						
			Noine I a	1 1 1 1								Annex	ure-III
			Noise Lev	vel Moni	toring R	eport for	Quarter /	Apr-22 to	Sep-22)				
		1 22											
S.No	Location	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22
	0		Day Tim	e Indust	rial Limi	t 75dB(A)			Night Tin	ne Indus	trial Lim	it 65dB(A))
N-1	South West												
	Corner of Mine	63.9	63.4	57.6	60.3	60.5	61.2	63.9	63.4	57.6	51.5	51.3	51.4
	Boundary							S					51.4
N-2	East Side												
	Boundary Near	62.4	61.4	58.2	62.5	59.6	61.2	53.8	53.8	49.6	53 /	512	576
	West Dump					55.0	01.2	55.0	33.0	45.0	55.4	51.5	52.0
N-3	North East Corner												
	of Mine Boundary	65.6	64.9	50.7		62.5	<i>(</i> 1 7						
	or mile boundary	05.0	0.4.9	.59.70	58.5	62.5	61.7	56.2	55.7	51.3	50.9	52.4	53.6
N-4	North West			-									
	Corner of Mine	64.4	64.7	50.7	64.5	6 B B							
	Roundan:	04.4	04.2	58.7	64.5	62.3	63.6	55.2	53.1	50.5	55.6	54.4	56.2
NS	Boundary												
N-5	west Side			C2		1.22							
	Towards Kayad	60.8	57.8	61.3	59.8	59.5	59.8	51.9	50.5	52.3	50.7	50.4	50.7
	Village												
N-6	South East East	67.4	61.5	62.7	63.7	61.2	62.6	52.5	63.7	52.0	53.3		
	Corner	07.4	01.5	02.7	03.2	01.5	03.5	53.5	52.7	53.9	52.3	53.7	54.2
S.No	S.No Location Day Time Residencial Limit 55dB(A)							Λ	Vight Time	e Resider	icial Lim	it 45dB(A)
N-7	Kayad Village	51.5	52	52.7	51.9	52.3	53.9	41.2	40.1	41.2	41.2	42.5	43.2
N-8	Lohagal Village	52.5	52.3	53.3	50.2	53.8	50.6	40.9	41.7	41.3	41.7	41.2	40.8
N-9	Gagwana	52.4	51.6	53.5	56.1	53.5	52.3	41.6	42.1	42.3	42.6	43.2	40.0
N-10	Chatri Village	53.4	53.1	52.9	50.3	52.7	50.2	43.2	42.5	42.1	41.0	43.2	42.5

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Annexure IV

HINDUSTAN ZINC LIMITED								
		KAYAD	MINE					
	MINE W	ATER ANAL	YSIS REP	ORT				
Parameters	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22		
pH	7.41	7.15	7.29	7.28	7.12	7.17		
Total Disolved Solod	3875	3873	3818	3906	3868	3724		
Total Suspended Solid	18	24	23	22	26	24		
Total Solid	3893	3897	3841	3928	3894	3748		
Chloride	953.96	1002.88	1021.31	1045.07	1100.72	954.6		
Cyanide	<0.05	< 0.05	<0.05	<0.05	< 0.05	<0.05		
Hardness	1010	1009.8	990.1	1078.43	1009.8	980.39		
Sulphate	767	790	726	732	756	715.62		
Arsenic	BDL	BDL	BDL	BDL	BDL	BDL		
Cadmium	BDL	0.1	BDL	BDL	BDL	BDL		
Cobalt	BDL	BDL	BDL	BDL	BDL	BDL		
Copper	0.04	0.04	0.05	0.1	0.02	0.03		
Iron	0.02	0.11	0.09	0.13	0.14	0.03		
Lead	BDL	0.05	BDL	BDL	BDL	BDL		
Zinc	0.27	4.27	1.57	0.87	1.26	1.9		
Alkalinity	71.28	71.28	42	49	38.8	57		
Mg	164.63	127.84	120.28	95.3	81.79	71.47		
Hg	BDL	BDL	BDL	BDL	BDL	BDL		
Ni	0.03	0.09	0.15	0.13	0.15	0.13		

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	Hindustan Zinc Limited Kayad Mine											
				pH monito	ring repo	rt April 2022-S	pe-2022			An	inexure-V	
Month	pН	Month	рН	Month	рн	Month	рн	Month	pН		Month	pН
01/04/2022	7.40	01/05/2022	7.37	01/06/2022	7.41	01/07/2022	7.43	01/08/20	22 7.49		01/09/202	2 7.22
02/04/2022	7.32	02/05/2022	7.29	02/06/2022	7.31	02/07/2022	7.42	02/08/20	22 7.45		02/09/202	2 7.23
03/04/2022	7.33	03/05/2022	7.32	03/06/2022	7.39	03/07/2022	7.40	03/08/20	22 7.43		03/09/202	2 7.25
04/04/2022	7.34	04/05/2022	7.34	04/06/2022	7.40	04/07/2022	7.36	04/08/202	22 7.42		04/09/202	2 7.26
05/04/2022	7.35	05/05/2022	7.31	05/06/2022	7.32	05/07/2022	7.34	05/08/202	22 7.40		05/09/2023	2 7.27
06/04/2022	7.37	06/05/2022	7.52	06/06/2022	7.33	06/07/2022	7.30	06/08/202	2 7.40		06/09/2023	2 7.28
07/04/2022	7.37	07/05/2022	7.55	07/06/2022	7.34	07/07/2022	7.29	07/08/202	2 7.43		07/09/2023	2 7.28
08/04/2022	7.38	08/05/2022	7.42	08/06/2022	7.35	08/07/2022	7.29	08/08/202	2 7.42		08/09/2022	7.29
09/04/2022	7.39	09/05/2022	7.64	09/06/2022	7.41	09/07/2022	7.31	09/08/202	2 7.40		09/09/2022	7.30
10/04/2022	7.38	10/05/2022	7.46	10/06/2022	7.40	10/07/2022	7.30	10/08/202	2 7.36		10/09/2022	7.30
11/04/2022	7.39	11/05/2022	7.66	11/06/2022	7.39	11/07/2022	7.29	11/08/202	2 7.34		11/09/2022	7.25
12/04/2022	7.40	12/05/2022	7.37	12/06/2022	7.36	12/07/2022	7.28	12/08/202	2 7.30	11	12/09/2022	7.25
13/04/2022	7.40	13/05/2022	7.36	13/06/2022	7.35	13/07/2022	7.27	13/08/202	2 7.29	11	13/09/2022	7.26
14/04/2022	7.41	14/05/2022	7.35	14/06/2022	7.38	14/07/2022	7.26	14/08/202	2 7.29	11	14/09/2022	7.27
15/04/2022	7.42	15/05/2022	7.38	15/06/2022	7.37	15/07/2022	7.25	15/08/202	2 7.31	11	15/09/2022	7.27
16/04/2022	7.42	16/05/2022	7.37	16/06/2022	7.29	16/07/2022	7.24	16/08/202	7.30	l t	16/09/2022	7.28
17/04/2022	7.37	17/05/2022	7.29	17/06/2022	7.41	17/07/2022	7.23	17/08/202	7.29		17/09/2022	7.34
18/04/2022	7.38	18/05/2022	7.55	18/06/2022	7.42	18/07/2022	7.26	18/08/2022	7.28	F	18/09/2022	7.36
19/04/2022	7.54	19/05/2022	7.54	19/06/2022	7.42	19/07/2022	7.25	19/08/2022	7.27	F	19/09/2022	7.37
20/04/2022	7.52	20/05/2022	7.52	20/06/2022	7.37	20/07/2022	7.22	20/08/2022	7.26	F	20/09/2022	7.41
21/04/2022	7.48	21/05/2022	7.41	21/06/2022	7.41	21/07/2022	7.20	21/08/2022	7.25	F	21/09/2022	7.42
22/04/2022	7.46	22/05/2022	7.4	22/06/2022	7.40	22/07/2022	7.17	22/08/2022	7.24		22/09/2022	7.43
23/04/2022	7.42	23/05/2022	7.39	23/06/2022	7.39	23/07/2022	7.19	23/08/2022	7.36		23/09/2022	7.44
24/04/2022	7.64	24/05/2022	7.36	24/06/2022	7.36	24/07/2022	7.41	24/08/2022	7.37		24/09/2022	7.40
25/04/2022	7.46	25/05/2022	7.35	25/06/2022	7.35	25/07/2022	7.41	25/08/2022	7.41	E	25/09/2022	7.41
26/04/2022	7.66	26/05/2022	7.38	26/06/2022	7.38	26/07/2022	7.42	26/08/2022	7.42	E	26/09/2022	7.41
27/04/2022	7.37	27/05/2022	7.37	27/06/2022	7.37	27/07/2022	7.43	27/08/2022	7.43		27/09/2022	7.52
28/04/2022	7.36	28/05/2022	7.29	28/06/2022	7.33	28/07/2022	7.44	28/08/2022	7.44		28/09/2022	7.54
29/04/2022	7.35	29/05/2022	7.55	29/06/2022	7.29	29/07/2022	7.44	29/08/2022	7.19	1	29/09/2022	7.51
30/04/2022	7.38	30/05/2022	7.54	30/06/2022	7.53	30/07/2022	7.51	30/08/2022	7.20	1	30/09/2022	7.52
	-	31/05/2022	7.52	_	_	31/07/2022	7.50	31/08/2022	7.21	F	515512022	7.52

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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 uints 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.

	vedanta	HINDUSTAN ZINC
	HINDUSTAN	ZINC
	Health Safety & Environment	Policy (HSE Policy)
ieat i i i i i i i i i i i i i i i i i i i	th, Safety & Environment (HSE) Guiding Principles: Management shall demonstrate its strong commitment towards HSE at All injuries, occupational illnesses, and adverse environmental incidents Reporting and investigation of all incidents is an obligation. We are supportable and accountable for preventing injuries, occupations We are suppowered and obligated to stop any job being carried out in an u HSE values shall never be compromised. Adherence to the HSE management system is a condition of employment th, Safety & Environment (HSE) Policy atta Zinc is committed to achieve excellence in Decupational Health, Safet Illowing policy which applies to all employees and directors, business part quired to comply with the Policy when they actonibehalf of Hindustan Zinc istan Zinc wit: Comply with applicable national, regional, and local HSE regulations	ali times. sare preventable. al Il nesses, and adverse environmental incidents. insafe manner. t. ty and Environment (HSE) management by implementing them, suppliers, consultants, and external advisors who and elatutory obligations. In the absence (or lack) of
ł.	appropriate legislation, industry best practices and international standa Develop, implement, and improve HSE management systems in th consistency with world-class standards.	rds (as applicable) will be used ne with our commitments and beliefs and maintain
ŝ.	Settangets and objectives to avoid, reduce and mitigale HSE-related imp Incorporate appropriate HSE Criteria [®] for all business decisions for the personnel	sacts on people and the planet e selection of plant, technology, Dusinees partners, and
	Identify and evaluate HSE risks for all the activities' by continuously mo take effective actions for mitigation of potential HSE risks. Drive continuous HSE improvement through sating and reviewing to providing all employees with appropriate training to understand the imp Promote a positive HSE culture through effective communication, pros	anitoring performance to identity, prioritize, assess and argets using appropriate best evailable practices and acts of their work activities on the environment ctive participation, and consultation with employees and
8	business partners Communicate with all our stakeholders on the progress and performance	ce of HSE and sustainability management to maintain the
ŝ.	regreen standards of transparency Prevent injury and occupational illness to employees and business per healthy work environment by minimizing the risks associated with occup	rtners by eliminating hazards and providing a sale and pational hazards
	Invergeneration of workers, and their representatives (when applicable) in f	R, and the local communey itoring of employees and ensure the participation and the decision-making process for DH&S metters
	Conserve halural resources by implementing eco-friendly and energy-el Effective Waste Management from our operations and adopt the princip utilization to minimize discharge and disposal to the environment	fficient technologies through process improvements plas of weste avoidance, reuse, recycling, and beneficial
٩.	Consistently assess our climate-related risk, manage our emissione, tal communicate our climate strategy to our stakeholders in alignment with	Re appropriate mitigation and adaptation measures and TCFD guidelines
9	Ensure that all tailings storage facilities are designed, constructed, oper and regulations and in alignment with accepted international practices	rated, and closed in compliance with all applicable laws
	Engage actively with employees and local community representatives manage them, our environmental obligations, and our performance Raise awareness by training employees, business partners, suppliers, (to educate them on the nature of our impacts, how we and other stakeholders to adopt principles and practices
-	in alignment with our policies	_
ne P erio usta tand nvin evien	toticy is part of the Veclanta Sustainability Framework and Hindustan 2 rmance standards. This policy is oversight by the HDL Board of Directors. Inability performance and line managers are responsible for the hull ands. We will measure and report performance on a periodic basis to enment including the sharing of good practices throughout the organization wed periodically.	Zinc shall implement this policy and its technical and Business leaders will be held accountable for HSE and implementation of the related HSE and sustainability o ensure ongoing management of health, safety, and on. The content and implementation of this policy will be
8	These conterns are applicable to the product distribution and suggetion renders product the cyll The policy is not only applicable to say existing aperational streachers projects but also aperations if teamered third-party-manufacturers (politivestures) for teaching partners.	de fram octraction to product distribution and logistics. In 2010s due difference, mergers and acquisitions, and non-managed
		Arun Misra
Dat	te: 05" July, 2022	CEO & Whole Time Director, HZL

Head Office (Mines)

Rajasthan State Pollution Control Board 4, Institutional Area, Jhalana Doongari, Jaipur-302 004 Phone: 0141-5159600,5159695Fax: 0141-5159697



Date: 17/02/2018

Registered

File No F(Mines)/Ajmer(Ajmer)/303(1)/2017-2018/9550-9554

Order No 2017-2018/Mines/9712

Unit Id : 11,254

M/s Hindustan Zinc Limited (Kayar Mine)

P.O.- Kayad, Ajmer- 305 023,

District :Ajmer

E-Mail: balwant.rathore@vedanta.co.in

- 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-Kayar, Tehsil-Ajmer, District-Ajmer (M.L.No-16/92).
- Ref: (i) Your applications dated 07/02/2018 (ii) Received on 07/02/2018

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 (Kayar Mine), a Mine of Major Mineral having M.L.No.- 16/92 in an area measuring 480.4500 Hectares at/near Village-Kayar ,Tehsil-Ajmer,District-Ajmer.
- 2 That this consent is valid for a period from 17/02/2018 to 31/01/2023
- 3 That this consent is valid for following mining activities :-

	Mineral	Permitted Mining Capitra
1	LEAD & ZINC ORE (ROM)	12.0000 LAKH TPA

Head Office (Mines)



Rajasthan State Pollution Control Board 4, Institutional Area, Jhalana Doongari, Jaipur-302 004 Phone: 0141-5159600,5159695Fax: 0141-5159697

Registered

File No F(Mines)/Ajmer(Ajmer)/303(1)/2017-2018/9550-9554

Order No 2017-20	018/Mines/9712
------------------	----------------

Date: 17/02/2018

Unit ld : 11,254

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
SO:	120 µg/M ²	(To be measured between 3
NOx	120 µg/M ^a	to 10 meters from mining
co	5000 µg/M ³	activity)

- 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 your mining will not intersect the Ground Water Table during the consent period and the permission from the Central Ground Water Authority shall be obtained for intersection of Ground Water Table/ abstraction of ground water, if any and submit a copy of the same to the Board.
- 7 That this Consent to Operate is for mining / processing / beneficiation of product as mentioned above in MLLNo.-16/92 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.
- 8 That the occupier/operator of mine shall ensure that all the conditions imposed in the Environmental Clearance granted by the Ministry of Environment, Forest & Climate Change, Government of India vide letter no. J-11015/47/2012-IA.II (M) dated 05/02/2018 are strictly complied with.
- 9 That this consent to operate is subject to the post audit of pollution control measures and consent conditions. In case the lessee is found to have flouted consent conditions or not having adequate pollution control measures during inspection, the consent will be revoked and directions shall be issued under section 31A of the Air Act/33A of the Water Act
- 10 The result of following monitoring systems provided in compliance of the conditions of Environment Clearance shall be submitted or access to online data shall be provided to the State Board also:
 - a) online AAQM.

b) online monitoring of pH and turbidity meters at the outlets of STP and ETP. Visity using and Visity us

c) monitoring of ponds in the mining lease area.



d) monitoring of nearby water bodies.

Head Office (Mines)



Rajasthan State Pollution Control Board 4, Institutional Area, Jhalana Doongari, Jaipur-302 004 Phone: 0141-5159600,5159695Fax: 0141-5159697

Registered

File No F(Mines)/Ajmer(Ajmer)/303(1)/2017-2018/9550-9554

Order No 2017-2018/Mines/9712

Date: 17/02/2018

Unit ld : 11,254

- 11 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.
- 12 That mining operations shall be restricted to above ground water table and should not intersect ground water table. In case of working below the ground water table, prior approval of the Ministry of Environment, Forest & Climate Change, Government of India and Central round Water Authority shall be obtained.
- 13 That ground water shall not be extracted without prior permission of the Central Ground Water Authority (CGWA).
- 14 That haul roads should be regularly graded and compacted. Regular water sprinkling should be carried out on haul roads to minimise dust generations.
- 15 That adequate measures shall be taken for control of fugitive emissions from the areas prone to air pollution.
- 16 That no discharge of effluent shall be made within or outside the premises.
- 17 That mine will comply with the standards as prescribed vide Ministry of Environment, Forest and Climate Change notification no. GSR 826 (E) dated 16th November, 2009 with respect to National Ambient Air Quality standards.
- 18 That all other general conditions enclosed as Annexure shall be strictly complied with.
- 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.
- 20 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.
- 21 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.



Head Office (Mines)

Rajasthan State Pollution Control Board 4, Institutional Area, Jhalana Doongari, Jaipur-302 004 Phone: 0141-5159600,5159695Fax: 0141-5159697

Registered

File No	F(Mines)/Ajmer(Ajmer)/303(1)/2017-2018/9550-9554		
Order No	2017-2018/Mines/9712	Date:	17/02/2018
Unit Id :	11,254		
	This bears approval of the competent authority.		
End	As Above		
	Yours Sincer		Sincerely

EE

Copy To:-

- Director, Department of Mines & Geology, Government of Rajasthan, Shastri Circle, Udaipur..
- 2 Regional Officer, Regional Office, Rajasthan State Pollution Control Board, kishangarh-please expedite verification and monitoring
- 3 Mining Engineer, Department of Mines & Geology, Government of Rajasthan, Ajmer
- 4 Master File .







Annexure -VIII



Annexure -IX



Annexure -X



Annexure -XI



Annexure -XII







SPEED POST



Ref : HZL/Kayad/ENV/MoEF/2022-23/93, 11

November 23, 2022

To, The Director Govt. of India Ministry of Environment, Forest & Climate Change Indira Paryavaran Bhavan, Aliganj, Jor Bag Road, New Delhi-110003

Sub: Submission of Land Use Pattern study report of Kayad Mine.

Ref: Environmental Clearance letter no: J-11015/47/2012-IA.II (M) dated 5/02/2018.

Dear Sir,

Please find enclosed herewith the study report of Land Use pattern Kayad Mine. This is for compliance of Environment Clearance's Standard condition no vii.

Thanking you,

Your faithfully

(K.C. Meena) Director SBU Kayad Mine

Ce to:

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

O/C Env.

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Confidential

CSIR-Central Institute of Mining & Fuel Research (Council of Scientific & Industrial Research) Barwa Road, Dhanbad – 826 001



REPORT ON

(Study Period: 01.04.2022 to 30.09.2022)

Study and advice for optimization of blast design parameters at Kayad under-ground mines of Hindustan Zinc Limited for the safety and stability of surface structures/dwellings of Kayad village and subsequent continuous monitoring of vibration for their long-term stability



PROJECT NO.: SSP/670/2022-23

NOVEMBER 2022

Project Title

Study and advice for optimization of blast design parameters at Kayad under-ground mines of Hindustan Zinc Limited for the safety and stability of surface structures/dwellings of Kayad village and subsequent continuous monitoring of vibration for their long-term stability

Project No.: SSP/670/2022-23



This report is meant for internal use of your organization only and it should not be published in full or part by your organization. It should not be communicated or circulated to outside parties except concerned departments. However, CSIR-CIMFR reserves the right to publish the results of the investigations for the benefit of the industry. The conclusions and recommendations are based on the results of investigations. It is hoped that the recommendations will be implemented to get the optimum results without hampering production, productivity and safety. The recommendations are the guidelines, which should be implemented in letter and spirit.

Since the day-to-day blasting operations are not under the control of CSIR-CIMFR, the research team will not be held responsible for any untoward incidence caused by blasting.

SIGNATURE OF THE PROJECT PROPONENTS

(Murari P. Roy) Sr. Principal Scientist & Project Leader Rock Excavation Engineering Division

(C Sawmliana)

Chief Scientist, Project Co-ordinator & HoS Rock Excavation Engineering Division





Introduction

Executive (Commercial), Hindustan Zinc Limited approached the Director, CSIR-Central Institute of Mining and Fuel Research, Dhanbad, vide PO No.: 3349794341 / 5100032603 dated 07.02.2022 for a scientific study and advice for optimization of blast design parameters at Kayad underground mine, Ajmer of M/s Hindustan Zinc Limited, Rajasthan, India with reference to control blast induced vibration within safe limits at Kayad village, surface structures and underground openings of the of the mine

Research team of Rock Excavation Engineering Division, CSIR-CIMFR, Dhanbad has been associated with the blast optimisation and continuous monitoring of blast vibration data since the inception of the blasting work i.e. 07.06.2012. In this report, analyses were carried out for the blast vibration data recorded during April 01, 2022 to September 30, 2022. During this period, 504 blasts for underground development, slot raise and Ring blasts were conducted at different locations at Kayad Underground Mine, HZL. The stopes include EF-FWD2, N200 Sill Pillar 1, N200 Sill Pillar UH 1, N200 Sill pillar-UH3, N590-UH, N200 Sill pillar2, S200 HWD str, N200 Sill Pillar-UH2, N200 Sill pillar-UH3, N590-UH, S200 HWD str, N200 HWD-UH, 735UH, N200 App UH & Nod, S200 HWD etc. Attempts were made to record more than 1005 ground vibration data but at about 830 instances the ground vibration data were below the pre-set trigger level of seismograph i.e. 0.5 mm/s. The vibrations were recorded at different locations in the mine premises area and in the periphery of the mine and in the Kayad village. The radial distances of blast vibration monitoring point from the blasting face were in the range of 426 m to 609 m. The depth of cover of the blasting locations varied between 100 m and 475 m. All the blasts were initiated with electronic delay detonators and with Nonel delay detonators in order to avoid nuisance to the inhabitants of the Kayad village. The report contains the results of the study, analyses of data, discussions, conclusions, and recommendation for safe and efficient blasting operations. The view of underground mine entry of the Kayad mine is presented in Photograph 1.



Photograph 1. The view of underground mine entry of the Kayad mine, HZL.

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Instrumentations

Blast induced vibrations were monitored by seismographs namely MiniMate Plus and MiniMate Blaster (Made in Canada by M/s Instantel Inc.). MiniMate plus is eight as well as four channel seismographs provided with two/one tri-axial transducer(s) for monitoring vibration (in mm/s) and two/one channel(s) for monitoring air over-pressure/noise in dB(L). MiniMate Blaster is four channel seismographs provided with one tri-axial transducer for monitoring vibration (in mm/s) and one channel for monitoring of air over-pressure/noise in dB (L). All the seismographs record vibration in three directions i.e. Longitudinal (L), Vertical (V) and Transverse (T). They also record dominant peak frequency of vibration and compute the peak vector sum of the vibration.

DGMS Vibration standard to prevent damage of surface structures

Peak particle velocity has been globally used in practice for assessment of blast-induced damage to structures. Different countries adopt different standards depending on their type of industrial/residential buildings. In India, presently DGMS technical circular 7 of 1997 is considered as vibration standard for the safety of surface structures in mining areas. The DGMS standard is given in Table 1.

Type of structure	Dominant excitation frequency, Hz			
	< 8 Hz	8-25 Hz	> 25 Hz	
(A) Buildings/structures not belong to the owner				
1. Domestic houses/structures	5	10	15	
(Kuchcha, brick & cement)				
2. Industrial buildings	10	20	25	
3. Objects of historical importance and sensitive	2	5	10	
structures				
(B) Buildings belonging to owner with limited span of life				
1. Domestic houses/structures	10	15	25	
2. Industrial buildings	15	25	50	

Table 1. DGMS technical circular 7 of 1997 concerning to blast vibration standard, in mm/s for the safety of surface structures.

Blast vibration monitoring

Blast vibration monitoring locations were finalised in consultation with Mine officials. Seismographs were placed at three locations. one seismograph was placed at the mine boundary near the important/concerned houses/structures of the Kayad village and one seismograph were placed at Regar house and other near the Administrative building of Kayad UG Mine. The important vibration monitoring locations in the Kayad village were near the house of Mr. Regar, Md. Sultan Ahmad, near CRF Plant, and near admin building. The

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maximum vibration recorded was 14.57 mm/s with dominant peak frequency of 29.97 Hz at Admin building of Kayad mine. In the same blast vibration recorded at Mine Boundary Near Sultan House was 3.389 mm/s with dominant peak frequency of 50.13 Hz. The blast wave recorded at Mine Boundary near house of Mr. Sultan due to blast conducted on 06.05.2022 (PPV-3.757 mm/s) is presented in Figure 1. The Fast Fourier Transform (FFT) analyses of frequency of vibration (as mention in Figure 1) is shown in Figure 2. The blast wave recorded on 27.05.2022 (PPV-2.888 mm/s) near Regar house of Kayad village is depicted in Figure 3 and its Fast Fourier Transform (FFT) analyses of frequency of vibration is presented on 22.09.2022 (PPV- 14.57 mm/s) at Admin building of Kayad mine is depicted in Figure 5 and its Fast Fourier Transform (FFT) analyses of frequency of vibration is presented in Figure 6. It is evident from the figures that concentration of vibration energy was lie in the range of 25.0 - 99.9 Hz i.e. in high frequency zone (>25 Hz).



Figure 1. Blast time history recorded on 06.05.2022 at Mine Boundary near house of Mr. Sultan Ahmad.



Figure 2. The FFT analyses of frequency of vibration (as mention in Figure 1)

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Figure 4. The FFT analyses of frequency of vibration (as mention in Figure 3).





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CSIR-Central Institute of Mining & Fuel Research (CIMFR), Dhanbad-826015



Figure 6. Blast time history recorded on 22.09.2022 at Admin building of Kayad mine.

The vibration data recorded due to the blast conducted at Kayad UG Mine during April 01-Septmber 30, 2022 were analysed. The recorded peak particle velocity (PPV) data were in the range of 0.524 mm/s to 14.57 mm/s. The threshold velocity of vibration as per the DGMS standard is 15 mm/s for Kayad UG Mine considering the dominant frequency range of more than 25 HZ. Figure 7 depicts the recorded vibration data with their recorded dominant frequency and the different vibration monitoring locations in the periphery of the mine is depicted in Photograph 2.



Figure 7. Blast vibration data recorded with their dominant peak frequency at Kayad village due to blasting conducted at Kayad UG Mine.

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Annexure



CSIR-Central Institute of Mining & Fuel Research (CIMFR), Dhanbad-826015

Annexure Annexure XV



Photograph 2. Monitoring of blast induced ground vibration at different locations in the periphery of Kayad UG mine.

Conclusions and recommendations

- In total 504 blasts were conducted for underground development face, slot raise and Ring blasts at different locations of the mine during April 01-Septmber 30, 2022. Attempt were made to record the 1005 blast vibration data out of which 830 vibration data were below the pre-trigger level of seismograph i.e. 0.5 mm/s.
- The recorded blast induced ground vibration data were in the range of 0.524 mm/s to 14.57 mm/s. The radial distances of blast vibration monitoring point from the blasting face was in the range of 426m to 609m.
- The maximum level of vibration recorded from ring blast was 14.57 mm/s with dominant peak frequency of 29.97 Hz monitored at Admin building of Kayad mine.
- The recorded dominant peak frequencies of vibration were in the range of 25.0 99.9 Hz. Hence, the safe limit of ground vibration (PPV) for the safety of houses and other structures at Kayad village has been taken as 15 mm/s as per the DGMS standard. The recorded vibration levels in the Kayad village due to blasting at Kayad mine were well within the safe limits.
- There is no danger of damage to the existing houses/structures of Kayad village from the blasting operations being carried out in underground development, raise and ring blasts of South and North section of Kayad underground mine.

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NLR9 24/11/2022

Annexure XVI









KAYAD MOBILE MEDICAL UNIT





Mobile 1000





ABOUT THE KAYAD MOBILE MEDICAL UNIT

Sl.No.	Van No.	Base Location	Launch Date
1	HR 55AK 0235	Kayad	26.07.2021

DAY	LOCATIONS
Monday	Gagwana (Regar Basti), Lohagal (In front of School)
Tuesday	Ghoogra (Ramdevji Temple), Padampura (Tejaji Chowk)
Wednesday	Kayad (Shiv temple), Gagwana (Bada Bazaar)
Thursday	Chachiyawas (Panchayat Bhavan), Ghoogra (Patwari Mata Temple / Balaji Temple
Friday	Makadwali (Tejaji Chowk), Kayad (Bhuto ki Poll)
Saturday	Kayad (Devnarayan Temple / Shiv Temple)



Mobile 1000





ABOUT THE KAYAD MMU TEAM

Sr. No	Team	Designation
1	Dr. Kamal Kumar Meena	Doctor
2	Girish Kumar Gothwal	Pharmacist
3	Aarti Yadav	Nurse
4	Ajit Singh	Driver
5	Vikas Kumar Tak	Team Lead





The above data is from 1st May2022 to 23rd May 2022



AWARENESS CAMPS





Mobile 1000

MAY 2022

Sr. No	Date	Members present	Villages covered	Торіс
1	05.05.2022	80	Chachiyawas & Googhra	World Asthma Day
2	14.05.2022	85	Makadwali & Kayad (Latta Ka Chauraya)	Chronic Fatigue Syndrome Day
3	17.05.2022	95	Googhra & Padampura	World Aids Vaccine Day
4	31.05.2022			World Tobacco Day Awareness.
5				
Total				





OPERATIONAL SNAPSHOTS







Unnamed Road, Kayad, Rajasthan 305023, India Lat 26.534851° Long 74.687587° 04/05/22 09:04 AM

Kayad

oogle

Google

Long 74.676028* 05/05/22 09:52 AM









