

ज़ावर माईन्स

पिन कोड – 313901

जिला – उदयपुर (राज)

HINDUSTAN ZINC LIMITED

हिन्दुस्तान जिंक लिमिटेड

Zawar Mines

PIN Code – 313901

Dist - Udaipur (Raj.)

Telephone - (0294) 2726600, Fax-2726241

Ref.:ZM/ENV/2020-21/

Date – 13.05.2020

By Speed Post

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

Sub: – Six monthly Environment Compliance report for **Zawar Group of Mines** near Village-Zawar, Dist. Udaipur, Rajasthan of M/S Hindustan Zinc Limited

Ref: - Environment Clearance Letter No. – J-11015/259/2012-IA.II (M), dated 05.01.2017

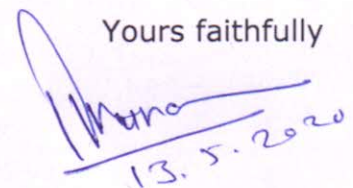
Sir,

With reference to aforesaid subject and cited reference, it is to inform that we are herewith submitting six monthly Compliance report for the conditions stipulated in the Environment Clearances of **Zawar Group of Mines** near Village-Zawar, Dist. Udaipur, Rajasthan of M/S Hindustan Zinc Limited for the period from **October'2019 to March'2020** along with monitoring data report for your kind consideration.

We trust that the measures taken towards environmental safeguards comply with the stipulated environmental conditions. We look forward to your further guidance which shall certainly help us in our endeavor for further improve upon our Environmental Management Practices.

Thanking You

Yours faithfully






13.5.2020

B.S. Rathore
(Director – Zawar SBU)


Director Zawar SBU
Hindustan Zinc Limited
Zawar Mines
District Udaipur (Raj.)
Pin 313901

- CC: 1. Incharge (Zonal Office)
Central Pollution Control Board,
3rd Floor, Sahkar Bhawan, North T.T. Nagar, Bhopal – 462003
2. Member Secretary,
Rajasthan State Pollution Control Board,
4, Institutional Area, Jhalana Doongri, Jaipur-302004 (Raj)
3. Regional Officer,
Rajasthan State Pollution Control Board,
F-470, Near UCCI Building, Madri Industrial Area, Udaipur-313003 (Raj)
4. Office Copy Env Cell

Environment Clearance Letter No. – J-11015/259/2012-IA.II (M), dated 05.01.2017		
S.No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
1	Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court of Rajasthan and any other Court of Law, if any, as may be applicable to this project.	<ul style="list-style-type: none"> The directions of the Hon'ble courts shall be adhered to.
2	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	<ul style="list-style-type: none"> Not applicable, as the Jaisamand Wildlife Sanctuary and other protected areas are not falling within the 10 km of aerial distance of mine lease area. Letter certifying the same by DCF-Wildlife is attached as Annexure-1
3	No mining activities will be allowed in forest area, if any, for which the Forest Clearance is not available.	<ul style="list-style-type: none"> Underground mining is carried out and complete forest land of area 1537.91 ha. has been diverted. (114.94 ha. for surface use and 1422.97 ha. for underground mining). Renewal of Forest Clearance was awarded to the site vide letter dated 23.01.2015.
4	The project proponent shall obtain Consent to Operate from the State Pollution Control Board, Rajasthan and effectively implement all the conditions stipulated therein.	<ul style="list-style-type: none"> Consent to operate have been obtained from the Rajasthan State Pollution Control Board (RSPCB) vide letter no. F(Mines)/Udaipur(Sarada)/53(1)/2016-2017/8193-8197 dated 28/12/2017 valid up to 31.12.2022 & F(CPM)/Udaipur(Sarada)/2(I)/2017-2018/10088-10090 dated 21/03/2018 valid up to 31.12.2022 All the conditions stipulated therein are being implemented.

<p>5</p>	<p>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 ponds in the mining area may be made. Project Proponent should display the result digitally in front of the main Gate of the mine site</p>	<ul style="list-style-type: none"> CAAQMS have been installed at 3 locations as per wind direction with digital display of data in front of the main gate of the mine site. <div data-bbox="730 163 1137 517">  </div> <div data-bbox="762 526 1110 584"> <p>DIGITAL DISPLAY AT MINE SITE</p> </div> <div data-bbox="1145 163 1532 530">  </div> <div data-bbox="1198 537 1484 598"> <p>PM 2.5 ANALYZER OF CAAQMS</p> </div> <ul style="list-style-type: none"> pH and Turbidity meters have been installed at discharge points of STP and ETP and also at water storage ponds in the mining area. <div data-bbox="986 770 1471 1211">  </div> <div data-bbox="1061 1220 1396 1249"> <p>PH & TURBIDITY METERS</p> </div> <ul style="list-style-type: none"> Zero discharge is being maintained.
<p>6</p>	<p>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-months.</p>	<ul style="list-style-type: none"> Waste rocks generated during mine development are used in height rising of tailing dam. Balance waste rock is backfilled into underground mine voids. Presently, there is no storage of waste rock on surface. All initial waste dumps have already been vegetated & rehabilitated. <div data-bbox="873 1668 1517 1973">  </div> <div data-bbox="904 1984 1498 2045"> <p>WASTE DUMP REHABILITATED AND TURNED INTO ROCK GARDEN</p> </div>



7	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 adopted to that micro climate. This may be recommended to be studied by hiring Expert Ecology Group.	<ul style="list-style-type: none"> Waste rocks generated during mine development are used in height rising of tailing dam. Balance waste rock is backfilled into underground mine voids. Presently, there is no storage of waste rock on surface. All initial waste dumps have already been vegetated.
8	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.	<ul style="list-style-type: none"> Study conducted and report was enclosed with letter no. ZM/ENV/2018-19/142 dated 25.05.2018 (Impact of UG mining on Zawar group of 4 mines on aquatic life, surface & ground water regime and on plants/crops in the surrounding area).
9	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.	<ul style="list-style-type: none"> Study conducted and report was enclosed with letter no. ZM/ENV/2018-19/142 Dated 25.05.2018 (Impact of UG mining on Zawar group of 4 mines on aquatic life, surface & ground water regime and on plants/crops in the surrounding area).
10	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.	<ul style="list-style-type: none"> Will be complied
11	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 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	<ul style="list-style-type: none"> Blast monitoring is being done regularly in association with CIMFR. Controlled blasting is adopted. Same practice will be continued. Various mitigate measures for control of ground vibrations have being adopted. Blast vibration monitoring is done continuously at surface dwellings.

	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.	
12	<p>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.</p>	<ul style="list-style-type: none"> Being underground mines, haulage roads are underground. All the roads used for ore transportation are tarred. Water sprinkling is carried out to suppress fugitive dust. Water sprinklers have been provided at transfer points.  <p style="text-align: center;">SPRINKLER SYSTEMS AT TRASNFER POINTS</p> <ul style="list-style-type: none"> Covered Conveyors have been provided to control fugitive emissions.
13	The monitoring of PM 2.5 in the vehicle emission shall be conducted to improve the mine environment and report submitted to the Regional Office of the MoEFCC.	<ul style="list-style-type: none"> Exploring suitable agency to carry out this monitoring. Shall be suitably complied
14	The Project Proponent reported that there are seven Schedule-I species viz. Peafowl (<i>Pavo cristatus</i>), Osprey (<i>Pandion haliaetus</i>), Tawny eagle (<i>Aquila rapax</i>), Crested honey buzzard (<i>Pernisptilorhynchus</i>), Shikra (<i>Accipiter badius</i>), Leopard (<i>Pantherapardus</i>), Indian pangolin (<i>Manis crassicaudata</i>) in the study area. The PP shall implement the Conservation Plan and enhance the budget for implementation of Conservation Plan for Schedule I Species and also increase the budget for plantation/green belt 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.	<ul style="list-style-type: none"> Conservation Plan has been prepared in consultation with Deputy Conservator of forest, Udaipur. Same will be implemented through Wildlife Department.

15	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.	<ul style="list-style-type: none"> As part of scheduled health check-ups in conformance with DGMS guidelines, blood samples are being monitored. Monitoring of nearby water bodies is conducted as part of post project monitoring. Analysis is attached as Annexure – 7.
16	Implementation of Action Plan on the issues raised during the Public Hearing shall be ensured. The Project Proponent shall complete all the tasks as per the Action Plan submitted with budgetary provisions during the Public Hearing.	<ul style="list-style-type: none"> Implementation of Public Hearing Action is being done with adequate budgetary provisions.
17	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.	<ul style="list-style-type: none"> Blast monitoring is being done regularly in association with CIMFR. Controlled blasting is adopted. Same practice will be continued. Various mitigate measures for control of ground vibrations have being adopted. All points as part of study of " 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" are implemented and complied with.
18	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 Programme.	<ul style="list-style-type: none"> Absence of any radioactive element has been ascertained as part of EIA.

Environment Clearance Letter No. – J-11015/259/2012-IA.II (M), dated 05.01.2017		
S.No.	STANDARD CONDITIONS	COMPLIANCE STATUS
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.	<ul style="list-style-type: none"> As the mines area operational right now, this point will be adhered to in future.
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.	<ul style="list-style-type: none"> Complied
3	No change in the calendar plan including excavation, quantum of mineral and waste should be made.	<ul style="list-style-type: none"> Calendar plan, as per approved mine plan, is being adhered to.
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.	<ul style="list-style-type: none"> Water is drawn from Captive Tidi Dam with permission of Water Resources department, Govt. of Rajasthan vide agreement dated 17.09.1976 amended on 21.04.2007.
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).	<ul style="list-style-type: none"> Mining is being carried out as per the Mining Plan duly approved by IBM and as per the guidelines 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.	<ul style="list-style-type: none"> All the consents from all the concerned land owners as per the provisions of the Mineral Concession Rules, 1960 and MMDR Act, 1957 have been taken.
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.	<ul style="list-style-type: none"> Digital processing of the entire lease area using remote sensing technique is being carried out regularly once in three years Cover page is attached as Annexure – 5. Report has concluded that” Apart from new infrastructure added in empty spaces. There has been no significant change in land-use pattern at Zawar”.
8	The critical parameters as per the Notification 2009 such as PM10, PM2.5, NOx and SOx etc. in the ambient air within the	<ul style="list-style-type: none"> Monitoring is being done for ambient air quality and effluent as per the post project monitoring plan submitted as Environment Management Plan in EIA. Ambient Air Monitoring is being carried out fortnightly at 6 static stations along with monitoring at 2 dynamic stations.


	<p>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, Forest and Climate Change shall also be referred in this regard for its compliance.</p>	<ul style="list-style-type: none"> • Display board has been placed near main gate. • Monitoring data is uploaded on website as part of uploading 6 monthly compliances for Environmental Clearance
9	<p>Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of PM10 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 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</p>	<ul style="list-style-type: none"> • Water sprinkling is carried out at loading, unloading and transfer points. • Closed Conveyors are provided to control fugitive emissions. • All haul roads on surface are tarred. • Regular water sprinkling is done at haul roads underground. • Ambient Air Monitoring is being carried out fortnightly at 6 static stations along with monitoring at 2 dynamic stations. • Detailed reports are enclosed as Annexure - 2.
10	<p>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</p>	<ul style="list-style-type: none"> • Ground water level and quality is being monthly monitored through network of piezometers & wells in and around mine area. • 6 Piezometers have been provided at the downstream of tailing dam. • Monitoring reports are being submitted to MoEF, Lucknow and CPCB, Bhopal on six monthly basis as part of 6 monthly compliance of EC and to Central Ground Water Authority on yearly basis as part of annual compliance of CGWA NOC. • No natural water course and/or water resources have been obstructed due to any mining operations. • Detailed reports are enclosed as Annexure-3

	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.	
11	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 well located in village should be incorporated to ascertain the impact of mining over ground water table.	<ul style="list-style-type: none"> Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease will be carried out. The natural water bodies and or streams which are flowing in an around the village, are not being disturbed. Entire fresh water requirement is sourced from a captive surface water source on the river Tidi. No ground water is extracted for industrial use except for the ground water intersection due to mining. Ground water recharge structures are being constructed to ensue water table does not go down below the pre-mining period. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>ANICUT CONSTRUCTED</p> </div> <div style="text-align: center;">  <p>PERCOLATION TANK WITH STONE PITCHING</p> </div> </div> <ul style="list-style-type: none"> Ground water level and quality is being regularly monitored through network of 6 piezometers & 5 wells in and around mine area. Detailed reports are enclosed as Annexure-3
12	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	<ul style="list-style-type: none"> Ground water level and quality is being regularly monitored through network of 6 piezometers & 5 wells in and around mine area. Monitoring reports are being submitted to MoEF, Lucknow and CPCB, Bhopal on six monthly basis as part of 6 monthly compliance of EC and to Central Ground Water Authority on yearly basis as part of annual compliance of CGWA NOC. Detailed reports are enclosed as Annexure-3

	Central Pollution Control Board.	
13	<p>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.</p>	<ul style="list-style-type: none"> • Road used for transportation of ore does not pass through any village
14	<p>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.</p>	<ul style="list-style-type: none"> • Mining being underground, there is no such impact. • Also, nearby villages are far away from the surface infrastructures in the core zone.
15	<p>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</p>	<ul style="list-style-type: none"> • Being underground mines, main haulage roads are underground. • Water sprinkling is carried out to suppress fugitive dust on haul roads • All the roads used for ore transportation are tarred.

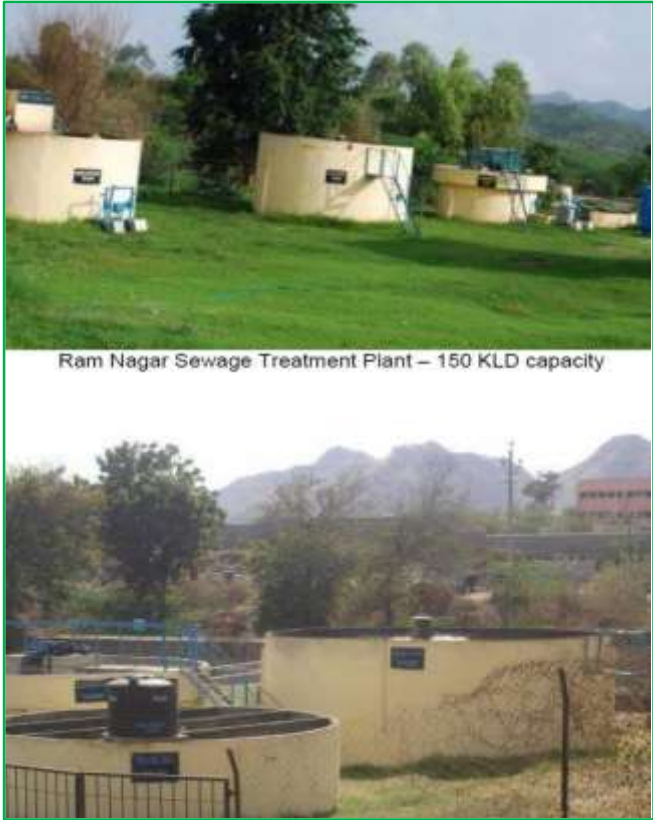
	borne dust; Use of effective sprinkler system to suppress fugitive dust on haul roads and other transport roads shall be ensured.	
16	Sufficient number of Gullies to be provided for better management of water. Regular Monitoring of pH shall be included in the monitoring plan and report shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis.	<ul style="list-style-type: none"> There are no artificial gullies in the mine lease because of absence of surface waste dump.
17	There shall be planning, developing and implementing facility of rainwater harvesting measures on long term basis and implementation of conservation measures to augment ground water resources in the area in consultation with Central Ground Water Board.	<ul style="list-style-type: none"> The captive Tidi dam with a capacity of 8.5 mcm constructed by HZL is a major rainwater harvesting measure from which the water is sourced for the project. Rainwater harvested exceeds the requirement of the mines and thus caters to the Zawar Captive power plant, Domestic consumption and supply to villages. In addition to this, additional measures for rainwater harvesting is as detailed in point (11) above. <div data-bbox="874 909 1374 1292" data-label="Image"> </div> <p style="text-align: center;">TIDI DAM</p>
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.	<ul style="list-style-type: none"> Part of the waste dump is used in construction / height raising of tailing dam. Balanced quantity is backfilled into the underground voids.
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	<ul style="list-style-type: none"> All the initial waste dumps have been reclaimed and became ecologically sustainable. No fresh waste dumps exist in the mine lease.

	adopted to that micro climate.	
20	<p>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 run off. 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.</p>	<ul style="list-style-type: none"> • The project is expansion of an underground mine and beneficiation plant within existing area. Thus no top soil is generated. • Waste rock generated during mine development is used in height rising of tailing dam. Balance waste rock is backfilled into underground mine voids. Presently, there is no storage of waste rock on surface. All initial waste dumps have already been vegetated. • Compliance reports are submitted to MoEF, Lucknow and CPCB, Bhopal on six monthly basis.
21	<p>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</p>	<ul style="list-style-type: none"> • The waste generated from the mine development work is dumped in the voids created due to stopping. Further, the waste hoisted from underground is accommodated in the waste bunkers, from where it is directly loaded into trucks transported to tailing dam for height raising. • The concentrate from the beneficiation plant is accommodated in concentrate stockpile yards having covered sheds and is secured by stone masonry walls of appropriate height. • Concentrate from the stockpile yard is directly loaded into trucks mechanically/ manually for end use at captive smelter. • Hence the catch drains/siltation pond / garland drains / settling tanks / sedimentation pits / check dams, etc. as stipulated are not applicable.

	<p>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.</p>	
22	<p>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.</p>	<ul style="list-style-type: none"> Till date, plantation of 373625 saplings is done in 170.85 ha in including rehabilitated areas, around beneficiation plant, on matured tailing dam, roads and social a forestry.  <p style="text-align: center;">PLANTATION AT ZAWAR STADIUM</p> <ul style="list-style-type: none"> Plantation of 22000 saplings is done in 75 ha in RDF 1 & RDF 2 as part of Forest Compliance.
23	<p>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.</p>	<ul style="list-style-type: none"> There is no adverse impact on the habitations ascertained as part of EIA process.

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.	<ul style="list-style-type: none">No grazing land has been acquired as part of operations.																
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.	<ul style="list-style-type: none">Conservation Plan has been prepared in consultation with Deputy Conservator of forest, Udaipur.Same will be implemented through Wildlife Department																
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 basis.	<ul style="list-style-type: none">CSR expenditure is being done for the Socio Economic Development of the neighborhood based on the Need based door to door survey by established Social Institutes/Workers. <table><tr><th colspan="4">CSR HIGHLIGHTS AT ZAWAR MINES</th></tr><tr><th>SAKHI AND SAMADHAN</th><th>SHIKSHA SAMBAL AND MINDSPARK</th><th>KHUSHI AND NANDGHA R</th><th>SMILE ON WHEELS</th></tr><tr><td>5064 women connected through 394 SHGs, 30 Vos and 1 federation under Saki project.</td><td>Shiksha Sambal Project is running in 10 Secondary and Sr Secondary Schools at Zawar for Improving board results.</td><td>10 Nandghars in Zawar.</td><td>Under Health Project</td></tr><tr><td>256 women from Zawar have started new microenterpr ises.</td><td>3 new schools taken for installation of Mindspark labs to digitalize education from levels 1 to 8.</td><td>Preschool ,health and nutrition facilities are being provided in 51 centres covering around 759 children.</td><td>doorstep medical facilities through Mobile health Van is being provided in 28 Villages</td></tr></table>	CSR HIGHLIGHTS AT ZAWAR MINES				SAKHI AND SAMADHAN	SHIKSHA SAMBAL AND MINDSPARK	KHUSHI AND NANDGHA R	SMILE ON WHEELS	5064 women connected through 394 SHGs, 30 Vos and 1 federation under Saki project.	Shiksha Sambal Project is running in 10 Secondary and Sr Secondary Schools at Zawar for Improving board results.	10 Nandghars in Zawar.	Under Health Project	256 women from Zawar have started new microenterpr ises.	3 new schools taken for installation of Mindspark labs to digitalize education from levels 1 to 8.	Preschool ,health and nutrition facilities are being provided in 51 centres covering around 759 children.	doorstep medical facilities through Mobile health Van is being provided in 28 Villages
CSR HIGHLIGHTS AT ZAWAR MINES																		
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		<p>1450 farmers engaged through POP practices.</p> <p>300 families involved in livestock practices like AI in cattle, goat rearing.</p>		10+ CMAM camps held to check on malnutrition children.	498 OPDs conducted covering around 18000 beneficiaries during the year.
27	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	<ul style="list-style-type: none"> There is no construction labor are residing in the site. 			
28	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs	<ul style="list-style-type: none"> Following noise control measures have been taken: <ul style="list-style-type: none"> Specifying permissible noise level limit for equipment below 85 dB(A) Acoustic enclosures with insertion loss of at least 25 dB(A) Suitable evasee at the outlet of ventilation fans Plantation for attenuation of noise Employees are provided with ear plugs / muffs with proper training and awareness for its usage Monitoring results are attached as Annexure – 4. 			
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.	<ul style="list-style-type: none"> Oil and grease trap is provided at workshop and water is reused for alternate uses. Zero discharge is being maintained. Sewage is treated and reused for plantation and dust suppression. Two STP's with combined capacity of 450 KLD have been provided 			

		 <p>Ram Nagar Sewage Treatment Plant – 150 KLD capacity</p>
30	<p>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.</p>	<ul style="list-style-type: none"> Personnel Protective Equipments (PPEs) are provided to the workers. Initial and refreshers training are also provided covering safety and occupational health aspects. Regular safety interactions are also carried out.
31	<p>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.</p>	<ul style="list-style-type: none"> There is a separate Environment Management cell with qualified environmental professionals under the direct control of Director of SBU. <pre> graph TD A[CEO & WHOLE TIME DIRECTOR] --> B[Dy. CEO] B --> C[DIRECTOR, SBU] C --> D[HEAD - HSE] D --> E[ENVIRONMENT HEAD] E --> F[ENVIRONMENT EXECUTIVES] E --> G[ENVIRONEMENT ASSISTANT] </pre>
32	<p>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</p>	<ul style="list-style-type: none"> Being complied regularly. Year wise expenditure are reported to MoEF and its Regional Office at Lucknow. Expenses during Oct 19 to Mar 20 is Rs 1,27,69,566.

	reported to the Ministry and its Regional Office.	
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.	<ul style="list-style-type: none"> Project is expansion of existing underground mines, no land development is required.
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.	<ul style="list-style-type: none"> Six monthly reports are being submitted on regular basis for the EC. Same will be followed.
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.	<ul style="list-style-type: none"> All necessary support shall be extended to the authorities
36	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	<ul style="list-style-type: none"> No suggestion / representation has been received from any Panchayat / local NGO.
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.	<ul style="list-style-type: none"> Copies of Environment Clearance, have submitted to RSPCB Regional Office, District Industry Centre and Collector's office/ Tehsildar's Office
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	<ul style="list-style-type: none"> It was advertised in Rajasthan Patrika and Dainik Bhaskar on 10.01.2017. Advertisements are attached as Annexure-6.

	Control Board and also at web site of the Ministry of Environment, Forest and Climate Change at www.environmentclearance.nic.in and a copy of the same should be forwarded to the Regional Office.	
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**Office of The Deputy Conservator of Forests Wildlife
Udaipur**

Sajjangarh, Udaipur Post Box No.161, Phone No.02942800009

Email ID -dcfwludz@gmail.com

F.9(10) Survey/DCFWL/ Udr/2016-17/ 11715

Date : 29/11/16

TO,

V.Jayaraman
VP & Head - EOHS
Hindustan Zinc Limited
Yashad Bhawan, Udaipur

Sub : Issue of certification regarding Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/ Elephant Reserves (existing as well as proposed), if any within 10 km of the Zawar mine lease.

Ref: Hindustan zinc Limited, Udaipur Letter No. Nil Date:24.11.2016

Dear sir,

With reference to the above mentioned subject certified G.T.Sheet & details of GPS Co-ordinates of two blocks submitted by you is verified by Forest Range Officer Jaisamand based on his factual report by vide letter no. 602 dated 29.11.2016 saying that no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves & Jaisamand wildlife Sanctuary within 10 km of submitted Zawar mine lease area.

Hence this is certified that Jaisamand Wildlife Sanctuary & other P.A.'s mentioned above are not falling in 10 km of aerial distance of mine lease area.

Encl. : Certified G.T.Sheet

Sincerely

Taj
(Dr.T.Mohanraj)

Deputy Conservator of Forests
Wildlife Udaipur

Date :

F.9(10) Survey/DCFWL/ Udr/2016-17/

Copy to

- 1 Deputy Conservator of Forests, Udaipur
- 2 Forest Range Officer, Wildlife Jaisamand

-Sd-

(Dr.T.Mohanraj)
Deputy Conservator of Forests
Wildlife Udaipur

AIR MONITORING AT ZAWAR GROUP OF MINES								
STACK MONITORING (All units are in mg/Nm ³)								
Sampling Points	Parameters	Prescribed Limits	Oct-19	Nov-19	Dec-19	Jan-19	Feb-19	Mar-19
Mochia Crusher Stack	SPM	150	52.9	46.8	45.9	45.6	51.3	56.5
Balaria Crusher Stack	SPM	150	49.6	49.5	49.7	41.6	56.7	53.1
DE - 2 (Mill 2)	SPM	150	-	56.5	58.9	36.4	61.2	50.9
DG Set	SPM	75	-	71	-	-	-	-
	NOX (as NO ₂) (At 15% O ₂ , dry basis in ppmv)	710	-	540	-	-	-	-
	CO	150	-	112	-	-	-	-
	NMHC (as C)	100	-	79	-	-	-	-

AMBIENT AIR QUALITY MONITORING (All units are in µg/m ³)							
Oct-19							
S.No.	STATIONS	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	Pb
1	Mill Office	65.6	40.2	10.5	15	802	0.43
2	Mochia Mine	63.2	38	10.1	14	802	0.28
3	Balaria Mine	58.6	35.2	9.3	11.6	802	0.22
4	Administrative Block	64.4	38.8	10.5	16	802	0.28
5	Zawar Mala Mine	56.9	34	7.9	9.5	687	0.16
6	Baroi Mine	55.7	33.2	8.4	10.1	802	0.19
Prescribed Limits		100	60	80	80	2000	1

Nov-19							
S.No.	STATIONS	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	Pb
1	Mill Office	64.3	35.2	7.5	16	802	0.35
2	Mochia Mine	62.4	36.9	8.5	15	802	0.25
3	Balaria Mine	50.9	29.6	6.4	10.9	687	0.11
4	Administrative Block	60.6	37.1	6.9	12.5	802	0.3
5	Zawar Mala Mine	56.7	34.2	6.9	10.5	687	0.15
6	Baroi Mine	51	31.1	6.4	11.3	687	0.12
Prescribed Limits		100	60	80	80	2000	1

Dec-19							
S.No.	STATIONS	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	Pb
1	Mill Office	58.4	35.6	8.9	19	802	0.31
2	Mochia Mine	61.8	38.5	8.3	15	802	0.28
3	Balaria Mine	51.1	29.8	6.3	11.5	687	0.12
4	Administrative Block	63.9	38.8	8.7	17.5	916	0.35
5	Zawar Mala Mine	59.2	34.6	7.3	13.8	802	0.23
6	Baroi Mine	51.7	30.1	6.3	12.9	802	0.13
Prescribed Limits		100	60	80	80	2000	1

AMBIENT AIR QUALITY MONITORING (All units are in µg/m ³)							
Jan-20							

S.No.	STATIONS	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	Pb
1	Mill Office	68.4	42.5	8.4	14	802	0.37
2	Mochia Mine	60.1	35.9	8.3	15.6	802	0.28
3	Balaria Mine	59.2	34.3	7	12	687	0.25
4	Administrative Block	58.7	33.1	7.4	13.4	802	0.25
5	Zawar Mala Mine	45.3	28.7	6.0	8.5	687	0.11
6	Baroi Mine	62.5	37.7	7.9	17	802	0.31
Prescribed Limits		100	60	80	80	2000	1

Feb-20							
S.No.	STATIONS	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	Pb
1	Mill Office	68.8	42.5	8.9	16.2	802	0.44
2	Mochia Mine	59.7	37	7.8	14.6	802	0.38
3	Balaria Mine	55	32.7	6.8	11.7	687	0.21
4	Administrative Block	68.4	42.5	9.7	17.2	916	0.49
5	Zawar Mala Mine	57.9	34.5	7.7	13.4	687	0.27
6	Baroi Mine	64.7	38.1	7.3	13.4	802	0.35
Prescribed Limits		100	60	80	80	2000	1

Mar-20							
S.No.	STATIONS	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	Pb
1	Mill Office	73.1	44.9	8.2	14	802	0.49
2	Mochia Mine	54.7	32.3	6.5	11	687	0.26
3	Balaria Mine	52.5	31	6.3	9.9	687	0.17
4	Administrative Block	62.7	36.9	8.1	15	802	0.41
5	Zawar Mala Mine	60.8	36.6	8.1	15	802	0.31
6	Baroi Mine	56.4	34.9	6.8	11	687	0.30
Prescribed Limits		100	60	80	80	2000	1

Ground Water Quality at Zawar Group of Mines								
Nov-19 (Except pH all values are in mg/lit.)								
S.No.	Parameters (IS : 10500:2012		Zawarmata Hand pump	Zawarmata Well	Naka Well	Mahadev ki Nal Well	Tiger Well
		Acceptable	Permissible					
1	pH	6.5-8.5	No Relaxation	6.88	7.12	7.33	7.15	6.73
2	Chlorides	250	1000	57.99	75.98	57.98	83.97	111.96
3	TSS	-	-	<5	<5	<5	9	<5
4	Zinc	5	15	0.87	0.09	0.12	0.01	0.43
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	0.3	No Relaxation	0.21	<0.01	0.09	0.07	0.01
7	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01
8	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003
9	Cyanides	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
10	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01

Jan-20 (Except pH all values are in mg/lit.)								
S.No.	Parameters	IS : 10500:2012		Zawarmata Hand pump	Zawarmata Well	Naka Well	Mahadev ki Nal Well	Tiger Well
		Acceptable	Permissible					
1	pH	6.5-8.5	No Relaxation	7.08	7.14	7.45	6.81	6.97
2	Chlorides	250	1000	67.98	103.97	69.98	85.99	65.98
3	TSS	-	-	<5.0	<5.0	<5.0	10	<5.0
4	Zinc	5	15	0.43	0.05	0.03	0.03	0.05
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	0.3	No Relaxation	0.14	<0.01	0.04	0.05	0.01
7	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01
8	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003
9	Cyanides	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
10	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01

Mar-20 (Except pH all values are in mg/lit.)								
S.No.	Parameters	IS : 10500:2012		Zawarmata Hand pump	Zawarmata Well	Naka Well	Mahadev ki Nal Well	Tiger Well
		Acceptable	Permissible					
1	pH	6.5-8.5	No Relaxation	7.24	7.25	7.59	7.41	7.14
2	Chlorides	250	1000	73.98	107.97	79.98	85.97	71.98
3	TSS	-	-	<5.0	<5.0	<5.0	15	7
4	Zinc	5	15	0.25	<0.01	<0.01	0.03	<0.01
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	0.3	No Relaxation	0.13	<0.01	<0.01	0.05	0.01
7	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01
8	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003
9	Cyanides	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
10	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01

Piezometer Well Water Quality at Zawar Group of Mines

Nov-19 (Except pH all values are in mg/ltr)

S.No	Parameter s	IS : 10500:2012		Near Bridge (Vala Patel House) (Pz - 01)	Near In front of Old Tailing Dam (Pz - 02)	Near Tailing Dam Pump House(Pz - 03)	Near Magazine Area(Pz - 04)	Near Below Tailing Pipe Lines(Pz - 05)	Near Way to Tailing Dam Road(Pz - 06)
		Acceptabl e	Permissible						
1	pH	6.5-8.5	No Relaxation	6.73	6.94	6.62	6.88	7.38	6.78
2	Chlorides	250	1000	85.97	61.98	63.99	77.98	47.99	31.99
3	TSS	-	-	<5	18	<5	<5	<5	12
4	Zinc	5	15	0.13	0.1	0.01	0.01	0.03	0.03
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	0.3	No Relaxation	0.07	0.03	0.22	0.06	0.09	0.11
7	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
8	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
9	Cyanides	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
10	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Jan-20 (Except pH all values are in mg/ltr)

S.No	Parameter s	IS : 10500:2012		Near Bridge (Vala Patel House) (Pz - 01)	Near In front of Old Tailing Dam (Pz - 02)	Near Tailing Dam Pump House(Pz - 03)	Near Magazine Area(Pz - 04)	Near Below Tailing Pipe Lines(Pz - 05)	Near Way to Tailing Dam Road(Pz - 06)
		Acceptabl e	Permissible						
1	pH	6.5-8.5	No Relaxation	6.80	6.75	7.28	6.80	7.96	7.12
2	Chlorides	250	1000	64	71	95	78.8	32.5	67.1
3	TSS	-	-	-	-	-	-	-	-
4	Zinc	5	15	0.14	0.14	0.09	0.08	0.03	0.08
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	0.3	No Relaxation	0.01	<0.01	0.05	0.05	0.05	0.06
7	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
8	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
9	Cyanides	0.05	No Relaxation	-	-	-	-	-	-
10	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	-	-	-	-	-	-
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Feb-20 (Except pH all values are in mg/ltr)									
S.No.	Parameters	IS : 10500:2012		Near Bridge (Vala Patel House) (Pz - 01)	Near In front of Old Tailing Dam (Pz - 02)	Near Tailing Dam Pump House (Pz - 03)	Near Magazine Area (Pz - 04)	Near Below Tailing Pipe Lines (Pz - 05)	Near Way to Tailing Dam Road (Pz - 06)
		Acceptable	Permissible						
1	pH	6.5-8.5	No Relaxation	6.72	6.92	7.34	6.54	7.88	7.25
2	Chlorides	250	1000	72	76.2	104	82.20	35.1	74.5
3	TSS	-	-	-	-	-	-	-	-
4	Zinc	5	15	0.11	0.16	0.071	0.076	0.036	0.087
5	Lead	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
6	Iron	0.3	No Relaxation	0.03	<0.01	0.06	0.06	0.06	0.068
7	Copper	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
8	Cadmium	0.003	No Relaxation	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
9	Cyanides	0.05	No Relaxation	-	-	-	-	-	-
10	Nickel	0.02	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
11	Cobalt	-	-	-	-	-	-	-	-
12	Chromium	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

S.No.	Piezometers	Dec -19 (m)	Jan - 20 (m)	Feb - 20 (m)
1.	Near Bridge (Vala Patel House) (Pz - 01)	0.89	0.98	1.57
2.	Near In front of Old Tailing Dam (Pz - 02)	5.7	6.74	7.21
3.	Near Tailing Dam Pump House (Pz - 03)	2.33	3.02	2.78
4.	Near Magazine Area (Pz - 04)	5.95	5.98	6.45
5.	Near Below Tailing Pipe Lines (Pz - 05)	4.77	4.83	4.98
6.	Near Way to Tailing Dam Road (Pz - 06)	1.75	1.25	1.79

S.No.	Wells in the area	Dec -19 (m)	Jan - 20 (m)	Feb - 20 (m)
1.	Zawarmata Well	3.5	3.47	3.86
2.	Naka Well	2.5	3.9	4.38
3.	Mahadev ki Nal Well	1	0.73	1.11

DETAILS OF QUARTERLY STP ANALYSIS REPORT								
S.No	PARAMETERS	Standard	Ashok Nagar			Ram Nagar		
			Oct - 19	Nov - 19	Dec - 19	Oct - 19	Nov - 19	Dec - 19
1	pH Value	Between 5.5 to 9.0	-	7.11	-	-	7.23	-
2	Total Suspended Solids	Not to exceed 100 mg/l	-	73	-	-	34	-
3	Oil & Grease	Not to exceed 10 mg/l	-	<5	-	-	<5	-
4	Biochemical Oxygen Demand (3 days at 27 °C)	Not to exceed 30 mg/l	-	19	-	-	14	-
5	Chemical Oxygen Demand	Not to exceed 250 mg/l	-	148	-	-	119	-
6	Total Residual Chlorine	Not to exceed 1 mg/l	-	<0.1	-	-	<0.1	-
7	Total kjeldahl Nitrogen (as N)	Not to exceed 10 mg/l	-	20	-	-	15	-
8	Ammonical Nitrogen (as N)	Not to exceed 50 mg/l	-	9	-	-	8	-
9	Sulphide(as S)	Not to exceed 2.0 mg/l	-	<0.5	-	-	<0.5	-
10	Nitrate Nitrogen	Not to exceed 10 mg/l	-	3.8	-	-	4.5	-
11	Chlorides	Not to exceed 1000 mg/l	-	162.97	-	-	129.97	-
12	Sulphates	Not to exceed 1000 mg/l	-	152.9	-	-	133	-

DETAILS OF QUARTERLY STP ANALYSIS REPORT								
S.No.	PARAMETERS	Standard	Ashok Nagar			Ram Nagar		
			Jan -20	Feb -20	Mar -20	Jan -20	Feb -20	Mar -20
1	pH Value	Between 5.5 to 9.0	7.48	7.13	7.35	7.18	7.42	7.40
2	Total Suspended Solids	Not to exceed 100 mg/l	46	39	37	52	62	26
3	Oil & Grease	Not to exceed 10 mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4	Biochemical Oxygen Demand (3 days at 27 °C)	Not to exceed 30 mg/l	22	19	20	26	21	18
5	Chemical Oxygen Demand	Not to exceed 250 mg/l	143	135	160	220	160	100
6	Total Residual Chlorine	Not to exceed 1 mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
7	Total kjeldahl Nitrogen (as N)	Not to exceed 100 mg/l	17	13	25	23	18	18
8	Ammonical Nitrogen (as N)	Not to exceed 50 mg/l	8	7	13	12	7	10
9	Sulphide(as S)	Not to exceed 2.0 mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
10	Nitrate Nitrogen	Not to exceed 10 mg/l	4.20	4.9	4.50	6.2	4.7	4.9
11	Chlorides	Not to exceed 1000 mg/l	155.97	153.9	163.96	169.96	183.9	177.96
12	Sulphates	Not to exceed 1000 mg/l	268.3	341.2	287.5	325	287.9	310

Tailing Dam Reclaim Water (Except pH all values are in mg/lit.)								
S.No.	Parameters	Standard	Oct - 19	Nov - 19	Dec - 19	Jan-20	Feb-20	Mar-20
1	pH	5.5-9.0	-	7.08	-	7.13	-	7.35
2	Chlorides	-	-	79.98	-	81.98	-	91.98
3	TSS	100	-	32	-	11	-	7
5	Oil and Grease	10	-	<5	-	<5.0	-	<5.0
6	BOD 3 days at 27°C	30	-	13	-	8	-	10
7	COD	250	-	142	-	40	-	53
8	Zinc	5	-	1.11	-	1.13	-	1.08
9	Lead	0.1	-	<0.01	-	<0.01	-	<0.01
10	Iron	3	-	0.09	-	0.08	-	0.12
11	Copper	3	-	<0.01	-	<0.01	-	<0.01
12	Cadmium	2	-	<0.003	-	<0.003	-	<0.003
13	Cyanides	0.2	-	<0.01	-	<0.01	-	<0.01
14	Nickel	3	-	<0.01	-	<0.01	-	<0.01
15	Cobalt	-	-	<0.05	-	<0.05	-	<0.05
16	Chromium	2	-	<0.01	-	<0.01	-	<0.01

AMBIENT NOISE MONITORING AT ZAWAR GROUP OF MINES		
Stations/Month	Oct - 19	
	Day	Night
Mill Office	70.5	63.9
Mochia Mine	59.6	52.3
Balaria Mine	61.4	55.9
Administrative Block	63.1	54.2
Zawar Mala Mine	59.2	53.9
Baroi Mine	63.8	58.8
Main Store	68.8	53.6
Filter House	69.9	66.4
Community Centre	60.4	53.5
Guest House	61.7	47.6
Permissible Limit	75	70

Land use mapping by digital processing of Zawar mining lease using remote sensing techniques



**Sponsor: Hindustan Zinc Limited
(Zawar group of mines)**

Studied by:



Estb: 1988

Studied for:



Hydro-Geosurvey Consultants Private Limited

C-103, Shastri Nagar, Jodhpur- 342003

Phone: - 0291-2431754

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August, 2018

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2017年12月31日

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RAJASTHAN PATRIKA, Udaipur Edition 10.01.2017, Page 7

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NAME	AGE	E. No.	DEPTT.	JOB.	LEAD (in µg/L)	REMARK	SEEN BY CMO
Charan Lal	52	21347	Mochia	LHD Opr.	129.79	FIT	CSM
Maqbul Khan	53	1447	Balaria(TCL)	Crushar Opr.	132.02	FIT	CSM
Devi Lal	55	21426	Mochia	ESH Opr.	141.14	FIT	CSM
Mohan Lal Pargi	47	4796	CPP(Shotam)	Office Work	139.97	FIT	CSM
Vansh Pradeep Singh	27	1604	Balaria(TCL)	Stop blasting	105.81	FIT	CSM
Ram Chandra	31	1628	Balaria(TCL)	Plant Opr.	91.43	FIT	CSM
Laxman Meena	32	1676	Balaria(TCL)	Plant Opr.	120.96	FIT	CSM
Mihir Bauri	36	173	West Mochia(SKK)	Mining Mate	117.94	FIT	CSM
Kalu Meena	54	1192	Balaria(TCL)	Driller	138.14	FIT	CSM
Raju Meena	39	469	Mochia(ACC)	Driller	135.4	FIT	CSM
Devi Lal Meena	26	1931	Balaria(TCL)	Labur	98.98	FIT	CSM
Mohd. Khalid	30	207	Mochia(Seagu II)	Labur	98.61	FIT	CSM
Tirth Prasad Yadav	39	435	Baroi(MMPL)	Jumbo Opr.	109.86	FIT	CSM
Harak Lal	48	5056	CPP(Shotam)	Helper DM	115.9	FIT	CSM
Manish Panwar	31	5077	CPP(Shotam)	Store Keeper	133.62	FIT	CSM
Sashank Shekhar	31	2671	CPP(Shotam)	Engineer	124.7	FIT	CSM
Manoj Kumar Maharam	36	2875	CPP(Shotam)	Engineer	89.2	FIT	CSM
Ajay Thakur	34	9272	CPP(Shotam)	Engineer	122.43	FIT	CSM
Deepak Kumar Yadav	40	818	North Baroi(ACC)	LPDT Opr.	91.2	FIT	CSM
Ramesh Meena	30	882	North Baroi(ACC)	LHD Opr.	122.48	FIT	CSM
Stiban	49	22053	Mill	Asstt.Fore man	96.86	FIT	CSM
Vinod Kumar Meena	40	1414	Balaria(TCL)	Mazdoor Ug	91.15	FIT	CSM
Bhim Raj Bhoi	30	1422	Balaria(TCL)	Crusher Opr.	122.5	FIT	CSM
Rakesh Kumar	40	1664	Balaria(TCL)	Helper	122.85	FIT	CSM
Nitesh Meena	29	1733	Balaria(TCL)	Mazdoor Ug	76.2	FIT	CSM
Roop Lal	49	21690 8	Mill	Plant Attendent	144.98	FIT	CSM
Man Mohan	53	22062 8	Mill	Foreman Mech.	138.17	FIT	CSM
Ghan Shyam	57	21171 8	Mochia	Blaster	140.01	FIT	CSM
Pradeep Kumar	50	20731 1	Mochia	Mining Mate	131.17	FIT	CSM
Devendra Mali	37	21709 7	Mochia	Bellman	116.15	FIT	CSM
S.S.Dhupiya	53	21223 8	Mochia	Head Clerk	126.55	FIT	CSM

