

Ref.:HZL/RDM/ENV/2020-21/

Date – 27.11.2020

By Registered Post

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

Sub: – Compliance report of Environment Clearance for **Rajpura Dariba Mines, Dist: Rajsamand-313211**, Rajasthan of M/S Hindustan Zinc Limited

Ref: - Environment Clearance Letter No. – **J-11015/84/2018-IA.II (M)**,
dated **13.04.2020**

Sir,

With reference to the above subject, we are hereby submitting the **six-monthly compliance report** of the conditions stipulated in the **Environment Clearance** for the period of **April 2020 to September 2020**.

Thanking You

Yours faithfully


(Sanjay Kumar Khator)
Unit Head - RDM

- 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
18, Azad Nagar, Pannadhay Circle, BHILWARA (RAJ.) PIN - 311001
4. O/C Env Cell

Compliance Report of Environmental Clearance granted by the Ministry of Environment, Forests and Climate Change, Govt. of India

- **Name of the Project:** Expansion in production of Lead-Zinc Ore from 1.08 million TPA to 2.0 million TPA (Total Excavation 2.48 million TPA) & Lead-Zinc Ore Beneficiation from 1.2 million TPA to 2.5 million TPA from Rajpura Dariba Underground Mine (Mining lease area 1142.2106 & ML No. 166/2008), Located at Tehsil Relmagra, Distt- Rajsamand, Rajasthan, by M/S Hindustan Zinc Ltd
- **Clearance letter No.:** J-11015/84/2018-IA.II (M), dated 13.04.2020
- **Period of Compliance Report:** April 2020 to September 2020

Specific Conditions:

S.No.	A. Specific Conditions	Compliance Status
1	NOC for CGWA obtained vide LR No: 21-4(315)/WR/CGWA/2008-1905 dated 16.11.2017 wherein the permission for dewater the accumulated ground water in mining pits @446.5 m ³ /day due to seepage and intersection of water table was provided. This NOC is valid for 3 years i.e., up to 15.11.2020. Beyond 15.11.2020 PP shall use the ground only after obtaining approval from CGWA and State Pollution Control Board (SPCB) concerned shall not issue Consent to Operate (CTO) for expansion proposal after 15.11.2020, till the project proponent obtains such permission. Zero liquid Discharge is to be maintained from tailing dam, PP shall not use surface water without obtaining permission from the concerned authorities. Plant should be operated with 100% recycle water and fresh water shall be used only for drinking purpose which is supplied for industrial, colon and nearby villages	Noted. Renewal application for NOC has been submitted to CGWB.
2	Out of 0.48 MTPA of waste, 0.46 MTPA shall be used to fill underground voids, 0.02 to waste dumps and not more than 0.02 MTPA shall be used for increasing the height of tailing dam. Waste should not be transported outside the mining lease area and shall be utilised within the mining lease area. the dump shall be developed in 3 benches of 7 metre high. Total height of the dump shall not be more than 21 meters (from bases level of 495 mRL i.e. upto 516 mRL). The overall slope of the dump shall not be more	Noted. Waste generated due to mining is used for filling of voids in stopes. No waste is transported outside mining lease.

	<p>than 35°. Total quantity of the waste materials in waste dump shall not be more than 3.64 lakh tonne. Protective measures as proposed vis. a) overall slope angle of waste dump is maintained at less than angle of repose of broken material, b) retaining wall is maintained around the waste dump to prevent roll down boulders, c) garland drain of 1 m x 1m around waste dump is excavated for collecting the rain water into the storm water pit, and d)plantation shall be done in the inactive area of the waste dump to provide additional stability etc. shall be implemented for the stability of the waste dump. The area of dump yard should not be more than 5 Ha.</p>	
3	<p>Budget earmarked for plantation/green belt development with drip irrigation system after expansion is Rs. 1200 Lakh (Capital) and Rs. 20.0 lakh(recurring). Plantation proposed within and outside the mine lease area lease during 2018-19 to 2022-23 total 56030 saplings will be planted on 43.1 Ha area (cumulative plantation 246030 on 2331. Ha), during 2023-24 to 2027-2028 total 10660 saplings will be planted on 8.2 Ha area (cumulative plantation 256690 on 241.3 Ha). PP shall engage the expert agency to increase the plantation density to at least 2500 saplings/ha. PP shall develop an alternative grazing in lieu of grazing land if already used by the PP for mining activity and take NOC from the concerned authorities for use of grazing for mining purpose. Growth of each plant needs to be monitored and record should be maintained, the record should also be maintained for no of species planted, type of species planted, survival rate etc. The budget earmarked for plantation shall be kept in separate bank account and should be audited annually. PP should annually submit the audited statement along with proof of activities viz photographs (before and after with geo location date and time), details of expert agency engaged, details of species planted, number of species planted, survival rate,</p>	<p>Plantation shall be carried out as per the plantation/greenbelt development plan. To increase plantation density, gap filling will be carried out in the existing plantation. Details regarding the record for no. of species planted, types of species planted, survival rate etc. will be shared.</p>

	density of plantation etc. to the Regional Office of MoEF &CC before 1st July of every year for the activities carried out during previous year.	
4	Approval of Revised Conservation Plan for Schedule-1 species viz Indian Peafowl, Indian Gray Horn Bill, Black Should Kite, White eyed Buzzard, Indian Monitor Lizard, Indian Flapshell Turtle/Indian Mud Turtle, Indian Python, Indian Leopard, Indian Gazelle, four horned antelope, woldmar, crocodile and Pantherea Pardus needs to be obtained. PP shall sigh the MOU with State Government for implementation of conservation. PP shall deposit the amount proposed for conservation plan to state Government as per demand raised by them from time to time. PP shall report the status of payment and implementation of conservation plan to Regional Office, MoEF &CC annually.	Approval for Revised Wildlife Conservation Plan obtained.
5	Budget earmarked for CER activities is Rs. 14.0 crores which include activity-1: Health, Hygiene and water a) Renovation and upgradation of Govt. Hospital (CHC Mahenduriya) (construction of additional wards, toilets, garden, mortuary, lighting etc) Budget Rs. 100 lakh; time line 1 year, b) installation of High capacity community RO in surrounding villages; (1500 litres per hour capacity, auto TDS, real time data, 5000 storage, SS tank mounted vehicle to mobile ATM and water transfer 24*7 chilled water supply- Railmagra 2 Nos, Sindesarkalan, Garadhah) Budget Rs 200 lakh @Rs. 100 lakh/year; time in 2 years, c) construction of overhead tank at Kothdi); budget 300 Lakh; time line 1 st , 2 nd and 3 rd year), activity -2 education - a) Holistic development of 3 government schools (additional classrooms, separate toilets, lab, computer classes, boundary wall and field development at kotdi, anjana and shivpura) budget Rs. 150 Lakh @R50 lakh/year time line 3 years,	Status for activities mentioned as part of CER along with documentary evidence will be shared.

b) renovation of 20 old anganwadis (repair and maintenance work, painting, roof treatment, boundary, electricity et) budget 200 lakh @Rs.100 lakh/year t; time line 2nd and 3rd year).

Activity-3 Infrastructure development

- a) Construction of check dam (construction of check dam at Pipaswas) Budget Rs. 100 lakh time line 1st year
- b) B) community centres (at naya Dariba, Anjana, mahenduriya) Budget 120 lakh, time line 1st year
- c) Construction of stadium and playgrounds (Kabra and Gawardi) Budget 80 Lakh, time line 2nd year
- d) Solar pumps water system (10 HP motor with solar panels in 5 surrounding villages: Budget 150 Lakh 100 lakh, time line 2nd and 3rd year).

In addition to above Rs.25 crore shall be spent on

- i) to provide sanitary vending machine in govt. girls' schools, village govt. Health Centres and SHG Groups,
- ii) facilities to under privileged group for treatment of critical diseases like cancer/heart surgery, kidney/liver failure etc. in nearby village
- iii) to provide online library in Govt schools for referring course syllabus, employment coaching exams etc and
- iv) scholarship to meritorious/under privileged youth for higher education.

In case the amount proposed under CER is left unspent than the same should not be diverted and kept for CER activity beyond 3rd year. At the end of life of mine if any amount remains unspent than the same should be spent in consultation with local administrations for the development of nearby villages.

The amount proposed under this head should be kept in a separate bank account and should be audited annually. The PP should annually submit the audited

	<p>statement and details of implementation of CER activities along with proof of activities viz photographs (before and after with geo-location date and time) purchase documents, photographs and geo location of the infrastructure /facilities developed, etc to the Regional Office of MoEF & CC before 1st July of every year for the activities carried out during previous year.</p>	
6	<p>Budget earmarked for Occupational Health Surveillance Plan shall be Rs. 204 Lakh which includes</p> <ol style="list-style-type: none"> 1) IME Budget @2500 per person (Rs 25 lakh for 2019-20, Rs 6.25 for 2020-21, Rs. 2.5 lakh/annual from 2021-22 to 2030-31) 2) IME Budget @2500per person (Rs. 500 lakhs for 2019-20, Rs. 7 lakh/annual from 2020-21 to 2030-31) 3) PPEs @Rs.5000 per person (Rs.100 lakh for 2019-20, Rs. 62.5 lakh/annual from 2020-21to 2030-31) 4) Occupational Hygiene (Rs. 18.5 lakh/annum from 2019-20 to 2030-31) 5) Quantitative and Qualitative Hygiene Survey (Rs. 53 lakhs for 2019-20, Rs. 5 lakhs from 2020-21 to 2030-31) <p>The amount proposed under this head should be kept in a separate bank account and should be audited annually. The PP should annually submit the audited statement and details of implementation of occupational health plan along with proof of activities viz, photographs (before and after with geo-location and date and time) purchase document, samplings reports, photograph and geolocation of the infrastructures/facilities developed, details of persons engaged for implementation of occupational health plan to the Regional Office of MoEF &CC before 1st July of every year for the activities carried out during previous year.</p>	<p>Status for activities mentioned as part of Occupational Health Surveillance Plan along with documentary evidences will be shared.</p>

7	<p>Disaster Management Plan proposed shall be implemented scrupulously. Budget allocation for the emergency preparedness is prepared and submitted. Capital and recurring expenditure is around Rs. 2.29 crores which includes</p> <ol style="list-style-type: none"> 1) Rs. 0.84 Cr. For Rescue apparatus 2) Rs. 0.35 Cr. For underground ambulance 3) Rs.0.35 Cr. for underground Rescue Van 4) Rs. 0.15 Cr. for vehicle for surface movement 5) Rs.0.50 Cr. for fire tendering equipment and 6) Rs0.10 Cr. for structure for Work @ Height. <p>The recurring budget proposed is 1.53 Cr. which includes</p> <ol style="list-style-type: none"> 1) Rs.0.05 Cr. for RRRT Centre 2) Rs.0.22 Cr. for apparatus, calibration and Maint. 3) Rs.0.78 Cr. for RTPs and training 4) Rs. 0.05 Cr. For RRRT competition 5) Rs.0.14 Cr. for firefighting organisation 6) Rs. 0.24 Cr. for Refuge chamber and self-rescuer 7) 0.05 Cr. for ambulance and rescue van <p>The amount proposed under this head should be kept in a separate bank account and should be audited annually. The PP should annually submit the audited statement and details of implementation of Disaster Manager Plan along with proof of activities viz photograph and geolocation of the infrastructures/facilities developed, details of persons engage for implementation of Disaster Management Plan along with proof activities viz, photographs (before and after with geo location date and time) purchase documents, photographs and geo-location of the infrastructures/facilities developed, details of persons engaged for implementation of Disaster Management Plan to the Regional Office of MoEF&CC before 1st July of every year for the</p>	<p>Activities mentioned as part of Disaster Management Plan shall be carried out and the status of activities along with documentary evidence will be shared.</p>
---	---	---

	activities carried out during previous year.	
8	<p>Budget earmarked for Environmental Management Plan (EMP) shall be Rs 110.50 Cr. (capital) and Rs. 6.95 Cr.(recurring) which include Dust suppression system/dust extraction system installation with dust monitoring sensor (opacity meter) at chimney sampling point (COSP) Rs. 1.2 cr (capital and 1.5 cr (recurring), timeline 1 year</p> <p>Tailing Dam Management / Dry tailing disposal rs. 26.20 cr (capital) and 1.96 cr(recurring), timeline 2 years</p> <p>Tailing Thickner Rs. 0.5 cr (capital) and Rs. 0.2 cr(recurring)time line;</p> <p>Surface water sprinkler Rs. 0.80 cr (capital)and 0.1 cr(recurring, timeline 1 year;</p> <p>Ventilation system Rs. 16.6 cr (capital and Rs. 1.0cr (recurring)time line 2 years;</p> <p>Rain water harvesting measures/deepening of existing village tanks 30.0 cr (capital) and 0.11 cr (recurring), timeline 3 years</p> <p>Plantation/Green belt development with drip irrigation system 12.0 cr(capital) and 0.2cr (recurring) timeline 10 years</p> <p>Automation in Environment Monitoring (CAAQMS) 21 cr (capital) 0.2 cr (recurring)timeline 1 year</p> <p>Construction of garland drain, and silt settling tank and recycle system for waste dump management 0.3 cr(capital) and 0.1 cr(recurring)timeline 2 years</p> <p>Schedule-I fauna conservation plan cost 6.60 cr (capital) and 0.01cr (recurring) timeline 2 years</p> <p>Installation of Oil grease trap system and sewage treatment plant, installation with display of COD, BOD, TDS, pH display at main gate entrance 18.0 cr (capital) and 0.2 cr (recurring) timeline 18 months</p> <p>Water hydrant system 0.7cr (capital)and 0.10 cr (recurring) timeline 18 month</p>	<p>Activities mentioned as part of Environment Management Plan shall be carried out and the status of activities along with documentary evidence will be shared.</p>

	<p>High density/Paste fill 10.40 cr (capital) and 1.1.cr (recurring)</p> <p>Hazardous waste storage facility 0.5cr (capital) and 0. Recurring timeline 2 years</p> <p>Mobile water tanker 0.3 cr (capital) and 0.05 cr (recurring) time line 1 year</p> <p>The amount (except occupational health) proposed under this head should be kept in a separate bank account and should be audited annually. The PP should annually submit the audited statement and detailed environment report along with proof of activities viz photograph (before and after with geo location date and time) purchase documents, sampling report, photographs and geo location of the infrastructure/facilities developed, details of persons engaged in Environment Management Cell et to the Regional Officer of MoEF&CC before 1st July of every year for the activities carried out during previous year.</p>	
9	<p>PP shall engage an expert agency to identify the area which has maximum possibility to be get impacted due to mining and cement plant activity. After ascertaining the area of influence the PP shall annually monitor the crop productivity of the identified area. PP shall provide the crop insurance for agricultural field falling in this area and in case of crop damage take immediate measure to mitigate the same and also ensure to pay crop loss compensation.</p>	Noted.
10	<p>In pursuant to Ministry's OM NO: 22-34/2018-IA.II dated 16.1.2020 to comply with the direction made by Hon'ble Supreme Court on 8.1.2020 in WP (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.</p>	Noted.

B.	Standard Conditions	
I	Statutory compliance	
1	This Environmental Clearance (EC) is subject to orders/judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Condition as may be applicable.	Noted.
2	The Project Proponent complies with all the statutory requirement and judgment of Hon'ble Supreme Court dated August 2017 in Writ Petition (Civil) No: 114 of 2014 in matter of Common Cause versus Union of India & Ors before commencing the mining operations.	Noted.
3	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective department of Mining & Geology in strict compliance of Judgement of Hon'ble Supreme Court dated 2 nd August 2017 in Writ Petition (Civil) No: 114 of 2014 in matter of Common Cause versus	Noted.
4	This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board of Wildlife, if applicable to the Project.	Noted.
5	This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of Forest Conservation Act, 1980, if applicable to the Project.	Forest clearance is not applicable. Copy of the letter received from DFO, Rajsamand is attached as Annexure -1
6	Project Proponent (OO) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent of Establish/Consent to Operate from the concerned State Pollution Control Board/committee.	CTE/CTO will be obtained from Rajasthan State Pollution Control Board.

7	The PP shall adhere to the provision of the Mines Act, 1952 Mines and Mineral (Development & Regulation), Act 2015 and rules and regulations made there under. PP shall adhere to various circular issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.	Noted.
8	The Project Proponent shall obtain consents from all the concerned land owners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made there under in respect of lands which are not owned by it.	Noted.
9	The Project Proponent shall follow the Mitigation measures provided in MoEF &CC OM No: Z-11013/57/2014-IA. II(M) dated 29 th October 2014 titled "Impact of mining activities on Habitation Issues related to the mining Project and villages are the part of mine lease areas or Habitation and villages are surrounded by the Mine lease area"	Noted.
10	The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of ground water for the project.	Noted.
11	A copy of EC letter will be marked to concerned Panchayat/ local NGO etc, if any, from whom suggestion/representation has been received while processing the proposal.	Complied.
12	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional Office, District Industries Centre and Collector's Office/Tehsildar's Office for 30 days.	Complied.
13	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspaper, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project	Advertisement of EC letter was done in two local newspapers (Dainik Bhaskar & Rajasthan Patrika). Copy of the Advertisement is

	has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and website of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEF&CC Regional Office for compliance and record.	attached as Annexure - 2
14	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred than mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.	Noted.
II Air quality monitoring and preservation		
15	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Station with 1 (one in upwind and 2(two) in downwind direction based on long term climatological data about wind direction such that an angle of 120degree is made between the monitoring locations to monitor critical parameters,, relevant for mining operations, of air pollution viz PM10,)M2.5, Nos, CO and SO2 etc as per the methodology mentioned in NAAQS Notification No:B-29016/20/90/PCI/I dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building canteen etc as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 3 months in front of the Main Gate of the Mine site.	Continuous Ambient Air Quality stations will be installed for monitoring of all required air quality parameters.
1 6	Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road	Effective safeguards measures like regular water sprinkling, metalled road

	<p>construction etc) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The fugitive dust emission from all sources shall be regularly controlled by installation of required equipment/machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppression agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level concern level conform the standards prescribed by the MoEF&CC/Central pollution control Board.</p>	<p>construction are in place. Ambient air quality is carried out and reports are attached as Annexure – 3.</p>
III	Water quality monitoring and preservation	
1	<p>In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEF&CC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydrogeological study of the area.</p>	<p>Required approvals from CGWA/B have been taken.</p>
2	<p>Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine leases 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. The Report on changes in ground water level</p>	<p>Monitoring of keys wells for water quality and water levels in and around the mine periphery is being done regularly. Monitoring reports are attached as Annexure - 4</p>

	and quality shall be submitted on six monthly basis to the Regional Office of the Ministry. CGWA and State Ground water Department/State Pollution Control Board	
3	Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo meter installation during the mining operation in consultation with Central Ground Water Authority/State Ground Water Department. The Report on changes in ground water level and quality shall be submitted on six monthly basis to the Regional Office of the Ministry, CGWA and State ground water department/State Pollution Control Board.	Monitoring of ground water level and quality is done through a network of piezometers. Monitoring reports are attached as Annexure - 5
4	The Project Proponent shall undertake regular monitoring of natural water course/water resources/springs and perennial nallahs existing flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.e.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/or alteration be made to water bodies during mining operation without justification and prior approval of MoEF&CC. The monitoring of water courses/bodies existing in lease area shall be carried out four time in a year viz pre monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored	There are no natural water course/water resources/springs and perennial nallahs existing flowing in and around the mine lease.

	<p>data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six monthly basis.</p>	
5	<p>Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run off, acid mine drainage and metal contamination in run off shall be monitored along with total suspended solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment Forest and Climate Change may also be referred in this regard.</p>	<p>Process water generated as part of mining operations including beneficiation is utilized in operations and their quality is monitored. Report is attached as Annexure - 6</p>
6	<p>Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEF&CC annually.</p>	<p>RWH structures have been prepared.</p>
7	<p>Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through oil and grease trap.</p>	<p>Noted.</p>

8	The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office the MoEF&CC and State Pollution Control Board/Committee.	Water audit will be done.
IV	Noise and vibration monitoring and prevention	
9	The peak particle velocity at 500m distance or within the nearest habitation whichever is closer shall be monitored periodically as per applicable DGMS guidelines	PPV ranges between 0.75 – 3.99 mm/sec at a distance of 0 to 300 m from mining activity.
10	The illuminate 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 he biological clock of the villages is not disturbed; by orienting the floodlights/masks away from the villagers and keeping the noise levels well within the prescribed limits for day/night hours.	Noise monitoring is carried out to measure the noise levels during day/night. Report attached as Annexure - 7
11	The proponent shall take measures for control of noise level below 85 dBA in the work environment. The workers engaged in operations of HEMM etc should be provided with ear plugs/muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/personals/laborer are working without personal protective equipment.	PPE's with ear plugs and muffs are provided to individuals working in high noise areas. Protective respiratory devices along with training, awareness and information on safety and health aspects is also provided.
V	Mining Plan	
12	The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year wise plan was mentioned for total excavation i.e., quantum of mineral, waste over burden, inter burden and top soil etc. No change in basic mining	Noted.

	proposal like mining technology, total excavation, mineral and waste production, lease area and scope of working (viz method of mining, overburden and dump management, OB and dump, mining, mineral transportation mode, ultimate depth of mining etc) shall not be carried out without prior approval of the Ministry of environment, forest and climate change, which entail adverse environmental impact, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt in the form to Short Term Permit (STP), query license or any other name.	
13	The Project Proponent shall get the Final Mine Closure Plan along with Financial assurance approved from Indian Bureau of Mines/Department of Mining, & Geology as required under Provision of the MMDR Act, 1957 and Rules/Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.	Noted.
14	The land use of the mine lease area at various stages of mining scheme as well as at the end of life shall be governed as per the approved Mining Plan. The excavation vis a vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated	Afforestation is being done as per approved mining plan.
VI	Land reclamation	
15	The overburden (OB) generated during the mining operations shall be stacked at earmarked OB dump site(s) and it should not be kept active for a long period of time. The physical par and angle of slope shall be governed as per the parameters of the OB dumps like height, width and	Since it's an underground mine, no overburden is generated.

	angle of slope shall be formed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t safety in mining operations shall be strictly adhered to maintain the stability of top soil/OB dumps. The top soil shall be used for land reclamation and plantation.	
16	The reject/Waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circular issued by DGMS w.e.f safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.	Noted.
17	The reclamation of waste dump sites shall be done in scientific manner as per the approved Mining Plan cum Progressive Mine Closure Plan.	Noted.
18	The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/compactors thereby ensuring proper filling /levelling of dump mass. In critical area, used of geo textiles/geo membranes /clay liners/ Bentonite etc. shall be undertaken for stabilization of the dump.	Noted.
19	The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slop stability report shall be submitted to concerned regional office of MoEF&CC	Dump height is not more than 30 meters.
20	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and top soil/OB/Waste dump to prevent run off of water and flow	Garland drains have been provided and sedimentation pits/sumps have been constructed at the

	of sediments directly into the water bodies (Nallah/River/Pond et) The collected waster should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.	corners of the garland drains.
21	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediment/silt material. The sedimentations pits/sumps shall be constructed at the corners of the garland drains.	Garland drains have been provided and sedimentation pits/sumps have been constructed at the corners of the garland drains.
22	The top soil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the top soil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by DGMS w.r.t safety in mining operation shall be strictly adhered to maintain the stability of dumps. The top soil shall be used for land reclamation and plantation purpose.	Since it's an underground mine there is no disturbance to top soil.
VII	Transportation	
23	No transportation of the minerals shall be allowed in case of roads, passing through villages/ habitations. In such cases, PP shall construct a bypass road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meter) so that the adverse impact of sound and dust along with chance of accidents could be mitigated. All costs	No Transportation of minerals carried out outside the lease without passing through villages/habitations. Vehicular emissions kept under control and regularly monitored.

	<p>resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/rural roads shall be allowed in consultation with nodal state govt. department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicle from authorized pollution testing centers.</p>	<p>Pollution Under Control (PUC) certificate is mandatory for all the vehicle from authorized pollution testing centers.</p>
24	<p>The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yard etc. should invariably be provided with dust suppression arrangements. The air pollution control equipment's like bag filters, vacuum suction hoods, dry fogging system shall be installed crushers, belt conveyors and other area prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.</p>	<p>Water sprinkling is done on ramp/haulage road of underground mine. Sprinkling systems have been installed at dust generation areas along with road sweepers. Bag filters installed in crusher area. Covered conveyors used to avoid dust while transportation.</p>
VIII	Green Belt	
25	<p>The Project Proponent shall develop green belt in 7.5 m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operation within the lease. The whole</p>	<p>Greenbelt has been developed in 190 ha. out of the total acquired land of 554.19 ha.</p>

	Green Belt shall be developed within first 5 years starting from windward side of the active mining area. The development of green belt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.	
26	The Project Proponent shall carry out plantation/afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community area etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/Tribal Welfare Department/Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Ha. Adequate budgetary provision shall be made for protection and care of trees.	Noted. Gap filling will be carried out in existing plantation to ensure density of trees as per the guidelines.
27	The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State government in this regard. Project Proponent should essentially implement the direction of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground which provide mid-day shelter from the scorching sun, should be scrupulously guarded protected against felling and plantation of such trees should be promoted.	Noted.
28	The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same	Wildlife Conservation plan has been prepared and approved by Chief wildlife warden.

	clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt.	
29	And implemented in consultation with the state forest and wildlife department. A copy of wildlife conservation plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.	Implementation shall be carried out in consultation with DCF-Wildlife and annual status will be shared.
IX	Public hearing and human health issues	
30	The Project Proponent shall appoint an Occupation Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the Mining activities, as per the DGMS guidelines. The record shall be maintained properly PP shall also carryout Occupational health check -ups in respect of workers which are having ailments like BP, Diabetes, habitual smoking etc. The checkups shall be undertaken once in six months and necessary remedial preventive measures be taken. A status report on the same may be sent to MoEF&CC Regional Office and DGMS on half yearly basis.	Occupational Health Specialist has been appointed for carrying out Regular as well as Periodical medical examination of the workers engaged in the Mining activities. Health check-ups for ailments done as part of Regular & Periodical Medical Examination.
31	The Project Proponent must demonstrate commitment to work towards Zero Harm from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazard and assess their potential risk to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for sanitation, persona hygiene, hand washing, not to defecate in open. Women health and hygiene (providing sanitary	Health Risk Assessment has been carried out for the unit and was shared with MoEF during expansion.

	napkin) hazard of tobacco and alcohol use. The proponent shall carryout base line HRA for all the category of workers and thereafter every five years.	
32	<p>The proponent shall carry out Occupational health surveillane which be a part of HRA and include Biological Monitoring where practical and feasible Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust X-Ray chest; for Noise Audiometric; for lead Exposure Blood lead; for Welders full Ophthalmologic Assessment; for Manganese miners a complete neurological Assessment by certified neurologist, and manganese (Mn) Estimation in Blood. For Inorganic Chromium fortnightly skin inspection of hands and foreman's by a responsible person. Except routine tests all test would be carried out in a lab accredited by NABH. Records of Health surveillane must be kept for 30 years, including the results of and the records of physical examination and tests. The record of exposure due to materials like Asbestos, Hard rock Mining, Silica, Gold, Kaolin, aluminum, Iron Manganese, Chromium, Lead Uranium need to be handed over to the Ming department of the state in case the life of the mine is less than 30 years. It would be obligatory for the state mines departments to make arrangements for the safe and secure storage of the records including X Ray. Only conventional X-ray will be accepted for record purposes and not the digital one). X-Ray mst met ILO criteria (17x14 inches and of good quality)</p>	<p>Our mine is Lead Zinc underground mine, the clause regarding OHS for manganese mine or inorganic chromium is not applicable to our mine. Same way exposure due to materials like Asbestos, Hard rock Mining, Silica, Gold, Kaolin, Aluminum, Iron Manganese, Chromium, Uranium are not there. Lead monitoring will be carried out.</p>
33	<p>The Proponent shall maintained a record of performance indicator for workers which includes a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5-24.9 (b) the Final Chest X-Ray compared with the base line X-rays should not show</p>	<p>Noted. All the details pertaining to health of workers is kept in Form – O. Records will be shared before 1st July.</p>

	<p>any capacities (c) At the end of their leaving job there should be no diminution in their lung functions forced expiratory volume in one second (FEV1), Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age (d) their hearing should not be affected. As a proof an audiogram (first and last need to be presented) (e) they should not have developed any persistent back pain, neck pain and the movement of their Hip, Knee and other joints should have normal range of movement (f) they should not have suffered loss of any body part. The record of the same should be submitted to the regional office, MoEF&CC annually along with details of the relief and compensation paid to workers having above indications.</p>	
34	<p>The Project Proponent shall ensure that personnel working in dusty area should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.</p>	<p>PPE's are provided to all the personnel working in dusty area. Regular training is provided on safety and health aspects.</p>
35	<p>Project Proponent shall make provision for the housing for workers/labour or shall construct labour camps within/outside (company owned land) with necessary basic infrastructure/facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.</p>	<p>Housing is provided for workers/labour with necessary basic infrastructure/facilities.</p>
36	<p>The activities proposed in Action Plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame. The</p>	<p>Noted. Status against Public Hearing action plan will be shared.</p>

	status report on implementation of action plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration	
X	Corporate Environment Responsibility (CER)	
37	The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry OM No: 22-65/2017-IA. II(M) dated 1.5.2018 or as proposed by EAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual repost of implementation of the same along with documentary proof viz photographs, purchase documents, latitude and longitude of infrastructure developed and road constructed needs to be submitted to Regional Office MoEF&CC annual along with audited statement.	Separate GL account is being maintained. Proposed activities implementation status will be submitted along with documentary evidence before 1 st July
38	Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain diverting the same for other purposes. The year wise expenditure of such funds should be reported to the MoEF&CC and its concerned Regional Office.	Separate GL account is maintained for environment protection measures.
XI	Miscellaneous	
39	The Project Proponent shall prepare digital map (land use and land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.	Digital map (Land use and Land cover) was done in November 2018. Copy attached as Annexure – 8.
40	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.	This Environmental clearance has been granted for expansion of mines & beneficiation plan. This is a brownfield project.
41	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MoEF&CC and its concerned Regional	Six monthly compliances will be submitted to MoEF&CC, Regional Office, CPCB & RSPCB.

	Office, Central Pollution Control Board and State Pollution Control Board	Last six-monthly compliance was submitted vide letter dated 25.05.2020.
42	A separate Environmental Management Cell with suitable qualified manpower should be set up under the control of a Senior Executive. The Executive shall directly report to Head of the Organization. Adequate number of qualified environmental scientists and mining engineers shall be appointed and submit a report to RO, MoEF&CC.	A separate Environment Management Cell has been set up which is under the control of Unit head of Rajpura Dariba Mines.
43	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data/information/ monitoring reports	Noted. Full cooperation will be extended to MoEF&CC by furnishing the requisite data/ monitoring reports.

कार्यालय उप वन संरक्षक, वन्यजीव, राजसमन्द

Sadhna Sikhar Road, Rajsamand Phone & Fax No. 02952-223813 Email- dcf.wl.rajsamand@gmail.com

क्रमांक: पत्रा () सर्वे/उवसं/2018-19/ 7528

दिनांक: 25/9/18

निमित्त :-

Unit Head
Hindusthan zinc
Rajpura Dariba Mine
Tehsil Railmagra
Distt.Rajsamand

विषय :- Certificate regarding Non-involvement of forest area in Core and Buffer Zone. (10 km radius) of Rajpura Dariba Mine.

संदर्भ :- आपका पत्रांक UH(RDM)ENV/2018/132 Date : 28.08.2018 के कम में।

उपरोक्त विषयान्तर्गत संदर्भित पत्र में वर्णित Rajpura Dariba Mine क्षेत्र के चारो तरफ 10 किमी0 की परिधि में इस वन मण्डल अधीन घोषित वन क्षेत्र नहीं पड़ता है।


(फतेह सिंह राठौड़)
उप वन संरक्षक
वन्यजीव, राजसमन्द



हिन्दुस्तान जिंक लिमिटेड

रजि. ऑफिस : यशद भवन, उदयपुर - 313 004
PBX NO. 0294-6604000, CIN-L27204RJ1966PLC001208, www.hzfindia.com

राजपुरा दरीबा लेड -जिंक खनन परियोजना
ग्राम राजपुरा दरीबा, तहसील रेलमगरा, जिला राजसमन्द(राज.)
पर्यावरण स्वीकृति प्राप्ति सूचना बाबत

सर्व साधारण को सूचित किया जाता है कि भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय नई दिल्ली के पत्र क्रमांक J-11015/84/2018-IA.II(M) दिनांक 13.04.2020 के द्वारा हिन्दुस्तान जिंक लिमिटेड की राजपुरा दरीबा खदान (एम.एल.नं 166/2008, खनन पट्टा क्षेत्र 1142.2106 हैक्टेयर) की वर्तमान खनन क्षमता 1.08 मिलियन टन प्रतिवर्ष से बढ़ाकर 2.0 मिलियन टन प्रतिवर्ष लेड जिंक खनिज अयस्क उत्पादन (कुल उत्खनन 2.48 मिलियन टन प्रति वर्ष) एवं लेड-जिंक अयस्क सज्जीकरण क्षमता 1.2 मिलियन टन प्रतिवर्ष से बढ़ाकर 2.5 मिलियन टन प्रतिवर्ष करने हेतु पर्यावरण स्वीकृति प्रदान कर दी गई है। इसकी प्रति राजस्थान राज्य प्रदूषण नियंत्रण मंडल, जयपुर कार्यालय में उपलब्ध है साथ ही इसकी प्रति वन एवं पर्यावरण मंत्रालय, नई दिल्ली की वेबसाइट (www.parivesh.nic.in) पर उपलब्ध है। (राम मुरारी)

यूनिट हेड
राजपुरा दरीबा माइंस

Average Ambient Air Quality Monitoring Results

April 2020 - September 2020

Name of Monitoring Station	R P M mg per M ³	S P M mg per M ³	CO mg per M ³	NO _x mg per M ³	SO ₂ mg per M ³
Near Laboratory	60.74 - 72.51	163.93 - 208.04	260 - 310	10.86 - 14.68	4.13 - 6.55
Near DG Set	62.43 - 67.09	149.28 - 183.87	280 - 330	11.1 - 14.02	5.03 - 5.4
Near AB - Type Quarter	58.48 - 77.15	173.67 - 214.4	260 - 340	12.34 - 12.77	5.49 - 7.65

ANNEXURE – 4**Wells water Quality & Level results****Jun-20**

(All figures in ppm except pH)

Parameter	Sumer Singh Well Water	Nahar Singh Well Water
pH	7.69	7.85
Suspended Solids	5	6
Lead	BDL	BDL
Zinc	BDL	BDL
Copper	BDL	BDL
Iron	BDL	BDL
Cadmium	BDL	BDL
Nickle	BDL	BDL
Cobalt	BDL	BDL
Depth of well from Surface (ft.)	90	85
Water level in well from Surface (ft.)	30-60	30-60

BDL: Below Detection Limit

Jul-20

(All figures in ppm except pH)

Parameter	Sumer Singh Well Water	Nahar Singh Well Water
pH	7.46	7.67
Suspended Solids	<1	<1
Lead	BDL	BDL
Zinc	BDL	0.07
Copper	BDL	BDL
Iron	BDL	BDL
Cadmium	BDL	BDL
Nickle	BDL	BDL
Cobalt	BDL	BDL
Depth of well from Surface (ft.)	90	85
Water level in well from Surface (ft.)	30	30

BDL: Below Detection Limit

Aug-20

(All figures in ppm except pH)

Parameter	Sumer Singh Well Water	Nahar Singh Well Water
pH	8.35	7.78
Suspended Solids	<1	<1
Lead	BDL	BDL
Zinc	0.04	0.05
Copper	BDL	BDL
Iron	0.05	BDL
Cadmium	BDL	BDL
Nickle	BDL	BDL
Cobalt	BDL	BDL
Depth of well from Surface (ft.)	90	85
Water level in well from Surface (ft.)	30	30

BDL: Below Detection Limit

Sep-20

(All figures in ppm except pH)

Parameter	Sumer Singh Well Water	Nahar Singh Well Water
pH	8.32	7.76
Suspended Solids	7	4
Lead	BDL	BDL
Zinc	0.04	0.08
Copper	BDL	BDL
Iron	BDL	BDL
Cadmium	BDL	BDL
Nickle	BDL	BDL
Cobalt	BDL	BDL
Depth of well from Surface (ft.)	90	85
Water level in well from Surface (ft.)	60	60

BDL: Below Detection Limit

ANNEXURE – 5**Piezometer water Quality & Level results****Jun-20**

(All figures in ppm except pH)

Parameter	PW1	PW2	PW3	PW4	PW5	PW6
pH	7.46	7.81	7.26	7.76	7.79	7.45
Suspended Solids	8	9	6	5	6	4
Lead	BDL	BDL	BDL	BDL	BDL	BDL
Zinc	0.1	0.13	0.16	0.16	0.08	0.13
Copper	BDL	BDL	0.01	BDL	BDL	BDL
Iron	BDL	BDL	BDL	BDL	0.1	BDL
Cadmium	BDL	BDL	BDL	BDL	BDL	BDL
Nickel	BDL	BDL	BDL	BDL	BDL	BDL
Cobalt	BDL	BDL	BDL	BDL	BDL	BDL
Depth of well from surface (ft.)	145	145	150	140	145	150
Water level in. well from surface (ft.)	30-35	35-40	35-40	30-40	30-40	35-40

Aug-20

(All figures in ppm except pH)

Parameter	PW1	PW2	PW3	PW4	PW5	PW6
pH	7.46	7.81	7.26	7.76	7.79	7.45
Suspended Solids	8	9	6	5	6	4
Lead	BDL	BDL	BDL	BDL	BDL	BDL
Zinc	0.1	0.13	0.16	0.16	0.08	0.13
Copper	BDL	BDL	0.01	BDL	BDL	BDL
Iron	BDL	BDL	BDL	BDL	0.1	BDL
Cadmium	BDL	BDL	BDL	BDL	BDL	BDL
Nickel	BDL	BDL	BDL	BDL	BDL	BDL
Cobalt	BDL	BDL	BDL	BDL	BDL	BDL
Depth of well from surface (ft.)	145	145	150	140	145	150
Water level in. well from surface (ft.)	30-35	35-40	35-40	30-40	30-40	35-40

Process water Quality results

Jun-20

Parameter	Mine Water	Tailing Dam Water	Garland Drain Water
pH	7.14	7.68	7.75
Suspended Solids	19	45	28
Lead	BDL	0.06	0.08
Zinc	BDL	0.61	0.44
Copper	BDL	BDL	BDL
Iron	BDL	0.05	0.2
Cadmium	BDL	0.02	0.02
Nickle	BDL	BDL	BDL
Cobalt	BDL	BDL	BDL

(All figures in ppm except pH)

Jul-20

Parameter	Mine Water	Tailing Dam Water	Garland Drain Water
pH	7.38	7.45	7.65
Suspended Solids	<5	29	21
Lead	BDL	0.04	0.03
Zinc	2.42	0.67	0.43
Copper	0.05	0.04	0.03
Iron	0.1	0.12	0.25
Cadmium	BDL	0.007	0.02
Nickle	0.15	BDL	BDL
Cobalt	0.17	BDL	BDL

(All figures in ppm except pH)

Aug-20

Parameter	Mine Water	Tailing Dam Water	Garland Drain Water
pH	8.05	7.66	7.70
Suspended Solids	13	22	17
Lead	BDL	0.07	0.05
Zinc	0.13	0.50	0.71
Copper	0.03	0.04	BDL
Iron	BDL	0.02	BDL
Cadmium	BDL	0.008	0.008
Nickle	BDL	BDL	BDL
Cobalt	BDL	BDL	BDL

(All figures in ppm except pH)

Sep-20

Parameter	Mine Water	Tailing Dam Water	Garland Drain Water
pH	8.12	7.29	7.16
Suspended Solids	14	<5	11
Lead	BDL	0.09	0.06
Zinc	0.03	0.67	2.79
Copper	0.09	0.05	0.02
Iron	BDL	0.07	0.10
Cadmium	BDL	0.05	0.08
Nickle	BDL	0.02	0.02
Cobalt	BDL	BDL	0.02

(All figures in ppm except pH)

Average Ambient Noise Monitoring Results

Apr-20-Sep-20

Name of Monitoring Station	Level in dB
Near Canteen	49.1-61.7
Near AD Block	46.8-67.1
Near Mine Office Building	51.6-66.7

Land use mapping by digital processing of Rajpura-Dariba mining lease using remote sensing techniques



Sponsor: Hindustan Zinc Limited, Rajpura-Dariba Mine

Studied by:



Estb: 1988

Studied for:



**Hydro-Geosurvey Consultants Private Limited
C-103, Shastri Nagar, Jodhpur- 342003
Phone: - 0291-2431754**

**Web: www.hydrogeosurvey.com, E-mail: - hydro.geosurvey@yahoo.com
November, 2018**

