

AGM-EHS
26/12

No. J-11015/267/2008-IA.II (M)

Government of India
Ministry of Environment & Forests

Paryavaran Bhavan,
C.G.O. Complex, Lodi Road,
New Delhi-110 003.

Dated the 11th December, 2009

To

M/s Hindustan Zinc Limited
Rampura Agucha Mine,
P.O. Agucha -311029,
District Bhilwara,
Rajasthan
E-mail: rrkumar@vedanta.co.in

Subject: Expansion of Rampura Agucha Lead and Zinc Opencast and Underground Mining Project (from 5.0million TPA to 6.15 million TPA) and Beneficiation Capacity of Beneficiation Plant (from 5.0million TPA to 6.50million TPA) of M/s Hindustan Zinc Limited located in Village Agucha, Tehsil Hurda, District Bhilwara, Rajasthan -environmental clearance regarding.

Sir,

This has reference to your letter No. HZL/RAM/Env/2009 dated 27.09.2009 and subsequent letters dated 10.10.2009 and 30.10.2009 on the subject mentioned above. The Ministry of Environment and Forests had earlier prescribed terms of reference (TORs) to the project on 22.12.2008 for undertaking detailed EIA study for the purpose of obtaining environmental clearance: The proposal is for grant of environment clearance for enhancement of production of lead and zinc ore from 5.0 million TPA to 6.15 million TPA and enhancement of capacity of beneficiation plant from 5.0 million TPA to 6.5 million TPA. The project was earlier accorded environmental clearance by the Ministry on 19th April, 1983 for (0.9million TPA production); 18th March, 1999 (1.35million TPA production); 1st March, 2005(3.75million TPA production) and 27.07.2007 for production of 5.0million TPA capacity of lead and zinc ore. The total mine lease area of the project is 1200ha, out of which 231.3ha is an agricultural land, 89.37ha is surface water bodies and 879.33ha is others (9.83ha is wasteland and 869.5ha is private land (mining activities). No forestland is involved. It has been reported that the existing surface rights area is 869.5ha and it is proposed to acquire surface rights for another 155ha area (149.72ha within mine lease and 5.28ha outside side the mine lease for plantation). Area proposed for excavation is 102.53ha, an area of 2ha is kept for storage of topsoil, 375.71ha for overburden dumps, 6.5ha for mineral storage, 29.23ha for infrastructure, 4ha for roads, 262ha for green belt, 178.13ha for tailings pond, 39ha for mineral beneficiation plant, 8ha for township and 181.44ha is others (0.66ha open space, 89.37ha water body and 86.13ha is agricultural land). In addition, township for company

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staff/employees is located at a distance of 7km from the mine lease area. The Mansi River and the Khari River are located in the buffer zone of the mine at a distance of 1.2km (S) and 4km (N) respectively from the mine lease boundary. No national park/wildlife sanctuary/biosphere reserve/tiger reserve/elephant reserve etc. are reported to be located in the core and buffer zone of the mine and that the area does not report to form corridor for Schedule-I fauna. In support of this, a letter from the Deputy Conservator of Forests, Social Forestry, Bhilwara dated 29.06.2009 has been provided. The mine working will be both by opencast and underground by mechanized method. The targetted production capacity of the mine is 6.15 million TPA and the life of mine is 32years. The capacity of the beneficiation plant will be 6.5 million TPA. The mineral will be transported through the road. The beneficiation plant will treat lead and zinc ore consisting of sphalerite with subordinate pyrite, pyrohotite and galena. The concentrate is separated by using conventional froth flotation process and remaining material called slurry is disposed off as tailings. An area of 39 ha has been earmarked for beneficiation plant and an area of 178.13ha for tailing pond within the mine lease. The beneficiation plant will get the raw ore from this mine (6.15 million TPA) and 0.35 million TPA from Kayar mine which was accorded environmental clearance by Ministry of Environment and Forests on 05.01.2009. The height of the tailing dam will be 51m. It was stated by the proponent that the tailing pond has a thick clay layer at the bottom and LDPE lining on the sides to avoid adverse impact on groundwater. The proponent will continue to provide LDPE lining on the sides as the height of the tailing pond is raised. Stability and safety of the tailing dam has been assessed by CWPRS and NIRM. The topography of the area is flat at an elevation of 390m AMSL. The present working depth of mine for opencast working is 190m bgl and the ultimate working depth will be 372m bgl. The maximum working depth by underground working is proposed as 1000m bgl. The groundwater table in the core zone reported to vary from 10m-12m bgl during pre monsoon and 7m-10m bgl during post monsoon. The mine working will intersect the ground water table. It has been reported that there will be 250m³ per day of mine discharge during lean period and 500m³ per day of mine discharge during monsoon period. The water requirement of the project is estimated as 11700m³ per day, which will be obtained from the radial well in the bed of Banas River. Permission from the Central Ground Water Authority has been obtained for drawl of groundwater. The power requirement will be 50MW, which will be met from CPP/AVVNL. There is no population in the core zone, therefore, displacement of population and R&R has not been envisaged. It has been reported that a total of 167.29million tonne of OB and 27.77million tonne of tailings has already been accumulated and another 492million tonne of OB and 90.97million tonne of tailings is proposed to be generated during the life of the mine. No backfilling is proposed. The over burden will be stacked in an area of 380.99 ha. The height of the waste dump will be 100m and will be adequate for the life of the mine. The slope stability study for the waste dump has been carried out by Central Institute of Mining and Fuel Research, Dhanbad, which has recommended five stage dump and taking into account a safety factor of 1.2. The public hearing of the project was held on 11.08.2009

for enhancement of production from mine from 5million TPA to 6.15million TPA by opencast and underground method and enhancement of capacity of beneficiation plant from 5million TPA to 6.5million TPA. The Indian Bureau of Mines had approved modified mining plan [(under Rule 10(1) of MCDR 1988)] on 04.05.2009 for lease area of 1200ha. The Government of Rajasthan vide letter No. KHA.AA./BHIL/KHA.PA. 8/99/3772 dated 16.07.2007 stated that the project area does not fall in the Aravalli Hills. The capital cost of the project is Rs.882Crores. The capital cost for environmental protection measures is proposed as Rs.1364Lakhs and the annual recurring cost towards the environmental protection measures is proposed as Rs.154Lakhs. No litigation/court case is reported pending against the project.

2. The Ministry of Environment and Forests has examined the application in accordance with the EIA Notification, 2006 and hereby accords environmental clearance under the provisions thereof to the above mentioned Rampura Agucha Lead and Zinc Ore Mining Project of M/s Hindustan Zinc Limited, for an annual production capacity of 6.15 million tonnes of lead and zinc ore and enhancement of capacity of beneficiation plant to 6.5 million TPA involving total mining lease area of 1200ha, subject to implementation of the following conditions and environmental safeguards.

A. Specific Conditions

- (i) The project proponent shall obtain Consent to Establish and Consent to Operate from the Rajasthan State Pollution Control Board and effectively implement all the conditions stipulated therein.
- (ii) The environmental clearance is subject to approval of the State Landuse Department, Government of Rajasthan for diversion of agricultural land for non-agricultural use.
- (iii) The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations.
- (iv) The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.
- (v) The over burden generated during the mining operation shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time and its phase-wise stabilization shall be carried out. The maximum height of the dump should not exceed 100m having 5 terraces as recommended by the Central Institute of Mining and Fuel Research, Dhanbad. The recommendations made by the Central Institute of Mining and Fuel Research, Dhanbad shall be effectively implemented. The over burden dump shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and

management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Lucknow on six monthly basis.

- (vi) The void left unfilled in an area of 25ha shall be converted into water body. The higher benches of excavated void/mining pit shall be terraced and plantation done to stabilize the slopes. The slope of higher benches shall be made gentler. Peripheral fencing shall be carried out along the excavated area.
- (vii) Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working and over burden dump. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly.

Garland drain (size, gradient and length) shall be constructed for both mine pit and over burden dump and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

- (viii) Dimension of the retaining wall at the toe of dump and OB benches within the mine to check run-off and siltation should be based on the rain fall data.
- (ix) Regular monitoring of subsidence movement on the surface over working area and impact on water bodies/vegetation/ structures/ surrounding shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.
- (x) All the mine entries shall be above the highest flood level to avoid any anticipated flooding of mine from the surface water during the rainy season.
- (xi) In areas where subsidence is anticipated in shallow mineral occurrence, such areas be identified and provided with garland drains to ensure draining of water and avoid ingress of the same in to the underground mine.

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- (xii) The project authorities shall check the possibility of existence of fault(s) before deciding about the thickness of safe barrier required to be maintained between the working face and the water bodies, if any, in consultation with the Director General Mines & Safety (DGMS). De-pillaring should also be carried out after taking prior approval of the DGMS.
- (xiii) The project proponent shall carry out conditioning of the ore with water to mitigate fugitive dust emission, without affecting flow of ore in the ore processing and handling areas.
- (xiv) The effluent from the ore beneficiation plant shall be treated to conform to the prescribed standards and the tailings slurry shall be transported through a closed pipeline to the tailing dam.
- (xv) The decanted water from the tailing dam shall be re-circulated and there should be zero discharge from the tailing dam. Acid mine water, if any, shall be neutralized and reused within the plant.
- (xvi) Plantation shall be raised in an area of 670.7ha including a green belt of adequate width by planting the native species around ML area, OB dump, around tailing dam, around beneficiation plant, roads etc. in consultation with the local DFO / Agriculture Department. In addition, the township area shall also be adequately planted. The density of the trees should be around 1500 plants per ha. Green belt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.
- (xvii) Regular water sprinkling should be carried out in critical areas prone to air pollution and having high levels of SPM and RPM such as haul road, loading, unloading and transfer points and other vulnerable areas. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- (xviii) The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.
- (xix) Regular monitoring of ground water level and quality shall be carried out in and around the project area (mine lease, beneficiation plant and tailing dam) by establishing a network of existing wells and installing new piezometers during the operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent

regularly to the Ministry of Environment and Forests and its Regional Office Lucknow, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.

- (xx) The project proponent shall ensure that no additional water is drawn for the expansion project. The additional requirement of water will be met out of the water saved by adopting water conservation measures.
- (xxi) Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.
- (xxii) Regular monitoring of groundwater quality around the tailing dam shall be carried out in consultation with Central Ground Water Authority and records maintained. It shall be ensured that the groundwater quality is not adversely affected due to the project.
- (xxiii) Groundwater and surface water in and around the mine shall be regularly monitored at strategic locations for heavy metals such as Ni, Co, Cu, Paryavaran Bhawan, Zn and Cd. The monitoring stations shall be established in consultation with the Regional Director, Central Ground Water Board and State Pollution Control Board.
- (xxiv) Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.
- (xxv) Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.
- (xxvi) Drills shall either be operated with dust extractors or equipped with water injection system.
- (xxvii) Digital processing of the entire lease area using remote sensing technique should be done regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Lucknow.
- (xxviii) The tailing dam shall be lined by LDPE lining on the sides as the height of the dam is raised. The ultimate height of the dam shall be maintained to 51m and provided with garland drains. The disaster management plan for tailing dam shall be prepared and implemented.

- (xxix) The recommendations of the study report of NEERI, Nagpur on pollution vulnerability of aquifer shall be effectively implemented and action taken report submitted to the Ministry and its Regional Office, Lucknow on six monthly basis.
- (xxx) The project proponent shall regularly analyse the waste generated from the mining (at least once a year) for heavy metals such as Ni, Co, Cu, Pb, Zn and Cd and the data thus collected may be sent regularly to Ministry of Environment and Forests and its Regional Office, Lucknow. It should be ensured that the parameters conform to the prescribed norms.
- (xxxi) The recommendations of the study report on blood lead levels of children to monitor levels of lead in human system carried out by National Institute of Occupational Health, Ahmedabad shall be effectively implement and action taken report submitted to the Ministry and its Regional Office, Lucknow on six monthly basis.
- (xxxii) Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.
- (xxxiii) Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and the wastewater generated during mining operation.
- (xxxiv) Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- (xxxv) Acid mine water, if any, has to be treated and disposed of after conforming to the standard prescribed by the competent authority.
- (xxxvi) The critical parameters such as RSPM (Particulate matter with size less than $10\mu\text{m}$ i.e., PM_{10} and with size less than $2.5\mu\text{m}$ i.e., $\text{PM}_{2.5}$), NO_x in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.

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- (xxxvii) A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

B. General conditions

- (i) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.
- (ii) No change in the calendar plan including excavation, quantum of mineral lead and zinc ore and waste should be made.
- (iii) Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife department.
- (iv) Atleast four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than $10\mu\text{m}$ i.e., PM_{10} and with size less than $2.5\mu\text{m}$ i.e., $\text{PM}_{2.5}$) SO_2 & NO_x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.
- (v) Data on ambient air quality [(RSPM (Particulate matter with size less than $10\mu\text{m}$ i.e., PM_{10} and with size less than $2.5\mu\text{m}$ i.e., $\text{PM}_{2.5}$) SO_2 & NO_x] should be regularly submitted to the Ministry including its Regional office located at Lucknow and the State Pollution Control Board / Central Pollution Control Board once in six months.
- (vi) Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.
- (vii) 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.
- (viii) 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.


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Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

- (x) 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.
- (xi) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Lucknow.
- (xii) The project authorities should inform to the Regional Office located at Lucknow regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (xiii) The Regional Office of this Ministry located at Lucknow 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.
- (xiv) The project proponent shall submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Lucknow, the respective Zonal Office of CPCB and the SPCB. The proponent shall upload the status of compliance of the EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Lucknow, the respective Zonal Officer of CPCB and the SPCB.
- (xv) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.
- (xvi) The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.
- (xvii) The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the

concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, at Lucknow by e-mail.

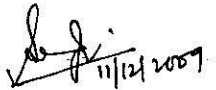
(xviii) The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <http://envfor.nic.in> and a copy of the same should be forwarded to the Regional Office of this Ministry located at Lucknow.

3. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

5. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made thereunder and also any other orders passed by the Hon'ble Supreme Court of India/ High Court of Rajasthan and any other Court of Law relating to the subject matter.

6. Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Authority Act, 1997.



(SATISH C. GARKOTI)
Additional Director (S)

Copy to:

- (i) The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
- (ii) The Department of Mines & Geology, Government of Rajasthan, Secretariat, Jaipur.

- (iii) The Secretary, Department of Environment, Government of Rajasthan, Secretariat, Jaipur.
- (iv) The Chief Conservator of Forests, Central Region, Ministry of Environment and Forests, B-1/72, Sector-A, Aliganj, Lucknow-226020.
- (v) The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office complex, East Arjun Nagar, New Delhi-1100032.
- (vi) The Member Secretary, Central Ground Water Authority, A-2, W3, Curzon Road Barracks, K.G. Marg, New Delhi-110001.
- (vii) The Chairman, Rajasthan State Pollution Control Board, 4, Institutional area, Jhalana, Doongri, Jaipur.
- (viii) The Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
- (ix) The District Collector, Bhilwara District, Rajasthan.
- (x) EI Division, Ministry of Environment and Forests, Paryavaran Bhavan, C. G. O. Complex, Lodi Road, New Delhi-110 003.
- (xi) Monitoring File.
- (xii) Guard File.
- (xiii) Record File.