

**INDIAN BUREAU OF MINES  
MINERALS DEVELOPEMMENT AND REGULATION DIVISION**

**MCDR INSPECTION REPORT**

**Gandhinagar regional office**

**Mine file No :** RAJ/UDP/LEAD-ZINC-4

**Mine code :** 34RAJ26005

- (i) Name of the Inspecting : **CB01** ) **Sh. Chandresh Bohra**  
Officer and ID No.
- (ii) Designation : Deputy Controller Mines
- (iii) Accompanying mine : Sh. S.B. Shukla, HOD(Geology)  
Official with  
Designation
- (iv) Date of Inspection : 21-NOV-23
- (v) Prev.inspection date : 27-MAR-23

**PART-I : GENERAL INFORMATION**

1. (a) **Mine Name** : **BAROI**
- (b) **Registration NO.** : **IBM/421/2011**
- (c) Category : A Mechanised
- (d) Type of Working : Underground
- (e) Postal address
- State : RAJASTHAN
- District : UDAIPUR
- Village : ZAWAR
- Taluka : SARADA
- Post office : ZAWAR MINES
- Pin Code : 313901
- FAX No. : 0294-2412545
- E-mail : arun.mishra@vedanta.co.in
- Phone : 0294-6604120
- (f) Police Station : ZAWAR
- (g) First opening date : 01-DEC-73
- (h) Weekly day of rest : MON
2. Address for : PO- ZAWAR  
correspondance : DISTT- UDAIPUR  
RAJASTHAN
3. (a) Lease Number : RAJ1725
- (b) Lease area : 816
- (c) Period of lease : 80
- (d) Date of Expiry : 31-MAR-30
4. Mineral worked : LEAD & ZINC ORE Main

## 5. Name and Address of the

Lessee : Hindustan Zinc Ltd  
 Yashad Bhavan Udaipur  
 UDAIPUR RAJASTHAN  
 Phone:  
 FAX :

Owner : Sri Arun Mishra  
 Yashad Bhavan, Udaipur  
 Rajasthan UDAIPUR  
 RAJASTHAN  
 Phone:  
 FAX : 0294-2412545

Agent : Sri Radha Raman  
 Post: Zawar District:  
 Udaipur UDAIPUR RAJASTHAN  
 Phone:  
 FAX :

## Mining Engineer

Name : Shri Pratik Vijayvargiya, Full Time  
 Qualification : BE Mining  
 Appointment/ : 10-FEB-23  
 Termination date

## Geologist

Name : Shri Vivek Tyagi, Full Time  
 Qualification : M. Sc . Geology  
 Appointment/ : 01-OCT-22  
 Termination date

## Geologist

Name : Sri Somdeb Dutta Mal, Full Time  
 Qualification : M.Sc. (Geology)  
 Appointment/ : 31-JAN-19 30-SEP-22  
 Termination date

## Manager

Name : Shri Mahendra Suthar  
 Qualification : BE Mining  
 Appointment/ : 27-FEB-23  
 Termination date

6. Date of approval of Mining : Mining Scheme rule 12 MCDR1988 15-SEP-03  
 Plan/Scheme of Mining Modif. approved Mining Scheme 16-AUG-05  
 MP modif under 17(3) MCR 2016 17-MAY-19  
 MP review under 17(1) MCR 2016 17-DEC-19  
 MP modif under 17(3) MCR 2016 15-JUL-21

## PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

## Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	A total of 270 BHs with 57000 mts of drilling was proposed during previous year 2021-22.	A total of 337 BHs with 66321 mts of drilling has been done during previous year 2021-22.	No short fall during previous year.
1b	Exploration over lease area for geological axis 1 or 2	A total of 290 BHs with 61000 mts of drilling was proposed during reporting year (RY) 2022-23	A total of 447 BHs with 84240.00 mts of drilling was completed during reporting year (RY) 2022-23	Surface and UG exploration for Baroi Mine
1c	Exploration Agencies and Expenditure in lakh rupees during the year	No specific proposal about drilling agency	Surface Exploration: MAPL, TDMA and Underground Exploration: EFMCP, TDMA. Total Expenditure: Rs. 291144483/-	Nil
1d	Balance area to be explored to bring Geological axis in 1 or 2	An area of 6.21 hectare of G3 level proposed to explore under G2/G1 level	An area of 4.07 Hectare has been upgraded to G1/G2 level	Violation of rule 11(1) of MCDR, 2017 issued during previous inspection
1e	Balance reserve as on 01/04/20	No specific year wise proposal	The position of reserve and resources as on 01/04/2023 was 5.85 and 26.78 million tons respectively	Depletion of 3.07 million tons from 2021-22 to 2022-23
1f	General remarks of inspecting officers on geology, exploration etc			Geologically the area is complex in nature. 3D modeling technique is being used for correlation of ore zone etc

## Development :

Sl.No.	Item	Proposals	Actual work	Remarks
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2a	Location of development w.r.t.lease area	A total of 20400 mts (Horizontal and vertical) of development was proposed for BK series, K series, NB Series, HM Series and SB series lens	During the RY, a total of 13655.40 mts (Horizontal and vertical) development has been achieved for BK series, K series, NB Series, HM Series and SB series lens	Violation of rule 11(1) of MCDR, 2017 issued for less development during previous inspection
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Not applicable as mining operation has been proposed through UG Mining Method	Not applicable	NIL
2c	Stripping ratio or ore to OB ratio	Not applicable being a UG mine	Not applicable	NIL
2d	Quantity of topsoil generation in m3	No proposal of topsoil generation during the RY	No topsoil has been generated during the RY	NIL
2e	Quantity of overburden generation in m3	A total of 429000 tons of waste has been proposed to generate through UG development	A total of 454029 tons of waste has been generated. Waste quantity of 98527MT has been brought on surface for tailing dam construction	Violation of MCDR, 2017 prepared for more waste generation compared to development and issued during previous inspection.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc			The underground method of development was proposed and same is suitable for the type of the deposit

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#### Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	A total of 16 Stope blocks at different level has been proposed for stoping operation	Stoping operation has been carried out in 12 stope blocks.	Shortfall was due to less development. Violation for less development issued during previous inspection.

3b	Quantity of ROM mineral production proposed	1.90 million tons	1.51 million tons.	Less production was in account of less development. Violation for less development was issued during previous inspection
3c	Recovery of sailable/usable mineral from ROM production	100% ROM is usable for beneficiation	Entire ROM is being used for the purpose of beneficiation	Entire ROM is being dispatch to the beneficiation plant located in lease area
3d	Quantity of mineral reject generation	Mineral Reject generation (mill tailing)- 1642500 MT	Entire ROM is subject to beneficiation. A quantity of 1425731 MT (mill tailing) has been reported as mineral reject	Less generation due to less production of ROM
3e	Grade of mineral rejects generation and threshold value declared.	No proposal of grade	The grade of mil tailing reported was 0.32 % (Pb+Zn).	Nil
3f	Quantity of sub grade mineral generation.	No proposal of Sub-grade generation	Not applicable.	Nil
3g	Grade of sub grade mineral generation	Not applicable as no proposal of sub-grade generation	Not applicable	NIL
3h	Manual / Mechanised method adopted for segregating from ROM	No proposal of segregation as entire ROM is subject to beneficiation	Entire ROM is being beneficiated.	NIL
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	No proposal of any fresh beneficiation study. However, beneficiation facility of 4.8 mtpa is already in place within lease boundary.	Beneficiation of ROM is being carried out as per proposal.	ROM from Mochia, Balaria and Zawarmala mine is also beneficiated at same location.

3j	Provision of drilling and blasting in mineral benches	Drilling pattern for development in ore and rockBurn Cut method. Drilling pattern in Stopes- Ring drilling with parallel hole drilling	Drilling and blasting have been carried out as per proposal in UG development and stopes	Nil
3k	Provision of mining machineries in mineral benches	Twin Boom Jumbo, Loaders, LPDT, Grader, scaler and utility vehicles etc. has been proposed for mine development and stoping operation.	Deployment of Mining machinery has been found to be as per proposal in UG operations.	NIL
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Not applicable being a UG mine.	Not applicable.	NIL
3m	Total area covered under excavation/pits	Not applicable being a UG mine.	Not applicable.	NIL
3n	Ore to OB ratio for the pit/mine during the year.	Not applicable being a UG mine	Not applicable.	Nil
3o	Total area put in use under different heads at the end of year	Total area of 380.12 hectare has been proposed to put in use under different heads at the end of the year 2024-25	As per AR 2022-23 an area of 325.23 has been utilized under different heads at the end of the year 2022-23	Figures for entire Zawar lease area.
3p	Production of ROM mineral during the last five year period as applicable	2018-19: 1000000 2019-20: 1460000 2020-21: 1500000 2021-22: 1800000 2022-23: 1900000	2018-19: 999991 2019-20: 1180841 2020-21: 1402163 2021-22: 1554464 2022-23: 1514579	All figures in Metric Tons (MT) for Baroi Mine. Less production in account of less development.

3q	General remarks of inspecting officers on method of mining etc.	Sub level open stoping method of underground mining has been proposed.	Method of mineral extraction as per proposal.	The method of mining proposed is suitable for the type of the deposit.
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## Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	No proposal of topsoil generation. OB/waste is proposed to dispose in UG stopes as well as for tailing dam construction. Mineral reject (Mill tailing) has been proposed to dispose in tailing dam	Topsoil has not been generated during the reporting year. Waste and mill tailing has been disposed as per proposal.	Mill tailing of 1425731 MT of 0.328% (Pb+Zn) has been reported as Mineral reject.
4b	Location of topsoil, OB and mineral reject dumps	No proposal of topsoil generation. OB/waste is proposed to dispose in UG stopes as well as for tailing dam construction. Mineral reject (Mill tailing) has been proposed to dispose in tailing dam	Topsoil has not been generated during the reporting year. Waste and mill tailing has been disposed as per proposal.	Mill tailing of 1425731 MT of 0.328% (Pb+Zn) has been reported as Mineral reject.
4c	Number of dumps within lease area and outside of lease area	No proposal.	Not applicable.	NIL
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Not applicable as Mining operations are being carried out through UG mining method.	Not applicable.	NIL
4e	Number of active and alive dumps.	No proposal.	Not applicable.	NIL
4f	Number of dead dumps.	No proposal.	Not applicable	NIL

4g	Number of dumps established.	No proposal.	Not applicable.	NIL
4h	Whether Retaining wall or garland drain all along dumps are there.	Not applicable as no proposal of waste dumping	Not applicable.	NIL
4i	Length of Retaining wall or garland drain all along dumps	No proposal.	Not applicable.	NIL
4j	Number of settling ponds	No proposal.	Not applicable.	NIL
4k	Specific comments of inspecting officer on waste dump management			The waste generated during the development is being disposed in the stoped out area. No issue related to waste dumping.

#### Solid Waste Management - Backfilling:

Sl.No.	Item	Propasals	Actual work	Remarks
5a	Status of part or full extraction of mineral from mined out area before starting backfilling.	Backfilling or waste dumping in UG voids has been proposed.	Dumping of waste has been carried out in UG stopes.	NIL
5b	Area under backfilling of mined out area	No specific proposal on area of backfilling. Waste quantity of 392000 MT was proposed to backfill.	Waste quantity of 355503 MT has been dispose in UG stopes.	NIL
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	No proposal of topsoil generation during reporting year.	No topsoil has been generated during the year.	NIL
5d	Total area fully reclaimed and rehabilitated	No proposal of full reclamation and or rehabilitation	Not applicable.	NIL

5e	General remarks of inspecting officers on backfilling and reclamation etc.	Backfilling or waste dumping in UG voids has been proposed.	Dumping of waste has been carried out in UG stopes.	The waste generated during the development is being disposed/backfilled in the stoped out area. No issue related to backfilling.
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Progressive Mine Closure Plan:

Sl.No.	Item	Proposals	Actual work	Remarks
6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	As per rule 26(2) of MCDR, 2017, PMCP report to be submitted for previous year by 1st July.	PMCP report for the year 2022-23 has been submitted.	NIL
6b	Area available for rehabilitation (ha) .	No proposal.	Not applicable.	NIL
6c	afforestation done (ha).	5.0 Hectare area (gap filling).	5.0 Hectare area (gap filling).	Figures for entire Zawar lease area.
6d	No. of saplings planted during the year	5000 (within lease area).	5190 sapling planted with Zawar lease.	Figures for entire Zawar lease area.
6e	Cumulative no .of plants	No proposal on cumulative number of plants.	Cumulatively 447815 number of plants.	Figures for entire Zawar lease area.
6f	Any other method of rehabilitation	Other than plantation, no specific proposal of any other method of rehabilitation	Not applicable.	NIL
6g	Cost incurred on watch and care during the year	No specific proposal on cost of watch and care during the year.	Approximately Rs 577400/-	NIL

6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling ( Lx B x D	No specific proposal of area. A quantity of 392000 MT has been proposed to dispose in UG stopes.	The quantity of 355503 MT of waste has been dispose in UG stopes.	NIL
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Waste quantity of 392000 MT was proposed to backfill.	Waste quantity of 355503 MT has been dispose in UG stopes.	NIL
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on backfilled area	No proposal.	Not applicable.	NIL
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	No proposal.	Not applicable.	NIL
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	No proposal.	Not applicable.	NIL
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	5.0 Hectare area (gap filling) with 5000 number of saplings.	5.0 Hectare area gap filling) with 5190 number of saplings.	Figures for entire Zawar lease area.
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	No proposal.	Not applicable.	NIL
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Plantation (gap filling).	Plantation (gap filling).	Nil

6p	Compliance of environmental monitoring (core zone and buffer zone)	Provision of environment monitoring has been given	Environment monitoring is being carried out and parameters are found to be within permissible limit.	Nil
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	A total of 5000 number sapling has been proposed to plant.	A total of 5190 number of saplings has been planted.	PMCP compliance is satisfactory.

#### Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	No specific proposal of grade wise sorting	Entire ROM ore is being transported to Ore beneficiation plant.	NIL
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Not applicable as no grade wise sorting.	Not applicable.	NIL
7c	Different grade of mineral sorted out at mines.	No proposal.	Not applicable.	NIL
7d	Any beneficiation process at mines .	A beneficiation plant of 4.8 MTPA has been installed within lease area.	Beneficiation plant having capacity of 4.8 MTPA is already in place. The process includes mainly crushing and grinding of ROM, Classification , differential flotation etc.	NIL
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	No specific proposal.	Not applicable.	No issues related to mineral conservation and beneficiation observed. Beneficiation of ROM is being carried out through beneficiation plant of 4.8 MTPA installed within the lease area.

## Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	No proposal of topsoil generation	Not applicable.	NIL
8b	Concurrent use or storage of topsoil	Not applicable as no proposal of top soil generation.	Not applicable.	NIL
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Waste has been proposed to dispose in UG stopes as well as for tailing dam construction. No proposal for fines generation.	Fines have not been generated during the year. Waste has been disposed in stoped out area.	NIL
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Waste proposed to dispose in stoped out area and tailing dam construction.	Wate generated was disposed in U/G stoped out area and tailing dam cosnstruction.	NIL
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	No proposal	Not applicable.	NIL
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	An area of 5.0 hectare (gap filling) with 5000 number of saplings.	During the year a total of 5190 saplings have been planted over 5.0 ha area for gap filling plantation	NIL
8g	Survival rate	No specific proposal of for survival rate.	90% (as inform during mine inspection).	NIL
8h	Water sprinkling on roads to control airborne dust	To control the air born dust particle, water sprinkling has been proposed over the roads by water tanker.	Water sprinkling has been observed.	NIL

8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Aesthetic beauty in and around mine is satisfactory as the working is being carried out through UG mining method.
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Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	As per rule 45 of MCDR, 2017 monthly and annual returns to be submitted.	Monthly and annual returns have been submitted for the RY.	NIL
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Mining Engineer: Pratik Vijayvargiya Geologist: Vivek Tyagi Manager: Sri Mahendra Suthar	Mining Engineer, Manager and Geologist are appointed.	NIL
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Reclaimed/rehabilitated 45.07 0 hect., Occupied by plant, buildings, residential, welfare buildings & roads-275.16 hect., Work done under PMCP-5.0 hect	The land use area furnished appears in order	NIL
9d	Scrutiny of Annual return on afforestation	5190 no. of plants within lease.	The information furnished appears in order.	NIL
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	MR: 1425731 tons	The quantity of tailing has been furnished as Mineral Reject	NIL
9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM closing stock: Nil	Found in order.	NIL

9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	No sale of mineral only captive use of mineral. Cost of production 4093.37 Rs./ton Ex mine prize 3666.44 Rs/ton	Discrepancies has been discussed with mine management and to be corrected from next return	Nil
9h	Scrutiny of Annual return on fixed assets	Value of fixed asset furnished is Rs. 6323546877.00	Appears in order.	nil
9k	Scrutiny of Annual return on mining machineries	LHD, Dumper, Rock drill, Blast Hole drill, Motor grader, Front end loader, Explosive ven, Air compressor, ventilation fan and mine cars.	Information on mining machineries is furnished in the AR 2022-23 and seems to be in order.	Nil

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**Details of violations observed during current inspection and compliance position of violation pointed out**

Violation observed		Show couse position	
Rule NO.	Issued on Compliance on	Rule NO.	Issued on Compliance on

**Date :**

(Sh. Chandresh Bohra)

Indian Bureau of Mines