

**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 : **DJ03** ) **DILIP JAIN**  
Officer and ID No.
- (ii) Designation : Senior Mining Geologist
- (iii) Accompanying mine : Sri Radha Raman- Agent, Mr. Mahendra Suthar, Mine Man  
Official with  
Designation
- (iv) Date of Inspection : 11-JUL-24
- (v) Prev.inspection date : 05-NOV-19

**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 :
- FAX No. : 0294-2726243
- E-mail : hzlm@datainfosys.net
- Phone : 0294-2726611,2726612
- (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 :
- (d) Date of Expiry : 29-MAR-10
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 : Shri Arun Misra  
 YASHAD BHAWAN HINDUSTAN  
 ZINC LIMITED Udaipur  
 UDAIPUR RAJASTHAN  
 Phone: 0294-2421420  
 FAX : 0294-2412545

Agent : Sri Radha Raman  
 Admin Block Zawar Mines,  
 Udaipur UDAIPUR RAJASTHAN  
 Phone:  
 FAX :

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

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

Manager  
 Name : Sri 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

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

## Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	During the previous year 2022-23 a total of 290 BHs with 61000 mts of drilling was proposed.	During previous year 2022-23, a total of 447 BHs with 84240 meters of drilling was carried out.	Drilling was more than the proposal.
1b	Exploration over lease area for geological axis 1 or 2	During the Reporting year (RY) 2023-24, a total of 305 BHs with 65000 mts of drilling was proposed from surface and UG exploration.	During reporting year (RY) 2023-24, a total of 434 BHs with 70306 meters of drilling was carried out from surface and UG exploration.	Nil
1c	Exploration Agencies and Expenditure in lakh rupees during the year	No proposal of exploration agency and Expenditure.	Surface Exploration: MAPL, TDMA and Underground Exploration: EFMCP, TDMA. Total Expenditure: Rs. 413907290/-	Nil
1d	Balance area to be explored to bring Geological axis in 1 or 2	An area of 6.21 hectare was proposed to bring under G1/G2 from G3 level of exploration during RY.	An area of 4.02 hectare was brought under G1/G2 from G3 level of exploration during RY.	Violation of rule 11(1) of MCDR, 2017 issued for deviation against the proposal vide letter dated 20/08/2024.
1e	Balance reserve as on 01/04/20	As per approved document dated 15/07/2021, the position of reserve and resource as on 01/04/2021 was 8.92 and 26.78 Million tons respectively.	The position of reserve and resource as on 01/04/2024 was 10.56 and 29.00 Million tons respectively.	Reserve and resources as per AR 2023-24.

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 body, exploration planning and grade interpolation etc.
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Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	A total of 20700 m (horizontal and vertical) of development was proposed during RY 2023-24.	A total of 11232 m (horizontal and vertical) development was achieved during RY 2023-24.	Violation rule 11(1) of MCDR, 2017 issued for shortfall in development meters vide letter dated 20/08/2024.
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Not applicable as mining/development is being carried out through UG Mining Method.	Not applicable.	Nil
2c	Stripping ratio or ore to OB ratio	Not applicable as mining/development is being carried out through UG Mining Method.	Not applicable.	Nil
2d	Quantity of topsoil generation in m3	No proposal of topsoil generation during the year.	No topsoil generation during RY.	Nil
2e	Quantity of overburden generation in m3	A total of 457000MT of waste has been proposed to generate through UG development.	A total of 384739 MT of waste has been generated.	126345MT waste has been brought on surface for tailing dam construction.

2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	Underground development was proposed through burn cut method of development and same is being practiced at the mine. The development was less compared to the proposed development, resulting violation of rule 11(1) of MCDR, 2017 issued vide letter dated 20/08/2024.
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#### Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	A total of 10 Stope blocks at different level has been proposed for stoping operation in BK, K, NB, HM, SB section.	Stoping operation has been carried out at 5 stope blocks at different level of BK and K sections.	Shortfall/deviation due to less development. Violation of rule 11(1) of MCDR, 2017 issued for shortfall in development vide letter dated 20/08/2024.
3b	Quantity of ROM mineral production proposed	1900000 tons of ROM mineral production has been proposed.	1227956 tons of ROM mineral production was achieved.	Less production in account of less development. Violation for less development issued vide letter dated 20/08/2024.
3c	Recovery of sailable/usable mineral from ROM production	100%	100%	Entire ROM is being dispatch to the beneficiation plant located in lease area.
3d	Quantity of mineral reject generation	Mill tailing: 1710000 tons.	Mill tailing: 1117579 tons	Less generation due to less production of ROM and milling.
3e	Grade of mineral rejects generation and threshold value declared.	No proposal of grade.	The grade of mil tailing was 0.40 % (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 5.2 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 rock- Burn 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	Not applicable.	Nil
3n	Ore to OB ratio for the pit/mine during the year.	Not applicable	Not applicable.	Nil
3o	Total area put in use under different heads at the end of year	2023-24: 1900000 2022-23: 1900000 2021-22: 1800000 2020-21: 1500000 2019-20: 1460000	2023-24: 1227956 2022-23: 1514579 2021-22: 1554464 2020-21: 1402163 2019-20: 1180841	All figures in metric tons. Less production was in account of less development due to less LPDT and jumbo availability resulting in lower production from stopes
3p	Production of ROM mineral during the last five year period as applicable			Sub level stoping method of underground mining is being practiced, which is the best suitable method for the type of the deposit. The development was less during the RY resulting in less production. Violation of rule 11(1) of MCDR, 2017 issued for less development.
3q	General remarks of inspecting officers on method of mining etc.			Nil

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#### Solid Waste Management - Dumping:

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Sl.No.	Item	Propasals	Actual work	Remarks
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4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	No proposal of topsoil generation. Developmental waste was 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.	Top soil was not generated during reporting year. Waste and mill tailing has been disposed as per proposal.	Nil
4b	Location of topsoil, OB and mineral reject dumps	Top Soil: No proposal. Waste: UG stopes as well as for tailing dam construction. Tailing: Baroi tailing dam/dry staking in extension of the old tailing dam.	Top Soil: No top soil generation during RY. Waste: As per proposal in UG stopes and tailing dam construction. Tailing: Baroi tailing dam/dry staking on old tailing dam.	Violation of rule 11(1) of MCDR, 2017 issued for deviation in location of dry staking.
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 being a UG mine.	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	Not applicable as no proposal of waste dumping.	Not applicable.	Nil
4j	Number of settling ponds	No proposal.	Not applicable.	Nil



4k	Specific comments of inspecting officer on waste dump management	Dry tailing stacking was proposed in extension of old rehabilitated tailing pond, whereas dry staking of tailing was observed over the of old rehabilitated tailing pond. Hence, violation of rule 11(1) of MCDR, 2017 issued for deviation in dry staking of tailing trough Zawarmala Mine violation letter dated 20/08/2024.
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#### 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.	After full extraction of mineral from the stopes, backfilling or waste dumping in UG stoped out area was proposed.	Dumping of waste has been carried out in UG stopes after full extraction of mineral.	Nil
5b	Area under backfilling of mined out area	No specific proposal of area. Waste quantity of 420000 tons proposed to dispose in UG stopes.	Waste quantity of 258394 tons has been disposed of in UG stopes.	Less quantity of waste was backfilled in UG stopes due less generation of waste in account of less development.
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.	The backfilling is being carried out in UG voids. No issue related to backfilling in UG voids.
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#### Progressive Mine Clousre Plan:

Sl.No.	Item	Propasals	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.	Annual PMCP report for reporting year i.e., 2023-24 has been submitted with annual return of the year 2023-24.	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).	6000 (within lease area).	Figures for entire Zawar lease area.
6e	Cumulative no .of plants	No Proposal.	Cumulatively 452815 numbers of plants.	As on 31-Mar-2024.
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.	As reported, approximately Rs 38810000/-	Figures for entire Zawar lease area.
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling ( Lx B x D	No specific proposal of area. Waste quantity of 420000 tons proposed to dispose in UG stopes.	Waste quantity of quantity of 258394 tons has been disposed of in UG stopes.	Nil

6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	No specific proposal of area. Waste quantity of 420000 tons proposed to dispose in UG stopes.	Waste quantity of quantity of 258394 tons has been disposed of 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	5000 number of saplings.	6000 number of saplings.	Figures for entire Zawar lease area.
6n	Compliance of rehabilitation of waste land within lease (ii) Area rehabilitation (ha)	5.0 Hectare area (gap filling).	5.0 Hectare area (gap filling).	Figures for entire Zawar lease area.
6o	Compliance of rehabilitation of waste land within lease (iii) Method of rehabilitation	Plantation.	Plantation.	Nil
6p	Compliance of environmental monitoring (core zone and buffer zone)	Provision of environment monitoring stations has been given.	Environment monitoring is being carried out and on sample check parameters are found within permissible limit.	Nil

6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	The work related to plantation was satisfactory. However, Violation of rule 11(1) of MCDR, 2017 issued for additional backfilling compared to proposal.
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#### 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 located within lease area.	Nil
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Not applicable as no grade wise sorting proposal.	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 4.7 MTPA has been installed within lease area.	Beneficiation plant having capacity of 4.2 MTPA Installed. 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 issue related to mineral conservation.

#### Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
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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)	No proposal of Reject and fines generation. Waste has been proposed to dispose in UG voids as well as for tailing dam construction.	Reject and fines has not been generated during the year. Waste has been disposed in UG voids and also used for tailing dam construction.	Nil
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Waste proposed to dispose in UG voids and tailing dam construction.	Generated waste has been disposed in U/G voids.	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.	An area of 5.0 hectare (gap filling) with 6000 number of saplings. .	Number of cumulative plantation is 452815 as on 31/03/2024.
8g	Survival rate	No specific proposal of survival rate.	About 90% of plant survived.	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 with fixed water sprinklers at Crusher and stockpile area. Water tankers (capacity 10KL) sprinkling water on haul roads to control airborne dust due to mining activity.	Aesthetic beauty in and around mine is satisfactory as the working is being carried out through UG mining method.

8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Nil
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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, monthly and annual returns to be submitted.	Monthly and annual returns for the reporting year have been submitted.	Nil
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Manager- Shri Mahendra Suthar, Geologist-Shri Vivek Tyagi, Mining, Engineer- Shri Pratik Vijayvargiya.	Mine Manger, Mining engineer and Geologist are appointed.	Nil
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	A total of 321.23 hectare area has been furnished under infra, roads etc and 45.07 hectare area furnished as reclaimed and rehabilitated.	The information on land use appears in order.	Nil
9d	Scrutiny of Annual return on afforestation	Afforestation done- 5 Ha and No. of Saplings- 6000	Found in order.	Nil
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Mineral reject generation: NIL	No mineral reject generation during RY.	Tailing of 1117579.00 tons generated during the year.
9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM Closing stock at Mine head- 0.	The information furnished is found in order.	Nil

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9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Ex. Mine Price & Production cost Rs. 5960.67 per tons.	No sale of mineral only captive use of mineral.	Nil
9h	Scrutiny of Annual return on fixed assets	Value of fixed asset furnished is Rs. 4984542115/-	The value of fixed asset furnished 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 Van, Air Compressor, Ventilation fan, Mine cars etc.	The information furnished on mining machineries appears 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
MCDR17 Rule 11(1)	20-AUG-24				
MCDR17 Rule 45(7)(a)	20-AUG-24				

**Date :**

**(DILIP JAIN)**

Indian Bureau of Mines