

**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 : **P022**) **PANKAJ KULSHRESTHA**
Officer and ID No.
- (ii) Designation : Assistant Controller Mine
- (iii) Accompanying mine : Shri Upendhar Rapolu, Mines Manager
Official with
Designation
- (iv) Date of Inspection : 16/10/2022
- (v) Prev.inspection date : 03/06/2022

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 : 01/12/1973
- (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 : 31/03/2030
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/ : 10/02/2023
 Termination date

Geologist

Name : Shri Vivek Tyagi, Full Time
 Qualification : M. Sc . Geology
 Appointment/ : 01/10/2022
 Termination date

Geologist

Name : Sri Somdeb Dutta Mal, Full Time
 Qualification : M.Sc. (Geology)
 Appointment/ : 31/01/2019 30/09/2022
 Termination date

Manager

Name : Shri Mahendra Suthar
 Qualification : BE Mining
 Appointment/ : 27/02/2023
 Termination date

6. Date of approval of Mining : Mining Scheme rule 12 MCDR1988 15/09/2003
 Plan/Scheme of Mining Modif. approved Mining Scheme 16/08/2005
 MP modif under 17(3) MCR 2016 17/05/2019
 MP review under 17(1) MCR 2016 17/12/2019
 MP modif under 17(3) MCR 2016 15/07/2021

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	2021-22: 66000m Surface: 16000m (16) Underground: 50000m (897)	No back log of previous year reported.	
1b	Exploration over lease area for geological axis 1 or 2	57000m Surface: 17000m (15) Underground: 44000m (275)	66297.9m Surface: 23776.9m (12) Underground: 21800m (148)	
1c	Exploration Agencies and Expenditure in lakh rupees during the year	No specific proposal about drilling agency.	Surface Exploration MAPL, TDMA, Expenditure: Underground Exploration EFMCPL, TDMA 106302500/-	
1d	Balance area to be explored to bring Geological axis in 1 or 2	G1 (14.04 Ha) G2 (4.44Ha) G3 (6.21Ha) Total-24.69Ha	G1 (12.04 Ha) G2 (2.91Ha) G3 (4.07Ha) Total-19.033Ha actual holes-3527	Resources from inferred/ Geo Axis 3 to prove (1 or 2)
1e	Balance reserve as on 01/04/20	The position of reserve and resources as on: 01/04/2022: 111- 4.25 Mt 122- 3.47 Mt 221- 7.68 Mt 222- 3.53 Mt 333- 22.54 Mt	The position of reserve and resources as on 01/04/2022: 111- 4.25 Mt 122- 3.47 Mt 221- 7.68 Mt 222- 3.53 Mt 333- 22.54 Mt	
1f	General remarks of inspecting officers on geology, exploration etc	NA	Various aspects related with geology & exploration may be considered as satisfactory.	

Development :

Sl.No.	Item	Proposals	Actual work	Remarks
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2a	Location of development w.r.t. lease area	A total of 18300m (horizontal and vertical) of development was proposed during the year 2021-22.	During the year a total of 15659 m (Horizontal and vertical) development has been achieved. Covid & Equipment delayed affected development progress.
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Not applicable as mining operation has been proposed through UG Mining Method.	Not applicable
2c	Stripping ratio or ore to OB ratio	Not applicable being a UG mining operation.	Not applicable
2d	Quantity of topsoil generation in m3	Not applicable being a UG mining operation.	Not applicable
2e	Quantity of overburden generation in m3	A total of 145185m3 of waste has been proposed to generate through UG development	A total of 69210 m3 of waste has been generated.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	NA	The development of mine w.r.t type of deposit may be considered as satisfactory.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	A total of 16 Stope blocks at different level was proposed for stoping operation during the year 2021-22.	Stoping operation has been carried out at 12 stope blocks. Delay in Narrow vein mining technology and production carried in old stopes using remote LHD's.	
3b	Quantity of ROM mineral production proposed	It was proposed to mine out 1900000 t of ROM	The total ROM producted during the year 2021-22 is 516919 t	

3c	Recovery of sailable/usable mineral from ROM production	100% recovery of salable/usable mineral from ROM production was proposed	100% achieved as proposed.
3d	Quantity of mineral reject generation	Mineral Reject generation (as mill tailing) - 1642500 MT	Entire ROM is subject to beneficiation. A quantity of 683765 MT (mill tailing) has been reported as mineral reject.
3e	Grade of mineral rejects generation and threshold value declared.	Not applicable as no proposal.	The grade of mil tailing reported was 0.36(.21+.15) % (Pb+Zn)
3f	Quantity of sub grade mineral generation.	No proposal of Sub-grade generation.	Not applicable.
3g	Grade of sub grade mineral generation	NA	NA
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.
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	No proposal of any fresh beneficiation study.	Beneficiation of ROM is being carried out as per proposal.
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.

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.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Not applicable being a UG mining operation.	Not applicable
3m	Total area covered under excavation/pits	Not applicable being a UG mining operation.	Not applicable
3n	Ore to OB ratio for the pit/mine during the year.	Not applicable being a UG mining operation.	Not applicable
3o	Total area put in use under different heads at the end of year	Mining-36.63 Mineral storage-3.95 Ben. Plant-9.46 Township-37.95 Tailing pond-119.52 Roads-10.86 Infrastructure -62.68 Waste dump-10.57 Others-28.61 Total-320.23	Mining-36.63 Mineral storage-3.95 Ben. Plant-9.46 Township-38.95 Tailing pond-119.52 Roads-10.86 Infrastructure-62.68 Waste dump-10.57 Others-28.61 Total-321.23
3p	Production of ROM mineral during the last five year period as applicable	2022-2023_1900000 2021-2022_1800000 2020-2021_1500000 2019-20_1460000 2018-19_1000000 2017-18_850000	2022-2023_516919 2021-2022_1554464 2020-2021_1402163 2019-20_1180841 2018-19_999991 2017-18_714198 (All figures in Metric Tons (MT) Fig Up to 30/09/22)

3q General remarks NA The method of mining may
of inspecting be considered as
officers on satisfactory.
method of mining
etc.

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 top soil and Mineral Reject generation during the year 2022-23. OB/waste is proposed to dispose in UG stopes as well as for tailing dam construction.	Top soil and Mineral Reject has not been generated during the reporting year. Waste generated during the year has been dumped as per proposal. However, Quantity of Mill tailing of 1464462MT of 0.38% (Pb+Zn) has been reported as Mineral reject.	
4b	Location of topsoil, OB and mineral reject dumps	No proposal of topsoil and Mineral Reject generation during the year 2022-23. OB/waste is proposed to dispose in UG stopes as well as for tailing dam construction.	Topsoil and Mineral Reject has not been generated during the reporting year. Waste generated during the year has been dumped as per proposal.	
4c	Number of dumps within lease area and outside of lease area	No proposal of waste dumping within Mine boundary.	No waste dumping within Mine boundary of BaroiMine.	
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	
4e	Number of active and alive dumps.	No proposal.	Not applicable	
4f	Number of dead dumps.	No proposal.	Not applicable	
4g	Number of dumps established.	No proposal.	Not applicable.	

4h	Whether Retaining wall or garland drain all along dumps are there.	Not applicable as no waste dump within Mine	Not applicable
4i	Length of Retaining wall or garland drain all along dumps	No proposal	Not applicable
4j	Number of settling ponds	No proposal	Not applicable
4k	Specific comments of inspecting officer on waste dump management	NA	The waste dump management at Baroi mines may be considered as satisfactory

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.	During the year 2022-23 backfilling or waste dumping in UG voids has been proposed	Dumping of waste has been carried out in UG stopes.	
5b	Area under backfilling of mined out area	392000 MT	During the year 2022-23 (Up to Sep., 2022) total quantity of 154712MT has been dispose in UG stopes so far.	
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	No proposal of top soil generation during reporting year.	No top soil has been generated during the year.	
5d	Total area fully reclaimed and rehabilitated	No proposal of full reclamation and or rehabilitation	Not applicable	
5e	General remarks of inspecting officers on backfilling and reclamation etc.	No proposal.	Not applicable	

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. 2021-22 has been submitted.	
6b	Area available for rehabilitation (ha) .	NIL	Nil	
6c	afforestation done (ha).	05 Ha areas have been within Zawar group of mines.	05 ha gap filling in Zawar group of mines.	
6d	No. of saplings planted during the year	5000 within lease area.	5000 within lease area (For overall Zawar group).	
6e	Cumulative no .of plants	Not specified.	442625, as on 31 March 2022	
6f	Any other method of rehabilitation	Other than plantation, no specific proposal of any other method of rehabilitation	Plantation has been carried out as per proposal.	
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 52087469/- for over all Zawar group of mines.	
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Underground Exhaust stopes 60 M(L) X 5 M(W) X 60 M(H) 542333(m3)	Underground Exhaust stopes 60 M(L) X 5 M(W) X 60 M(H) 107378m3)	
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	No Proposal.	Not applicable	

6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on on backfilled area	No Proposal.	Not applicable.
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	No Proposal.	No applicable
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	No Proposal.	Not applicable
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	5 HA	5 HA gap filling , for over all Zawar group of mines.
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Nil	Nil
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	The proposed method of rehabilitation is Plantation	The rehabilitation done through Plantation.
6p	Compliance of environmental monitoring (core zone and buffer zone)	Provision of environment monitoring stations has been given.	Environment monitoring parameters are found to be within permissible limit.
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	NA	The status of compliance of PMCP and progressive closure operations may be considered as satisfactory.

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
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7a	ROM Mineral dispatch or grade-wise sorting within lease area	No specific proposal of grade wise sorting for year 2022-23.	All ROM ore is being transported to Ore beneficiation plant located within lease area
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Not applicable as no grade wise sorting.	Not applicable
7c	Different grade of mineral sorted out at mines.	No proposal.	Not applicable
7d	Any beneficiation process at mines .	4.8MTPA beneficiation plant has been installed within the lease area. The process includes mainly crushing and grinding of ROM, Classification , differential flotation cell etc.	Beneficiation has been observed as per proposal.
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	NA	The status of Mineral Conservation may be considered as satisfactory.

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	No proposal of top soil generation during the year 2022-23.	Not applicable	
8b	Concurrent use or storage of topsoil	Not applicable as no proposal.	Not applicable as no proposal.	

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 stopes as well as for tailing dam construction.	Reject and fines has not been generated during the year. Waste has been disposed as per proposal.
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	No proposal of use of waste rock for restoring the land to its original use. However, waste rock is proposed to dispose in stopped out area.	U/G stoped out area has been utilized for waste dumping purpose.
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	No proposal.	Not applicable
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Base line 442625 Plan addition 5000 No Proposal of survival rate	Current Cumulative status of plantation as on date of inspection is 448475 saplings with actual addition of 2850 nos. , 90% of the plants have survived
8g	Survival rate	No specific proposal of for survival rate.	Survival rate of 90% achieved during the year 2021-22.
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 stock pile area with total stretch of 180m long. 2 Water tankers (capacity 10KL) sprinkling water on haul roads to control airborne dust due to mining activity.

8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	NA	The aesthetic beauty in and around mines area may be considered as satisfactory.
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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 have been submitted for reporting year 2021-22.	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Manager- Shri Upendhar Rapolu, B.E in Mining DOA-18.05.2021 Geologist-Shri Vivek Tyagi , MSc in Applied Geology DOA-01.10.2022 Mining Engineer- Shri Laxman Chundawat, B.E in Mining , DOA-04.10.2020	Mine Manger, Mining engineer and Geologist are appointed.	
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Mining-46.36 Mineral storage-4.73 Ben. Plant-23.82 Township-38.95 Tailing pond-159.41 Roads-10.86 Infrastructure-66.88 Waste dump-0.50 Others-28.61 Total-380.12	Mining-46.36 Mineral storage-4.73 Ben. Plant-23.82 Township-38.95 Tailing pond-159.41 Roads-10.86 Infrastructure-66.88 Waste dump-0.50 Others-28.61 Total-380.12 (For over all Zawar group of mines)	
9d	Scrutiny of Annual return on afforestation	Afforestation done- 5 Ha (Gap Filling) No. of Saplings- 5000	Afforestation done- 5 Ha (Gap Filling) No. of Saplings- 5000 (for over all Zawar group)	

9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Quantity- 1464462 Grade- 0.36 % (Pb+Zn)	The quantity of Mineral Reject furnished is actually a quantity of mill tailing.
9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM Closing stock at Mine head- 0. ROM closing stock at Mill: 12430 MT	The information furnished is found to be in order.
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	No sale of mineral only captive use of mineral. Ex. Mine Price & Production cost Rs. 4391.26 per tonne.	Information furnished appears to be corrected.
9h	Scrutiny of Annual return on fixed assets	Value of fixed asset furnished is Rs. 1335864981/-	The value of fixed asset furnished appears to be in order.
9k	Scrutiny of Annual return on mining machineries	The mine has Rock Drill, Blast Hole Drill. Locomotive, LPDT, LHD, Air Compressor, Pumps, Ventilation fan etc.	The information furnished on mining machineries appears to be in order.

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

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

Date :

(PANKAJ KULSHRESTHA)

Indian Bureau of Mines