

**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 : Sh. Upendra Rapulu, Mine Manager & Sh. S. Dutt Mall,
Official with
Designation
- (iv) Date of Inspection : 19-JAN-22
- (v) Prev.inspection date : 27-AUG-21

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 SANDEEP NARADE
Zawar Mines, Udaipur
rajasthan UDAIPUR
RAJASTHAN
Phone: 97993 97755
FAX : 0294-423430

Mining Engineer

Name : Shri Laxman Chundawat, Full Time
Qualification : B.E in Mining & 06 Year Experience
Appointment/ : 25-APR-21
Termination date

Geologist

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

Manager

Name : Shri Upendhar Rapolu
Qualification : B. tech. in Mining Engineering
Appointment/ : 18-MAY-21
Termination date

6. Date of approval of Mining Plan/Scheme of Mining	:	Mining Scheme rule 12 MCDR1988	15-SEP-03
		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	During the previous year i.e. 2019-20 a total of 55000mts (609 Bore Holes) of drilling proposed.	During the year 2019-20, a total of 88645.8mts. (460 Bore Holes) of drilling carried out.	Violation of Rule 11(1) of MCDR 2017 issued during the previous inspection for shortfall in respect of nos. of bore holes.
1b	Exploration over lease area for geological axis 1 or 2	Year 2020-21: Surface Exploration Drilling: 16000m (16 Bore Holes) Underground Exploration Drilling: 50000m (897 Bore Holes)	Year 2020-21: Surface Exploration Drilling: 13089m (17) Underground Exploration Drilling: 43714 m (462)	Violation under rule 11(1) of MCDR, 2017 issued vide letter dated 20.09.2021 by previous inspecting officer.
1c	Exploration Agencies and Expenditure in lakh rupees during the year	No specific proposal about drilling agency and expenditure.	Drilling Agencies- EFMCP, Mining Associate Pvt.Ltd., Asansol and TDMA Pvt. Ltd, Gurgaon. Total Expenditure -Rs 95875780.16.	NIL.
1d	Balance area to be explored to bring Geological axis in 1 or 2	No specific proposal on balance area to explore under G1/G2.	Not applicable.	NIL.
1e	Balance reserve as on 01/04/20	As per approved document dated 15.07.2021, the position of reserve as on 01.04.2021 was 8.92 million tonnes.	As per approved document dated 15.07.2021, the position of reserve as on 01.04.2021 was 8.92 million tonnes.	NIL.
1f	General remarks of inspecting officers on geology, exploration etc	A total of 913 BHs with 66000 mts of drilling was proposed during the RY.	A total of 479 BHs with 56803.00 mts of drilling was completed during the RY resulting short fall in number of BHs and Drilling mts.	Shortfall in exploration observed by previous inspecting officer and accordingly violation of rule 11(1) of MCDR, 2017 was issued vide letter dated 20.09.2021.

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	Development has been proposed for BK series, K series, North Baroi, Haran Magra and South Baroi series of lenses at variuos levels. During the year 2020-21, U/G developement of 15500 m was proposed at various levels.	Development has been carried out for BK series, K series, North Baroi, Haran Magra and South Baroi series of lenses at variuos levels. During the year 2020-21,U/G development of 13432 m was carried out at various levels.	Violation of rule 11(1) of MCDR,2017 issued for shortfall in development vide letter dated 20.09.2021 by previous inspecting officer.
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 mining operation.	Not applicable.	NIL.
2d	Quantity of topsoil generation in m3	Not applicable as mining operation has been proposed through UG Mining Method.	Not applicable.	NIL.
2e	Quantity of overburden generation in m3	Not applicable as it is U/G mine. However, a total of 389000 tonnes of waste has been proposed to generate through UG mine development.	A total of 373401.00 tonnes of waste has been generated through U/G Mine development.	Less generation of waste in account of less development and COVID pandemic.

2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	Development has been proposed through UG mining method.	The UG mechanised method has been adopted for carrying out mining operations in the lease area which is best suited to the type of deposit.	Shortfall in UG mine development observed for the year 2020-21 for which violation under rule 11(1) of MCDR,2017 issued vide letter dated 20.09.2021 by previous inspecting officer.
----	---	---	---	--

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	No proposal as it is U/G Mine.	Not applicable.	NIL.
3b	Quantity of ROM mineral production proposed	2020-21: 1500000 MT	2020-21: 1402163 MT	Less production in account of less development due to COVID pandemic.
3c	Recovery of sailable/usable mineral from ROM production	2020-21: 1500000 MT	2020-21: 1402163 MT	Less production in account of less development due to COVID pandemic.
3d	Quantity of mineral reject generation	Not applicable as no proposal.	Entire ROM is subject to beneficiation.	A quantity of 1319092 tons (mill tailing) has been reported as mineral reject in annual retrun.
3e	Grade of mineral rejects generation and threshold value declared.	No specific proposal.	The grade of mil tailing reported is 0.52 % (Pb+Zn).	Mill tailing has been reported as mineral reject.
3f	Quantity of sub grade mineral generation.	No proposal of Sub-grade generation.	Not applicable.	NIL.
3g	Grade of sub grade mineral generation	No proposal.	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.	Beneficiation of ROM is being carried out as per proposal.	Beneficiation facility of 4.8 mtpa is already in place within ML area.
3j	Provision of drilling and blasting in mineral benches	Drilling pattern for development in ore and waste - Burn Cut method. Drilling pattern in Stopes- Ring drilling with parallel hole drilling.	Drilling and blasting has been carried out as per proposal in UG development and stopes.	NIL.
3k	Provision of mining machineries in mineral benches	Not applicable being an underground mine.	Twin Boom Jumbo, Loaders, LPDT, Grader, scaler and utility vehicles etc. were used for UG mine development and stoping operation.	NIL.
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.	NIL.
3m	Total area covered under excavation/pits	Not applicable being a UG mining operation.	Not applicable.	NIL.
3n	Ore to OB ratio for the pit/mine during the year.	Not applicable being a UG mining operation.	Not applicable.	NIL.
3o	Total area put in use under different heads at the end of year	An area of 380.12 hectare at the end of the plan period i.e. 2024-25.	An area of 320.23 hectare as per AR 2020-21.	NIL.
3p	Production of ROM mineral during the last five year period as applicable	2016-17: 600000 MT, 2017-18: 850000 MT, 2018-19: 1000000 MT, 2019-20: 1460000 MT, 2020-21: 1500000 MT.	2016-17: 602000 MT, 2017-18: 714198 MT, 2018-19: 999991 MT, 2019-20: 1180839 MT, 2020-21: 1402163 MT.	All figures in metric tonnes.

3q	General remarks of inspecting officers on method of mining etc.	Underground method of mining has been proposed.	The Method of mining is suitable to the type of deposit.	No issue observed related method of mining.
----	---	---	--	---

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. U/G development 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. U/G development waste generated during the year has been dumped as per proposal.	Quantity of Mill tailing of 1319092MT of 0.52% (Pb+Zn) has been reported as Mineral reject.
4b	Location of topsoil, OB and mineral reject dumps	No proposal of top soil and Mineral Reject generation. U/G development 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. U/G development waste generated during the year has been disposed off as per proposal.	Quantity of Mill tailing of 369304 MT of 0.54% (Pb+Zn) has been reported as Mineral reject and disposed in tailing dam.
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 Baroi Mine.	Old waste dump within lease has been converted under Stadium and rock garden.
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 as no proposal.	NIL.
4f	Number of dead dumps.	No proposal.	Not applicable as no proposal.	NIL.
4g	Number of dumps established.	No proposal.	Not applicable as no proposal.	NIL.

4h	Whether Retaining wall or garland drain all along dumps are there.	Not applicable as no waste dump within Mine boundary.	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	U/G development waste was proposed to dispose in UG stopes as well as for tailing dam construction.	Waste generated during the year was dumped as per proposal.	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.	U/G development waste dumping proposed in U/G mined out stopes after full extraction of mineral.	In stope waste dumping was observed after full extraction of mineral.	NIL.
5b	Area under backfilling of mined out area	No specific proposal of area. A quantity of 352000 MT was proposed to dispose in UG stopes.	A quantity of 326484 MT was disposed in UG stopes.	NIL.
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.	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 was proposed.	Dumping of waste was carried out in UG void stopes.	NIL.
----	--	--	---	------

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. 2020-21 has been submitted.	NIL.
6b	Area available for rehabilitation (ha) .	2.0 hect.	2.0 hect.	Figures are for entire Zawar Lease area. No mine specific proposal.
6c	afforestation done (ha).	2 hect.	2 hect.	Gap filling planation.
6d	No. of saplings planted during the year	2000 Nos.	2000 Nos.	Figures are for entire Zawar Lease area. No mine specific proposal.
6e	Cumulative no .of plants	No specific proposal on cumulative number of plants.	As per PMCP report cumulative number of planation as on 31/03/2021 was 437625.	NIL.
6f	Any other method of rehabilitation	Other than plantation, no specific proposal of any other method of rehabilitation	No other method of rehabilitation was observed.	NIL.
6g	Cost incurred on watch and care during the year	No proposal on cost of watch and care during the year.	For the year 2020-21 total Rs 52087469 /-	Figures for whole Zawar group of mines.
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 352000.00 MT has been proposed to dispose in UG stopes.	A quantity of 326484.00 MT has been disposed in UG stopes.	NIL.

6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	207100 m3	192049 m3	NIL.
6j	Compliance on reclamation and rehabilitation by backfilling (iii) Afforestation on backfilled area	Not applicable	Not applicable. being an underground mine.	NIL.
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	Not applicable	Not applicable. being an underground mine.	NIL.
6l	Compliance on reclamation and rehabilitation by backfilling (v) any other specific means.	No any other specific proposal.	Not applicable	NIL.
6m	Compliance of rehabilitation of waste land within lease (i) afforestation	2000 number of saplings.	2000 number of saplings.	Figures are for entire Zawar Lease area.
6n	Compliance of rehabilitation of waste land within lease (ii) Area rehabilitation (ha)	2.0 hect.	2.0 hect.	Figures are 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 was carried out.	NIL.

6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	A total of 2000 number sapling has been proposed to plant.	A total of 2000 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 of ROM. Entire ROM proposed to dispatch for beneficiation.	Entire ROM ore is being transported/dispatched to Ore beneficiation plant located within lease boundary.	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 .	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.	NIL.
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	No proposal of fresh beneficiation study.	Beneficiation of ROM is being carried out. A beneficiation plant of 4.8 MTPA has been installed within the lease area.	No issues related to mineral conservation and beneficiation.

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	No proposal of top soil generation.	No top soil has been generated.	NIL.
8b	Concurrent use or storage of topsoil	Not applicable as no proposal.	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 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.	NIL.
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 mined out stopes have been utilized for waste dumping purpose.	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 2.0 Ha has been proposed for plantation with 2000 number of saplings.	During the year a total of 2000 saplings have been planted over 2.0 ha area for gap filling plantation.	Figures are for entire Zawar Lease area. No mine wise specific proposal.
8g	Survival rate	No proposal of survival rate.	90% survival rate reported.	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 on haul roads to control airborne dust due to mining activity.	NIL.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	A total of 2000 numbers of saplings proposed to plant during 2020-21.	A total of 2000 numbers of saplings have been planted during 2020-21.	The aesthetic beauty in and around the mine is satisfactory.

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 year 2020-21 have been submitted.	NIL.
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Information of Mining Engineer, Geologist and Manager has been furnished.	Mining Engineer, Geologist and Manager has been appointed.	Scrutiny of AR 2020-21.
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Reclaimed/ rehabilitated- 45.070, Occupied by plant, buildings, residential, welfare buildings & roads-275.16 Work done under PMCP-2.0 hect.	Furnished details have been found in order.	NIL.
9d	Scrutiny of Annual return on afforestation	2000 number of plants within lease area.	Found in order.	NIL.
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Quantity- 1319092 MT of 0.488%	The quantity of Mineral reject furnished is the quantity of mill tailing.	NIL.

9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM 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. Ex Mine Price & Production cost Rs.4419.21/- per tonne.	Found in order. NIL.
9h	Scrutiny of Annual return on fixed assets	Value of fixed asset furnished is Rs. 6167823580/-	Seems to be correct. NIL.
9k	Scrutiny of Annual return on mining machineries	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. NIL.

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 :

(DILIP JAIN)

Indian Bureau of Mines