

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

MCDR INSPECTION REPORT

Gandhinagar regional office

Mine file No : RAJ/UDP/PB-ZN ORE-1

Mine code : 34RAJ26002

- (i) Name of the Inspecting : **K018**) **DR A Z KHAN**
Officer and ID No.
- (ii) Designation : Regional Mining Geologist
- (iii) Accompanying mine : Sh. Balamurugan(Mine Manager), Dr. Shashi Shukla(Geol
Official with
Designation
- (iv) Date of Inspection : 24-AUG-23
- (v) Prev.inspection date : 14-OCT-22

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **MOCHIA**
- (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 : **SARDA/GIRWA**
- 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-APR-55**
- (h) **Weekly day of rest** : **MON**
2. **Address for** : **VILLAGE-ZAWAR**
correspondance : **DISTT-UDAIPUR**
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**

1f	General remarks of inspecting officers on geology, exploration etc	The exploration has been carried out as per the approved proposal. There is no shortfall in exploration
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Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	In Under ground a total of 18800 m (horizontal and vertical) of development has been proposed. Section Block Prop. Dev(Meter) CM (-)29-39 2200 CM (-)29-(-98) 1500 CM (-)98-(- 298) 700 CW-0 (-)23-57 200 CW-0 (-)23-(- 98) 1300 CW-0 (-)98-(- 298) 1500 CW-0 57-312 pillars 600 CWM (-)23-57 700 CWM (-23)-(- 98) 4500 CWM (-)98-(- 198) 700 NV 452-(-23) 1100 Decline 1700 Ventilation 900 Exploration 1000 Total 18800	A total of 12645.6m (horizontal and vertical) of development has been carried out. Section Block Actual Dev.(Meter) CM (-)29-39 700.42 CM (-)29-(-98) 1415.31 CM (-)98-(-298) 0 CW-0 (-)23-57 426.94 CW-0 (-)23-(-98) 1255.54 CW-0 (-)98-(-298) 1310.38 CW-0 57-312 pillars 0 CWM (-)23-57 449.14 CWM (-23)-(-98) 4153.06 CWM (-)98-(-198) 717.03 NV 452-(-23) 0 Decline 1345.89 Ventilation 338.4 Exploration 533.3 Total 12645.41	Ther is shorfall in total development for which violation of rule 11(1) has been pointed out

2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Being UG mine there was no proposal of separate benches in top soil, OB and minerals	Not applicable as mining operation has been proposed through UG Mining Method.	None
2c	Stripping ratio or ore to OB ratio	No proposal being a UG mining operation	Not Applicable	None
2d	Quantity of topsoil generation in m3	No proposal of topsoil generation during the year.	Being UG mine no Topsoil generated during the year	None
2e	Quantity of overburden generation in m3	A total of 146296.20m3 (395000MT) of waste has been proposed to be generate through UG development	A total of 189506.66m3 (511666 MT) of waste has been generated by UG development.	The waste generation from UG was more than the proposal for which violation of rule 11(1) has been pointed out
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc			Over all Development is less than the proposal. Violation of Rule 11(1) has been pointed out.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	Being UG mine no proposal for production from pit. However, in UG propduction from development & 11 stopes was proposed	During the year production from UG development and 5 stopes has been achieved.	None
3b	Quantity of ROM mineral production proposed	1800000 tons of ROM mineral production has been proposed	1569453 tons of ROM mineral production has been achieved.	None
3c	Recovery of sailable/usable mineral from ROM production	Whole ROM to be sent for beneficiation	Whole ROM sent for beneficiation	None

3d	Quantity of mineral reject generation	1642500 tons of mineral reject (mill tailing) generation was proposed.	Durin beneficiation of entire ROM about 1455065 tons (mill tailing) reject has been generated.	None
3e	Grade of mineral rejects generation and threshold value declared.	No proposal. No threshold value has been declared for Pb-Zn minerals	The grade of mill tailing reject reported as 0.39 % (Pb+Zn)	None
3f	Quantity of sub grade mineral generation.	No proposal of Sub-grade generation.	There is sub grade generation. Beneficiation of whole ROM is being carried out	None
3g	Grade of sub grade mineral generation	Not proposed	Not applicable as there is no sub-grade generation.	None
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.	None
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 Mine boundary.	ROM of all the 04 mines i.e Mochia, Balaria, Baroi and Zawarmala mine is being beneficiated at same location.
3j	Provision of drilling and blasting in mineral benches	Being UG mine, no provision of drilling & blasting in mineral benches. However, Drilling pattern for development in ore and rock-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.	None

3k	Provision of mining machineries in mineral benches	Being UG mine there was no proposal of mining machineries in mineral benches. However, 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.	None
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	None
3m	Total area covered under excavation/pits	Not applicable being a UG mining operation.	Not applicable	None
3n	Ore to OB ratio for the pit/mine during the year.	Not applicable being a UG mining operation.	Not applicable	None
3o	Total area put in use under different heads at the end of year	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 Community Dev.- 8.71 Others-19.9 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 Community Dev.- 8.71 Others-19.9 Total-380.12	None

3p	Production of ROM mineral during the last five year period as applicable	2018-19: 950000 2019-20: 1500000 2020-21: 1500000 2021-22: 1600000 2022-23: 1800000	2018-19: 949994 2019-20: 1175794 2020-21: 1424513 2021-22: 1512919.7 2022-23: 1569453	None
3q	General remarks of inspecting officers on method of mining etc.	UG mining method proposed	UG mining method as per proposal has been implemented	Method of mining is suitable to the type of deposits. No issue observed related to 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 . Mineral Reject will be disposed in Tailing dam . U/G development waste is proposed to dispose in UG stopes as well as for tailing dam construction.	Mineral reject & waste rock generated during the year has been disposed as per proposal.	None
4b	Location of topsoil, OB and mineral reject dumps	No proposal of top soil and OB generation. Mineral Reject is proposed to dispose in tailing dam & UG stopes	Top soil and OB has not been generated during the reporting year. Mineral reject generated during the year has been disposed as per proposal in the tailing dam & UG stopes	None
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 mochia mine.	None
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	No proposal	Not applicable as Mining operations are being carried out through UG mining method	None
4e	Number of active and alive dumps.	No proposal	Not applicable	None

4f	Number of dead dumps.	No proposal	Not applicable	None
4g	Number of dumps established.	No proposal	Not applicable	None
4h	Whether Retaining wall or garland drain all along dumps are there.	No proposal	Not applicable	None
4i	Length of Retaining wall or garland drain all along dumps	No proposal	Not applicable	None
4j	Number of settling ponds	No proposal	Not applicable	None
4k	Specific comments of inspecting officer on waste dump management			Top soil and OB has not been generated during the reporting year. Mineral reject in form of tailing generated during the year has been disposed as per proposal in the tailing dam & UG stopes. The waste rock handled during underground development is backfilled in the worked out stopes.

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.	Dumping of development waste has been carried out in UG stopes after extracting ore.	None

5b	Area under backfilling of mined out area	No specific proposal of area. A quantity of 146296.20m ³ (39 5000 tons) has been proposed to dispose in UG stopes and Hydraulic backfill - 388800 tons	The entire quantity of 189506.66m ³ (511667 tons) of waste has been dispose in UG stopes and Hydraulic backfill - 302598 tons	The waste generation from UG is more than the proposal for which violation of rule 11(1) has been pointed out.
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.	None
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 by 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. 2022-23 has been submitted on 16.05.2023.	Nil
6b	Area available for rehabilitation (ha) .	No proposal	Not applicable	None
6c	afforestation done (ha).	5.0 Ha areas have been proposed for afforestation within Zawar Lease area.	Afforestation has been carried out in 5.0 Ha. area	Gap filling planation has been carried out in entire Zawar lease
6d	No. of saplings planted during the year	5000 within lease area.	Total 5190 sapling planted during the year	Figures are for entire Zawar Lease area. No mine specific proposal.

6e	Cumulative no .of plants	No specific proposal on cumulative number of plants	The cumulative number of planation as on 31/03/2023 was 447815	Figures are for entire Zawar Lease area.
6f	Any other method of rehabilitation	No specific proposal of any other method of rehabilitation except plantation	Except plantation no other method of rehabilitation was observed.	Nil
6g	Cost incurred on watch and care during the year	No specific proposal on cost of watch and care during the year	Cost incurred on watch & care during the year is approximately Rs 577400/-	Nil
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Voids proposed for backfilling was 211000 m3	Voids available for backfilling is 78288.11m3	Nil
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	A quantity of 385000 tons waste has been proposed to dispose in UG stopes and Hydraulic backfill - 388800 tons	The entire quantity of 511667 tons of waste has been dispose in UG stopes and Hydraulic backfill - 302598 tons	Nil
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on on backfilled area	No proposal	Not applicable being an underground mine	Nil
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	No proposal	Not applicable being an underground mine	Nil
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	No any specific proposal	Not applicable being an underground mine	Nil

6m	Compliance of rehabilitation of waste land within lease (i)afforestation	5 HA area by 5000 sapling	5 HA area by 5190 sapling	Figures are for entire Zawar Lease area
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	5.0 ha area	5.0 ha area	Figures are for entire Zawar Lease area
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	By Plantation	By Plantation	Nil
6p	Compliance of environmental monitoring (core zone and buffer zone)	Provision of environment monitoring stations has been given.	Environment monitoring has been carried out	Nil
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	A total of 5000 number sapling plantation in 5.0 ha area.	A total of 5000 number of saplings has been planted in 5.0 ha.	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.	No proposal for grade-wise sorting	Not applicable as no grade wise sorting	Nil
7c	Different grade of mineral sorted out at mines.	No Proposal	Not applicable as no grade wise sorting	Nil

7d	Any beneficiation process at mines .	Yes. Ore beneficiation process in lease area for all 4 mines.	4.8 MTPA Beneficiation plant has been installed within the lease area. The process includes mainly crushing and grinding of ROM, Classification, differential flotation cell etc.	Nil
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	Benificiation propsal given	Beneficiation of ROM is being carried out. A beneficiation plant of 4.8 MTPA has been installed within the lease area.	No issues observed 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	No proposal	Not applicable as there was no proposal	Nil
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	No proposal of OB, Reject and fines generation. Waste rock 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)	Base line Proposed plantation during 2022-23 - 5000 with cumulative 380425 plants	During the year 2022-23 total 5190 sapling planted with Current Cumulative 447815	Figures are for entire Zawar Lease area. No mine wise specific proposal.
8g	Survival rate	No proposal of survival rate.	80% 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 with fixed water sprinklers at Mochia Crusher and 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.	Nil
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	A total of 5000 numbers of saplings proposed to plant during 2022-23 covering 5.0 ha area	A total of 5190 numbers of saplings planted during 2022-23 covering 5.0 ha area	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,2017 Monthly and Annual returns to be submitted by the lessee	Monthly and Annual returns for the year 2022-23 have been submitted by lessee	Nil

9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Information on Mining Enginner, Geologist & Manager to be given by the lessee in Annual return	Information on Mining Enginner, Geologist & Manager has been given by the lessee in Annual return. Mining Engineer- Bala Murugan P Geologist-K Sairaj Manager- Bala Murugan P	Mining Enginner, Geologist & Manager have been appointed
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-5.0 hect.	The land use details are for entire Zawar lease.	Nil
9d	Scrutiny of Annual return on afforestation	Information on afforestation to be given	Information is given in Part V(5) of Annual return. Afforestation done in 5 Ha with 5190 saplings as Gap Filling	This is for entire Zawar lease
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	There is no mineral reject as specified in Part V(3) of Annual Return	The information given in Part V(3) of Annual Return is of Tailing Reject.	Show Cause under rule 45(7) has been issued
9f	Scrutiny of Annual return on ROM stock and/or graded ore	Information is given under Part-VI(1) of Annual return	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 is given as Rs.3666.42 & Production cost Rs.4297.42/- per tonne.	The discrepancy is pointed out in the form of show cause notice under rule 45(7) of MCDR,2017	Nil
9h	Scrutiny of Annual return on fixed assets	The information on fixed asset has been given	Details of fixed assets submitted in Annual Return . The Value of Fixed Assets: Rs. 6552647396/-	The discrepancy observed has been pointed out through Show Cause notice under rule 45(7) of MCDR,2017

9k	Scrutiny of Annual return on mining machineries	The detail information on mining machineries is given	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)	30-SEP-23	14-DEC-23			
	Rule 45(7)	30-SEP-23	14-DEC-23			

Date :

(DR A Z KHAN)

Indian Bureau of Mines