

**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 : **J003** ) **Jangid G K**  
Officer and ID No.
- (ii) Designation : Regional Controller Mines
- (iii) Accompanying mine : Shri Shashi Bhushan Shukla, Head Geology  
Official with  
Designation
- (iv) Date of Inspection : 02-JUN-22
- (v) Prev.inspection date : 20-JAN-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



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

## Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	Nil	Nil	Nil
1b	Exploration over lease area for geological axis 1 or 2	During the year 2021-22, it was proposed from Surface drill 21000m (23nos) and Underground drill of 36000m (220nos)	During the year 2021-22, Surface drill 17660.80 (26nos) and Underground drill of 42311.19 (277nos) was carried out.	
1c	Exploration Agencies and Expenditure in lakh rupees during the year	No specific proposal about drilling agency.	Exploration is carried out by EFMCP, TDMA and amount spent on Underground was RS.113604909.00, Surface Exploration by MAPL, TDMA, Terra walker, EFMCP and amount spent was Rs. 68546420.10	
1d	Balance area to be explored to bring Geological axis in 1 or 2	During the year 2021-22: G1 (10.24Ha) proposed holes 220, G2 (2.24Ha) proposed holes 6 and G3 (6.53Ha) proposed holes 17.	During the year 2021-22, G1 (8.48Ha) actual holes 277, G2 (1.81Ha) actual holes 6 and G3 (5.0Ha) actual holes 20	
1e	Balance reserve as on 01/04/20	The position of reserve and resources as on 01/04/2022: Under 111- 7.06 MT, 122- 3.31 MT, 221- 10.01 MT, 222- 3.87 MT, 332- 0.00 MT, 333- 31.18 MT	The position of reserve and resources as on 01/04/2022: Under 111- 7.06 MT, 122- 3.31 MT, 221- 10.01 MT, 222- 3.87 MT, 332- 0.00 MT, 333- 31.18 MT	
1f	General remarks of inspecting officers on geology, exploration etc	Nil	Nil	

## Development :

Sl.No.	Item	Proposals	Actual work	Remarks
2a	Location of development w.r.t.lease area	U/G mine development has been proposed for with a total of 15500 m (horizontal and vertical) of development during the year 2021-22. The development was proposed in CM, CW-0, CWM and NV blocks.	U/G mine development has been carried for with a total of 12105m (horizontal and vertical) of development during the year 2021-22 in CM, CW-0, CWM and NV blocks. It includes horizontal development for decline of 1015m against target of 1400m.	
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 as mining operation has been proposed through UG Mining Method.	Not applicable.	
2e	Quantity of overburden generation in m3	Not applicable as it is U/G mine. However, a total of 151481.5 m3 of waste has been proposed to generate through UG mine development.	A total of 144648.14 m3 of waste has been generated through U/G Mine development.	

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 since beginning covering four different mines. Sub-level Open Stopping with Hydrofill is in use at present.
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### Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	No proposal as it is U/G Mine. The development was proposed in CM, CW-0, CWM and NV blocks. 17 Stope blocks at different level has been proposed for stoping operation.	Opencast mining is not applicable. Stopping operation has been carried out at 16 stope blocks.	
3b	Quantity of ROM mineral production proposed	1600000 tonnes was proposed.	1512920t was achieved.	
3c	Recovery of sailable/usable mineral from ROM production	100% recovery was proposed.	Actual was more than 100% and a violation letter was issued for dilution during the stopes recovery.	
3d	Quantity of mineral reject generation	1440000 tons of mineral reject generation has been proposed.	Entire ROM is subject to beneficiation and quantity of 1413564.41 tons (mill tailing) has been reported as mineral reject.	A quantity of 1413564.41 tons (mill tailing) has been reported as mineral reject in annual retrun.
3e	Grade of mineral rejects generation and threshold value declared.	Not applicable as no proposal.	The grade of mill tailing reported is 0.41 % (Pb+Zn)	
3f	Quantity of sub grade mineral generation.	No proposal of Sub-grade generation.	Not applicable.	
3g	Grade of sub grade mineral generation	Not applicable.	Not applicable.	

- 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 at central  
processing plant.
- 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. The  
beneficiation facility  
of 4.8 mtpa is in place  
within ML area.
- 3j Provision of  
drilling and  
blasting in  
mineral benches
- Drilling  
pattern for  
development in  
ore and waste  
is Burn Cut  
method;  
whereas  
drilling  
pattern in  
Stopes is Ring  
drilling with  
parallel hole  
drilling.
- Drilling and blasting  
has 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.

31	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	The mine is using UG mining operation. Slot drilling is carried out from top level in cross section of 2mX2m emerging 13 holes with proper delay sequencing and then widening the slot upto width of the ore body with the help of widening holes drilled in slot X-cut.	Stoping is carried out in sequential manner. Vertical hole (64-115mm) drilled in downward direction by EHS in the slot X-cut shall be blasted. Stope to widen slot X-cut up to the full width of ore body & 5.0m length along the strike of the stope. After complete blasting of slot, rings drilled in ore drives gets blasted to create free face and rings blasting shall be carried out from downwards. The blasted ore in the trough is collected by Remote control LHD and directly loaded into LPDT at loadi
3m	Total area covered under excavation/pits	Not applicable being a UG mining operation. The area reported under Mining- 46.36ha, Mineral storage- 4.73ha, Ben. Plant-23.82ha, Township- 38.95ha, Tailing pond- 159.41ha, Roads-10.86ha, Infrastructure -66.88ha, Waste dump- 0.50ha and Community Dev.- 8.71ha. It is for the lease covering four mines.	Not applicable. Being U/g mine, area put in use under different heads is not reported in the AR. Shaft/Decline etc are there from surface level to reach underground levels.

3n	Ore to OB ratio for the pit/mine during the year.	Not applicable being a UG mining operation.	Not applicable. No top soil and OB generated. The quantity of Mill tailing was 1413564.41t. The waste removed during development was 390550t and quantity backfilled in workedout stopes was 755733t. The Ore to OB ratio or say ROM Ore to waste handling ratio is 3.87.
3o	Total area put in use under different heads at the end of year	The area reported under Mining-46.36ha, Mineral storage-4.73ha, Ben. Plant-23.82ha, Township-38.95ha, Tailing pond-159.41ha, Roads-10.86ha, Infrastructure -66.88ha, Waste dump-0.50ha and Community Dev.- 8.71ha. It is for the lease covering four mines.	The area reported under Mining-46.36ha, Mineral storage-4.73ha, Ben. Plant-23.82ha, Township-38.95ha, Tailing pond-159.41ha, Roads-10.86ha, Infrastructure-66.88ha, Waste dump-0.50ha and Community Dev.- 8.71ha. It is for the lease covering four mines.
3p	Production of ROM mineral during the last five year period as applicable	It is planned 675000t, 950000t, 1500000t, 1500000t, 1600000t from 2017-18 to 2021-22 respectively.	Actual ROM production from 2017-18 to 2021-22 is 625169t, 949994t, 1175794t, 1424513t and 1512919.7t respectively.
3q	General remarks of inspecting officers on method of mining etc.	U/g operations.	U/g operations.

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Solid Waste Management - Dumping:

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Sl.No.	Item	Proposals	Actual work	Remarks
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4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	No proposal of top soil dumping. No OB proposal as UG operated mines. Mineral Reject- 1440000 tons	No Top soil and OB generated and Quantity of Mill tailing of 1413564.41t.
4b	Location of topsoil, OB and mineral reject dumps	No proposal of top soil and OB generation. Mineral Reject is proposed to dispose in UG stopes as well as for tailing dam construction.	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. The waste rock handled during underground development is backfilled in the worked out stopes.
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.
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.	No proposal.	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	No proposal.	Nil

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 worked out stopes after complete recovery of ROM material.	
5b	Area under backfilling of mined out area	No specific proposal of area. A quantity of 399000 tons has been proposed to dispose in UG stopes.	The entire quantity of 390550 tons of waste has been dispose in UG stopes. Stopes used for backfilling are 1. CWM4 (110-57). (4962E-5042E)- 193455MT had been dumped here. 2. CWM3 (110-57). (4962E-5042E)- 86876MT had been dumped here 3. CWM2 (27-(-23). (5019E-5084E)- 110219MT had been dumped here	
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.	
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.	Nil	Nil, waste generated during development of drives, declines etc have been backfilled in workedout stopes.	

#### 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 before 1st July.	Annual PMCP report for reporting year i.e. 2021-22 has been submitted on 28/05/2022	

6b	Area available for rehabilitation (ha) .	Nil	Nil
6c	afforestation done (ha).	5 Ha areas have been proposed within Zawar Lease area.	5 ha area already under afforestation has been used as gap filling.
6d	No. of saplings planted during the year	5000 within lease area.	5000 within lease area.
6e	Cumulative no .of plants	Not specified	442625nos at the end of 2021-22.
6f	Any other method of rehabilitation	Nil	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 52087469/-spent on plantation and its care.
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling ( L x B x D	No specific proposal of area. A quantity of 399000 MT has been proposed to dispose in UG stopes. Underground Exhaust stopes 80 M(L) X 12 M(W) X 50 M(H)	The entire quantity of 390550 MT of waste has been dispose in UG stopes. Underground Exhaust stopes (i) 80 M(L) X 12 M(W) X 50 M(H) (ii) 65 M(L) X 15 M(W) X 50 M(H)
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Proposal of void to be filled by Waste - 399000 tons, Hydraulic backfill - 229500 tons	Void filled by Waste - 390550 tons and Hydraulic backfill - 417193.6 tons
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.	Not 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	5ha area was proposed for afforestation.	5ha area was used for afforestation.
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	Plantation.	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.	Nil	Being underground mining operations with sublevel open stoping with hydrofill, subsidence at surface level is important. However, fresh observation of subsidence not observed on the hillocks.

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Mineral Conservation:

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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.	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 .	4.7 MTPA 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. Yes, Ore beneficiation process in lease area for all 4 mines.
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	Nil	Nil

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**Environment:**

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

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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 stopped 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 380425 Plan addition 5000	Current Cumulative 442625, Actual Addition 5000
8g	Survival rate	No specific proposal for survival rate	90%
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.

8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Nil	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 have been submitted for reporting year.	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Mining Eng.- Shri Balamurugan P., Geologist- Shri Vivek Tyagi, Manager- Mr. Javed Alam	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- 46.36ha, Mineral storage- 4.73ha, Ben. Plant-23.82ha, Township- 38.95ha, Tailing pond- 159.41ha, Roads-10.86ha, Infrastructure -66.88ha, Waste dump- 0.50ha, Community Dev.- 8.71ha and Others- 19.9ha. Total- 380.12ha	Found to be correct.	
9d	Scrutiny of Annual return on afforestation	Afforestation done- 2 Ha (Gap Filling) No. of Saplings- 2000	Found to be correct.	
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Quantity- 1309963t with grade- 0.61 % (Pb+Zn)	The quantity of Mineral Reject furnished is quantity of mill tailing.	

9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM Closing stock at Mine head- 0 and ROM closing stock at Mill: 6476 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. 4540.54 per tonne.	Information furnished appears to be corrected.
9h	Scrutiny of Annual return on fixed assets	Value of fixed asset furnished is Rs. 1357157497/-	The value of fixed asset furnished appears to be in order.
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.

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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)	01-JUL-22	25-JUL-22			
MCDR17	Rule 45(5) (c	01-JUL-22	25-JUL-22			

**Date :**

**(Jangid G K)**

Indian Bureau of Mines