

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

**MCDR INSPECTION REPORT**

**Ajmer regional office**

**Mine file No :** RAJ/AJM-315/Pb.Zn-1

**Mine code :** 34RAJ01001

- (i) Name of the Inspecting : **K018** ) **Dr A Z Khan**  
Officer and ID No.
- (ii) Designation : Senior Mining Geologist
- (iii) Accompanying mine : Sh. Sandeep B. Narade, Mine Manager  
Official with  
Designation
- (iv) Date of Inspection : 04-MAY-19
- (v) Prev.inspection date : 17-SEP-18

**PART-I : GENERAL INFORMATION**

1. (a) **Mine Name** : **KAYAR**
- (b) **Registration NO.** : **IBM/421/2011**
- (c) Category : A Fully Mechanised
- (d) Type of Working : Underground
- (e) Postal address :  
State : RAJASTHAN  
District : AJMER  
Village : KAYAR  
Taluka : AJMER  
Post office : KAYAR  
Pin Code : 305023  
FAX No. : 0145-6626266  
E-mail : Balwant.Rathore@vedanta.co  
Phone : 0145-6626232
- (f) Police Station : Gegal
- (g) First opening date : 12-JAN-98
- (h) Weekly day of rest :
2. Address for : M/S Hindustan Zinc Limited  
correspondance Kayad Lead -Zinc Mine  
Village: Kayad, Dist & Teshil : Ajmer
3. (a) Lease Number : RAJ1765
- (b) Lease area : 480.45
- (c) Period of lease : 50
- (d) Date of Expiry : 28-FEB-48
4. Mineral worked : LEAD & ZINC ORE Main

## 5. Name and Address of the

Lessee : HINDUSTAN ZINC LTD.  
HINDUSTAN ZINC LTD. YASHAD  
BHAWAN YASHADGARH, UDAIPUR  
UDAIPUR RAJASTHAN  
Phone:01483-23331, 23332  
FAX :01483-23073

Owner : Sunil Duggal  
Hindustan Zinc Limited  
Yashad Bhawan, Swaroop  
Sagar Udaipur BHILWARA  
RAJASTHAN  
Phone: 0294-2529182  
FAX : 0294-2525765

Agent : Mr. Balwant Singh Rathore  
Kayad Lead -Zinc Mine  
Village: Kayad Dist &  
Teshil : Ajmer AJMER  
RAJASTHAN  
Phone: 0145-6626231  
FAX :

Mining Engineer  
Name : Shri Sandeep Narade,Full Time  
Qualification : BE mining  
Appointment/ : 14-DEC-17  
Termination date

Geologist  
Name : Syed Zaki Ahmed,Full Time  
Qualification : M.Sc.Geology  
Appointment/ : 03-MAY-19  
Termination date

Geologist  
Name : Mr. Gaurav Mathur,Full Time  
Qualification : M.Sc(Geology)  
Appointment/ : 20-JUL-13 03-MAY-19  
Termination date

Manager  
Name : Shri Sandeep B. Narade  
Qualification : BE Mining  
Appointment/ : 14-DEC-17  
Termination date

6. Date of approval of Mining Plan/Scheme of Mining : Modif.of approved Mining Plan 05-DEC-06  
Modif.of approved Mining Plan 07-MAY-13  
MP modif under MCR 1960 20-MAY-16  
MP modif under 17(3) MCR 2016 18-OCT-16  
MP modif under 17(3) MCR 2016 03-NOV-17

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

## Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	Under Ground: G1 Level- Area- 5.56 ha, Bore hole-30, Meterage-5000	Under Ground: G1 Level- Area- 3.56 ha, Bore hole-13, Meterage- 1731	Violation of rule 11(1) of MCDR,2017 has been pointed out on previous inspection.
1b	Exploration over lease area for geological axis 1 or 2	Exploration over lease area for geological axis 1 or 2 Location UNFC Axis Area Covered No. of Holes Meters UG G1 4.93ha 35 6000 SURFACE G2 21.0 ha 10 7000 G3 106.0 ha 50 23000 TOTAL 131.93 95 36000	Location UNFC Axis Area Covered No. of Holes Meters UG G1 4.5 ha 27 4728 SURFACE G2 25.0ha 19 10642 G3 95.4ha 45 29854 TOTAL 124.9 91 45224	Violation of rule 11(1) of MCDR, 2017 has been pointed out for shortfall in exploration.
1c	Exploration Agencies and Expenditure in lakh rupees during the year	No specific proposal	INDIA) PVT LTD Plot no 119, subplot no 39, Ramtekdi industrial areaNear sangam press Ramtekdi, Hadapsar, Pune 411013 Expenditure (2018-19) 21779803 Rs for under ground & 146167981 Rs for Surface exploration	

1d	Balance area to be explored to bring Geological axis in 1 or 2	G1 (UG) - 4.78 Ha G3 (Surface) - 110 Ha	G1 (UG) - 8.77Ha G3 (Surface) - 111.6Ha	Actual exploration of balance area increase due shortfall in previous years exploration.
1e	Balance reserve as on 01/04/20	No year wise specific proposal given	4.5mT with Zn 5.39% Pb 0.89% Ag(ppm) 18	
1f	General remarks of inspecting officers on geology, exploration etc			Kayad ore body is lensoidal in shape with pinching and swelling in nature. Lead Zinc mineralisation occurs mainly at the interface of Quartz Mica Schist and Calc Silicate. Exploration has not been carried out as per approved proposal. There is short fall in total exploration also for which violation of rule 11(1) of MCDR,2017 has been pointed out.

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Development :

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Sl.No.	Item	Propasals	Actual work	Remarks
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2a	Location of development w.r.t.lease area	Level RL Name Proposed	Level RL Proposed	Level RL Name Actual	Deviation in proposed development observed.
		K1A 375 -450 Decline 240	240 48	K1A 375 -450 Decline 240 48	Violation of rule 11(1) of MCDR,2017 has been pointed out.
		Ore Drives 250	Ore Drives 250 0	Ore Drives 250 0	
		Waste X/C 540	Waste X/C 540 79	Waste X/C 540 79	
		Raises 50	Raises 50 0	Raises 50 0	
		S1 300-375 Decline 300	173	S1 300-375 Decline 300 173	
		Ore Drives 350	Ore Drives 350 0	Ore Drives 350 0	
		Waste X/C 800	Waste X/C 800 0	Waste X/C 800 0	
		Raises 50	Raises 50 0	Raises 50 0	
		Block III 150-225 Decline 0	Block III 150-225 Decline 0 222	Block III 150-225 Decline 0 222	
		Ore Drives 1,750	Ore Drives 1,750 2091	Ore Drives 1,750 2091	
		Waste X/C 1670	Waste X/C 1670 2775	Waste X/C 1670 2775	
		Raises 50	Raises 150 501	Raises 150 501	
		Block III 150-225 Decline 0	50-150 Decline 600 350	50-150 Decline 600 350	
		Ore Drives 1,750	Ore Drives 750 853	Ore Drives 750 853	
		Waste X/C 1670	Waste X/C 150 1563	Waste X/C 150 1563	
		Raises 150	Raises 100 222	Raises 100 222	
		50-150 Decline 600	Con. development 750 249	Con. development 750 249	
		Ore Drives 750	Total Decline 1140 793	Total Decline 1140 793	
		Waste X/C 150	Ore Drives 3100 2944	Ore Drives 3100 2944	
		Raises 100	Waste X/C 3160 4666	Waste X/C 3160 4666	
		Contingent development 750	Raises 350 723	Raises 350 723	
		Total Decline 1140	G.Total :8500	G.Total :8500	
		Ore Drives 3100			
		Waste X/C 3160			
		Raises 350			
		Grand Total 8,500			
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Not proposed		It is under ground mine not applicable.	
2c	Stripping ratio or ore to OB ratio	Not proposed		It is Underground mine hence not applicable	
2d	Quantity of topsoil generation in m3	50000 Cum Top Soil may generate from proposed waste excavation pit	NIL		Pit not excavate during the year 2018-19

2e	Quantity of overburden generation in m3	Not proposed	It is Under ground mine hence no overburden generation	The waste rock of 326159Tone generated during 2018-19 from underground mine development against the proposal of 4,00,000 Tone
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc			It is under ground mine, the under ground development has been carried out at different levels. Deviation in proposed development observed for which violation of rule 11(1) of MCDR,2017 has been pointed out.

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Exploitation:

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Sl.No.	Item	Propasals	Actual work	Remarks
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3a	Number of pit proposed for production	Level Planned 300mRL to 325 mRL Stope None 190mRL to 200 mRL Stope N395 to N485 170mRL to 190mRL Stope 190mRL Stope N425 to N500 180mRL to 200mRL Stope N260 to N320 180mRL to 200mRL Stope None 150mRL to 175mRL Stope N635 to N655 150mRL to 175mRL Stope None 140mRL to 200mRL Stope S245 125mRL to 175mRL Stope S200 125mRL to 150mRL Stope None 75mRL to 100mRL Stope S50 to S110 100mRL to 125mRL Stope S50 to S140 Total Stopping Ore 1060000 Total Development Ore 140000 Total Production 1200000	Level Actual 300 to 325 mRL N7-N8 Backlog stope 190 to 200 mRL N395 170 to 190mRL N425, N440, N455,N470 180 to 200mRL N305,N275 180 to 200mRL N365 Backlog stope 150 to 175mRL N635,N650, 150 to 175mRL N665, N695, N710 Backlog stope 140 to 200mRL S245 125 to 175mRL S200 125 to 150mRL S115, S130, S145, S160 From proposed year 2019-20 due to change in Mining sequence 75 to 100mRL 0 100 to 125mRL S140 Total Stopping Ore 1060375 Total Development Ore- 139217	Remarks Production has not been carried out as per approved proposal. Violation of rule 11(1) of MCDR,2017 has been pointed out.
3b	Quantity of ROM mineral production proposed	2018-19 1200000T	2018-19 1199592T	
3c	Recovery of sailable/usable mineral from ROM production	100%	100%	

3d	Quantity of mineral reject generation	Not proposed	NIL	Whole ROM dispatch to Rampura-Agucha Pb-Zn mine of M/s HZL situated in Bhilwara district of Rajasthan for beneficiation.
3e	Grade of mineral rejects generation and threshold value declared.	Not proposed	NIL, as there is no mineral reject generation	
3f	Quantity of sub grade mineral generation.	Not proposed	NIL	
3g	Grade of sub grade mineral generation	Not proposed	Nil, as there is no sub grade generation.	
3h	Manual / Mechanised method adopted for segregating from ROM	Not proposed	None, Whole ROM dispatch to Rampura-Agucha Pb-Zn mine of M/s HZL situated in Bhilwara district of Rajasthan for beneficiation.	
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	No proposed	None	
3j	Provision of drilling and blasting in mineral benches	Not proposed for mineral bench	It is Under ground mine, so not applicable.	It is under ground mine, the Long hole drill Blasting using ANFO & Emulsion is being used for under ground development & production.
3k	Provision of mining machineries in mineral benches	Not proposed for mineral benches.	It is under ground mine, hence not applicable. However, the mining mechaniries used in under ground are ;  LPDT - 12 nos. LHD - 8 nos. Drill - 3 nos. Jumbo - 6 nos.	

3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Not proposed	Being Under ground mine, not applicable.	It is under ground mine so the Mining Method used is combination of Longitudinal and Transverse stoping with Backfilling (RF/CRF) using waste rocks. Loading & hauling operation is trackless using LHD-LPDT combination.
3m	Total area covered under excavation/pits	Under ground- 0.73 ha.	Under ground- 0.73 ha.	
3n	Ore to OB ratio for the pit/mine during the year.	Not proposed	Being under ground mine, not applicable.	
3o	Total area put in use under different heads at the end of year	48.5 ha upto the plan period(2020-21)	37.32 ha upto the period (2018-19)	
3p	Production of ROM mineral during the last five year period as applicable	2014-15 - 800000 2015-16 - 1000000 2016-17- 1000000 2017-18 - 1200000 2018-19 - 1200000	2014-15 - 372000 2015-16 - 760100 2016-17- 1000000 2017-18 - 1200000 2018-19 - 1199592	
3q	General remarks of inspecting officers on method of mining etc.			The Mining Method is combination of Longitudinal and Transverse stoping with Backfilling (RF/CRF) using waste rocks. Loading & hauling operation is trackless using LHD-LPDT combination.

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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)	Top soil-1 OB-NIL Minera reject- Nil Waste dump-1	Top soil dumping is nil as ther is no top soil generation during the year 2018-19 Temporary waste dumped at the marked location.	
4b	Location of topsoil, OB and mineral reject dumps	Top soil 1350-1440E& 9840-1000N Waste - 1403-1557 E & 10222-10389N	Top soil-NIL (there is no top soil generation during the year 2018-19) Waste - 1403-1557 E & 10222-10389N( Temporary waste dumping)	
4c	Number of dumps within lease area and outside of lease area	01 with in lease. Out side lease - Nil	01( temporary waste dump) with in lease	This dump is temporary in nature and complete waste will be utilized for backfilling purpose.
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	It is Under ground mine, ther is excavation on surface. Top soil 1350-1440E& 9840-1000N Waste - 1403-1557 E & 10222-10389N	It is Under ground mine, there is no excavation on surface. Top soil -No top soil generation during year 2018-19 The waste generated temporary dumped on propsed location - 1403-1557 E & 10222-10389N	
4e	Number of active and alive dumps.	01 temporary waste dump	01 temporary waste dump	
4f	Number of dead dumps.	NIL	NIL	
4g	Number of dumps established.	NIL	NIL	
4h	Whether Retaining wall or garland drain all along dumps are there.	Not proposed for the year 2018-19	None	
4i	Length of Retaining wall or garland drain all along dumps	None	None	
4j	Number of settling ponds	Not proposed	None	

4k	Specific comments of inspecting officer on waste dump management	Waste dump is temporary in nature and complete waste generated from under ground will be utilized for backfilling of mined out stopes.
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#### Solid Waste Management - Backfilling:

Sl.No.	Item	Proposals	Actual work	Remarks
5a	Status of part or full extraction of mineral from mined out area before starting backfilling.	Proposed for backfilling of stopes after full extraction of mineral from the U/G stopes	Backfilling of stopes is being carried out after full extraction of mineral.	
5b	Area under backfilling of mined out area	1222m x 15m x 25m(LxBxD) for the year 2018-19	1539m x 15m x 25m(LxBxD) during the year 2018-19	The actual area is more than the proposal because it includes backlog of previous years
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	50000 Cum Top Soil may generate from proposed waste excavation pit .	The Proposed pit is not excavated hence there is no top soil generation during the year 2018-19	
5d	Total area fully reclaimed and rehabilitated	Not proposed	None, as it is under ground mine.	Rehabilitation of waste land within lease area has been proposed
5e	General remarks of inspecting officers on backfilling and reclamation etc.			During the year 2018-19, 1539m x 15m x 25m(LxBxD) stoped out area has been filled.

#### Progressive Mine Clousre Plan:

Sl.No.	Item	Proposals	Actual work	Remarks
6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	Yes submitted for FY 2017-18.	Yes lessee has submitted the report for the year 2017-18	On previous inspection, the details of the report verified by the inspecting officer.

6b	Area available for rehabilitation (ha) .	3.0 ha of waste land	3.0 ha of waste land	
6c	afforestation done (ha).	3.0 ha of waste land	3.0 ha of waste land within lease & 1.0 ha out side lease	
6d	No. of saplings planted during the year	1500 sapling on waste land	3600 sapling within lease and 1700 out side lease.	
6e	Cumulative no .of plants	32000 sapling	upto the year 2018-19 cumulative no. of plants are 32600	
6f	Any other method of rehabilitation	None	None	
6g	Cost incurred on watch and care during the year	No specific proposal	5.4 lakhs during the year 2018-19	
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling ( Lx B x D	For the year 2018-19 voids available for back filling is 825000 MT (Eqv. 1222m x 15m x 25m)	During the year 2018-19, voids available for back filling is 1038856 MT (Eqv 1539m x 15m x 25m)	Additional quantity of 213856MT is backlog of last FY.
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	825000MT	1038856MT	Additional area backfilled covered to clear backlog of last year. For backfilling the 326159MT waste generated during the year 2018-19 has been used and remaing quantity brought from Rampur-Agucha mine.
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on on backfilled area	Not proposed	Not applicable as the back filling was done in U/G stopes.	
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	No proposal	Not applicable as the voids were of U/G stopes.	

6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	No proposal	None	
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	1500 sapling of waste land	3600 sapling within lease and 1700 out side lease.	
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	3.0 ha waste land	3.0 ha of waste land in lease & 1.0 ha out side lease	
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	By plantation	By Plantation	
6p	Compliance of environmental monitoring (core zone and buffer zone)	Air, Noise, vibration and water quality testing to be done quarterly in proposed location.	Testing is being done as per proposal.	
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.			The lessee is working as per the proposal given in PMCP.

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#### Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	All ROM dispatched for further processing to Rampura Agucha Mine of M/s HZL located in Bhilwara district.	All ROM dispatched for further processing to M/s HZL located in Bhilwara district.	

7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Not proposed	None-All ROM dispatched for further processing to Rampura Agucha Mine of M/s HZL located in Bhilwara district.	
7c	Different grade of mineral sorted out at mines.	Not proposed	None	
7d	Any beneficiation process at mines .	No	All ROM dispatched for further processing at Rampura Agucha Mine of M/s HZL located in Bhilwara district.	
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues			The lessee is using hi-tech mechineries for optimum extraction of ore from U/G stopes and All ROM dispatched for beneficiation at Rampura Agucha Mine of M/s HZL located in Bhilwara district.

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Environment :

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	50000 Cum Top Soil may generate from proposed waste excavation Pit.	NIL- The Proposed pit not excavated during the year 2018-19.	
8b	Concurrent use or storage of topsoil	50000 Cum Top Soil may generate from proposed waste excavation Pit.	NIL- The Proposed pit not excavated during the year 2018-19.	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	OB Dump-NIL Waste rock dump-01 Reject dump- Nil	one Temporary waste dump is in the lease area.	

8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	No proposal for OB, reject & fines. 825000MT Waste required to be used for back filling of stopes	326159MT Waste produced from this mine & rest quantity brought from Rampura-Agucha mine has been used for backfilled in UG Voids with total of 1038856 MT.	
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Not proposed	It is under ground mine hence no pit formation and the waste dump is also of temporary in nature.	
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	FY 2018-19 is 1500 No.	Inside lease: 3600 no. Outside lease: 1700no. Total: 5300 no. Cumm. Till date-32600 Area Covered-27 hec. with in lease Outside lease-2 hec.	
8g	Survival rate	90%	90%	
8h	Water sprinkling on roads to control airborne dust	Proposal for Water sprinkling on roads.	Water sprinkling on roads, Tarpaulin cover on mine truck (dispatched).	
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area			Lessee is taking care of environment by planting sapling, water sprinkling on roads, Tarpauling cover on mine truck during dispatch). The aesthetic beauty in and around the mine area is good.

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Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	AR submitted for the year 2017-18 MR submitted for the month of April,2019	AR submitted for the year 2017-18 MR submitted for the month of April,2019	

9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Given	Details given
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Given	Details given
9d	Scrutiny of Annual return on afforestation	Given	Details given
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Given	No mineral reject generation
9f	Scrutiny of Annual return on ROM stock and/or graded ore	Given	Details given
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Given	Details given. However the discrepancies observed has been pointed out by inspecting officer during previous inspection.
9h	Scrutiny of Annual return on fixed assets	Given	Detail are given
9k	Scrutiny of Annual return on mining machineries	Given	Details of mining machineries given

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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(2)	21-MAY-19			
MCDR17	Rule 30(1)	21-MAY-19			

**Date :**

(Dr A Z Khan)

Indian Bureau of Mines