

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

Inspection under SDF for star rating of mines REPORT

Bangalore regional office

Mine file No : KNT/BLR/FE/375/BNG

Mine code : 30KAR03069

- (i) Name of the Inspecting : **A101**) **ARUN KUMAR**
Officer and ID No.
- (ii) Designation : Deputy Controller Mines
- (iii) Accompanying mine : Sri. M.R.K.Bagawan-Mines Manager & Sri. T. Ramakrishn
Official with
Designation
- (iv) Date of Inspection : 23/10/2019
- (v) Prev.inspection date :

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **SUBBARAYANAHALLI**
- (b) **Registration NO.** : **IBM/4369/2011**
- (c) **Category** : **A Fully Mechanised**
- (d) **Type of Working** : **Opencast**
- (e) **Postal address**
- State : **KARNATAKA**
- District : **BELLARY**
- Village : **SUBBARAYANAHALLI**
- Taluka : **SANDUR**
- Post office : **NANDIHALLI**
- Pin Code :
- FAX No. : **080-22213172,**
- E-mail : **info.mml@nic.in,mmliodsandur**
- Phone : **080-22278814 / 15 /16**
- (f) **Police Station** : **SANDUR**
- (g) **First opening date** : **01/01/1980**
- (h) **Weekly day of rest** : **SUN**
2. **Address for correspondance** : **M/s Karnataka State Minerals Corporation Limited**
Vaishnavi Farm House, Doulathpur Road
Iron ore Sector, Sandur-583 119 Karnataka
3. (a) **Lease Number** : **KAR0199**
- (b) **Lease area** : **80.93**
- (c) **Period of lease** : **20**
- (d) **Date of Expiry** : **12/04/2019**
4. **Mineral worked** : **IRON ORE** **Main**

5. Name and Address of the

Lessee : Karnataka State Minerals Corp. Ltd
 TTMC, A Block, 5th Floor,
 BMTC Building, K.H.Road,
 Shanthinagar Bengaluru
 BANGALORE KARNATAKA
 Phone:080-22278813-14-15-16
 FAX :080-22213172

Owner : Naveen Raj Singh, IAS & MD
 Karnataka State Minerals
 Corp. Ltd TTMC, A Block,
 5th Floor, BMTC Building,
 K.H. Road, Shanthinagar,
 BANGALORE KARNATAKA
 Phone: 080-22278813-14
 FAX : 080-22213172

Agent : Shankarlingaiah
 Karnataka State Minerals
 Corp. LTD TTMC Building, A
 blcok,5th Floor BMTC Bus
 station, Shanthinagar
 BANGALORE KARNATAKA
 Phone: 080-22278813-14-15-16
 FAX : 080-22213172

Mining Engineer

Name : Dhruvaraj S, Full Time
 Qualification : BE (Mining)
 Appointment/ : 01/04/2017
 Termination date

Geologist

Name : T. Ramakrishna, Full Time
 Qualification : MSc (Geology)
 Appointment/ : 01/07/2015
 Termination date

Manager

Name : M.R.K.Bagawan
 Qualification : Dip. In Mining,
 Appointment/ : 04/03/2016
 Termination date

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|---|---|--------------------------------|------------|
| 6. Date of approval of Mining Plan/Scheme of Mining | : | Existing rule 11 MCDR1988 | 22/12/1992 |
| | | Existing rule 11 MCDR1988 | 29/11/1995 |
| | | Renewal under rule 22 MCR1960 | 20/12/2002 |
| | | Mining Scheme rule 12 MCDR1988 | 23/04/2007 |
| | | Modif.of approved Mining Plan | 14/09/2010 |
| | | Modif.of approved Mining Plan | 27/09/2013 |
| | | Modif.of approved Mining Plan | 31/10/2014 |
| | | Mining Scheme rule 12 MCDR1988 | 16/04/2015 |
| | | Modif.approved Mining Scheme | 04/03/2019 |

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

| Sl.No. | Item | Proposals | Actual work | Remarks |
|--------|---|---------------|-------------------------------|--|
| 1a | Backlog of previous year | No proposal | Nil | Nil |
| 1b | Exploration over lease area for geological axis 1 or 2 | G1&G2 | G1- 71.69 Ha. G2 -1.37 Ha. | Nil |
| 1c | Exploration Agencies and Expenditure in lakh rupees during the year | No proposal | Nil | Soil Tech (India)Pvt. Ltd., Pune. 2014-15 & 2015-16 total is 3501Rmtrs with expenditure of Rs.1,35,00,000/- |
| 1d | Balance area to be explored to bring Geological axis in 1 or 2 | Not Specified | 7.00 Ha. | Entire area covered under exploration except 7.00 Ha. Area which falls under temporary dump. |
| 1e | Balance reserve as on 01/04/20 | | 71.89 Million tonnes | As per Annual returns submitted for FY 2018-19 |
| 1f | General remarks of inspecting officers on geology, exploration etc | | | 55 No's of core bore holes drilled with 3501Mtrs so for no exploration proposed in the reporting year. However the requirement of exploration in existing temporary dump may be reviewed in next RMP |

Development :

| Sl.No. | Item | Proposals | Actual work | Remarks |
|--------|--|--|---|---|
| 2a | Location of development w.r.t.lease area | The proposed location of development: - N-492 - 1647, E-771 - 1173 | Actual location of development :- N-772 - 1398, E-793 -1167 | Working carried out in between 997 mRL to 952m RL |

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| 2b | Separate benches in topsoil, overburden and minerals (Rule 15) | No separate benches in topsoil, overburden and mineral proposed | All the benches contains mineral & O/B | Total 24no's of benches formed |
| 2c | Stripping ratio or ore to OB ratio | 1:0.17 | 1:0.06 | Violation issued for lower stripping ratio |
| 2d | Quantity of topsoil generation in m3 | No proposal | Nil | Working in broken up area |
| 2e | Quantity of overburden generation in m3 | 163970 Tonnes. | 51045 Tonnes | Violation issued for lower handling of OB. |
| 2f | General remarks of inspecting officers on development of pit w.r.t. type of deposit etc | | | The development of the mine was carried out within the proposed grids as per the proposal. Violation issued for lower handling of Overburden, thus resulting in lowering of stripping ratio. |

Exploitation:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|---|---------------------------------|--------------------------|--|
| 3a | Number of pit proposed for production | 1 Pit | Working in one pit only | Approximate dimension of pit: 1052X500X192 mtrs. |
| 3b | Quantity of ROM mineral production proposed | 13,40,000 tonnes | 7,92,053.30Tonnes | Less available time for working due to delay in obtaining required permissions from concern authorities. |
| 3c | Recovery of sailable/usable mineral from ROM production | Proposed recovery of 95% in ore | 95% recovery is achieved | 5 % is considered as waste |
| 3d | Quantity of mineral reject generation | No proposal | Nil | No mineral reject proposed & generated |

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| 3e | Grade of mineral rejects generation and threshold value declared. | No proposal | Not applicable | +45% Fe grade ore is being utilized by blending with high grade as per market condition |
| 3f | Quantity of sub grade mineral generation. | No proposal | Not applicable | No sub grade mineral was generated. |
| 3g | Grade of sub grade mineral generation | No proposal | NA | Nil |
| 3h | Manual / Mechanised method adopted for segregating from ROM | Mechanized method proposed for segregating from ROM | Mechanized method adopted for segregating from ROM | Dry crushing & screening of 250 TPH |
| 3i | Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects. | No proposal | No such beneficiation study carried out | Nil |
| 3j | Provision of drilling and blasting in mineral benches | Drilling & Blasting proposed in mineral benches | Drilling & Blasting carried out as per proposal in hard strata encountered. | 30 % of overall material handling requires drilling & Blasting. Ammonium nitrate & slurry explosives in conjunction with Nonel detonators. |
| 3k | Provision of mining machineries in mineral benches | Front end loaders= 2 Nos., Excavators= 4Nos, Tippers /Dumpers= 20Nos, MobileSc reening /Crushing = 5 Nos., Water Tankers= 10Nos., DTH drill unit= 1No. | Loaders = 3 Nos., Excavators = 8Nos, Tippers/Dumpers= 18Nos, Mobile screening /Crushing = 5 Nos., Water Tankers = 7Nos., DTH drill unit = 1No. | Extra loaders & excavators deployed for dispatch of graded ores. |
| 3l | Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM | Height of the Bench - 8Mtrs Width of the Bench - 10Mtrs | Bench height & width maintained as per proposal | Nil |

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| 3m | Total area covered under excavation/pits | 49.10 Ha. Proposed under mining pit at the end of plan period. | 47.73Ha.covered under working pit. | Nil |
| 3n | Ore to OB ratio for the pit/mine during the year. | 1:0.14 | 1:0.06,Bulk density :- Ore -3.5t/cuM, O/B- 2 t/cuM | Violation issued |
| 3o | Total area put in use under different heads at the end of year | Mining - 49.10 Ha., Waste dump - 3.99 Ha., Mineral storage -0.30 Ha.,Infrastruc ture - 0.05 Ha., Roads - 0.5 Ha., Green belt - 3.05 Ha.,Engineerin g measures - 0.73 Ha | Mining - 47.73 Ha., Waste dump - 2.79 Ha., Reclaimed/Rehabilitated - 3.71 Ha., Infrastructure - 0.55 Ha., Un touched area - 25.280 Ha., | Nil |
| 3p | Production of ROM mineral during the last five year period as applicable | 2014-15- 3.00 MTPA 2015-16- 3.00 MTPA 2016-17- 3.00 MTPA 2017-18- 3.00 MTPA 2018-19- 1.34 MTPA | 2014-15- 2.70MTPA 2015-16- 1.6MTPA 2016-17- 2.16MTPA 2017-18- 1.68MTPA 2018-19- 0.79MTPA | Actual production with in the proposed limit |
| 3q | General remarks of inspecting officers on method of mining etc. | | | Mining operations was carried out as per the approved modified RMP with deep hole drilling & Blasting. Mechanized method adopted for segregating from ROM. |

Solid Waste Management - Dumping:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|--|-------------------------------------|--|---|
| 4a | Separate dumping of topsoil, OB and mineral rejects (Rule 32,33) | Separate dumping of O/B is proposed | Separate dumping of O/B is carried out | No top soil & Mineral reject generated. |

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| 4b | Location of topsoil, OB and mineral reject dumps | Proposed Temporary O/BDump (PTD-1) N-832 to 947 & E- 779 to E-883 | Actual location of Temporary O/B Dump(PTD-1) N - 789 to N - 840, E - 837 to E - 871 | O/B Dumping carried out in the North western part of the Mining Lease |
| 4c | Number of dumps within lease area and outside of lease area | Dump Within lease area :- 4No., Out side M.L.area :- Nil | Dump Within lease area :- 4No., Out side M.L.area :- Nil | 2 No's of BHQ/waste dumps & 2No's of O/B Dumps |
| 4d | Location of dumps w.r.t. ultimate pit limit (Rule 16) | O/B Dump proposed with in UPL | O/B Dump located with in UPL | Entire M.L. Area is mineralized and hence temporary dumping was carried out. |
| 4e | Number of active and alive dumps. | 1 Dump | 1 Dump | Nil |
| 4f | Number of dead dumps. | 3 dumps proposed | 3 dead dumps | Nil |
| 4g | Number of dumps established. | No proposal | Nil | All the dumps are temporary in nature and back filling will be done in the conceptual stage of mining. |
| 4h | Whether Retaining wall or garland drain all along dumps are there. | Retaining wall & Garland drain proposed all along the dumps. | Constructed retaining wall & Garland drain. | Nil |
| 4i | Length of Retaining wall or garland drain all along dumps | 186 Rmtrs.RW 147 Rmtrs GD | Constructed RW of 186 Rmtrs & GD 147 Rmtrs. | Cumulative of 1491 mtrs of RW & 1420 mtrs of GD constructed so for |
| 4j | Number of settling ponds | No proposal | Nil | 5 Nos of settling tanks are constructed in the year 2013-14 as per R&R cell. |
| 4k | Specific comments of inspecting officer on waste dump management | | | Waste dump management was carried out as per the proposal in the approved modified RMP. |

Solid Waste Management - Backfilling:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|------|-----------|-------------|---------|
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|----|---|-------------|----|--|
| 5a | Status of part or full extraction of mineral from mined out area before starting backfilling. | No proposal | NA | Pit was not matured for back filling as ore is not exhausted. |
| 5b | Area under backfilling of mined out area | No proposal | NA | Nil |
| 5c | Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32) | No proposal | NA | Nil |
| 5d | Total area fully reclaimed and rehabilitated | No proposal | NA | Nil |
| 5e | General remarks of inspecting officers on backfilling and reclamation etc. | | | Entire ML area is mineralized. Moreover no part of the pit was matured for backfilling as ore was not exhausted. |

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). | To be Submitted before 1st.July of every year. | Submitted on 27.06.2019 | Nil |
| 6b | Area available for rehabilitation (ha) . | No Proposal | Nil | Nil |
| 6c | afforestation done (ha). | No Proposal | Nil | Nil |
| 6d | No. of saplings planted during the year | No Proposal | Nil | Nil |
| 6e | Cumulative no .of plants | No Proposal | Nil | Nil |
| 6f | Any other method of rehabilitation | No Proposal | Nil | Nil |

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|----|---|------------------------------|-----------------------------|-----|
| 6g | Cost incurred on watch and care during the year | No Proposal | Nil | Nil |
| 6h | Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (L x B x D | No Proposal | Nil | Nil |
| 6i | Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings | No Proposal | Nil | Nil |
| 6j | Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on on backfilled area | No Proposal | Nil | Nil |
| 6k | Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir | No Proposal | Nil | Nil |
| 6l | Compliance on reclamation and rehabilitation by backfilling (v)any other specific means. | No Proposal | Nil | Nil |
| 6m | Compliance of rehabilitation of waste land within lease (i)afforestation | 200 No's plantation proposed | 250 No's of plantation done | Nil |
| 6n | Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha) | 0.017 Ha. | 0.50Ha. | Nil |

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|----|---|--|--|--|
| 6o | Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation | Plantation proposed | Plantation carried out | Nil |
| 6p | Compliance of environmental monitoring (core zone and buffer zone) | Season wise environmental monitoring of ambient air quality, water quality, noise & Soil samples proposed. | Season wise environmental monitoring of ambient air quality, water quality, noise & Soil samples carried out. All environmental parameters were observed to be within the permissible limit. | Monitoring done by SUMS Techno Labs Pvt. Ltd., Hospet. |
| 6q | General remarks of inspecting officers on PMCP compliance and progressive closure operations etc. | | | PMCP activities was implemented as per the approved proposal in the modified RMP |

Mineral Conservation:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|---|--|--|--|
| 7a | ROM Mineral dispatch or grade-wise sorting within lease area | Grade wise mechanical sorting proposed with in the lease area | Grade wise sorting done mechanically with in the M.L.area as per proposal | No ROM Mineral dispatch. |
| 7b | Method of grade-wise mineral sorting i.e. manual or mechanical. | Mechanical Method of grade wise mineral sorting proposed | Mechanical Method adopted for grade wise mineral sorting | Dry crushing & screening |
| 7c | Different grade of mineral sorted out at mines. | Fines :- -10 mm Lumps :- 10 -20 mm & 20-40 mm with in the lease area. | Fines :- 60 to below 62% Fe. Lumps :- 55 to below 58% Fe, 62 to below 65% Fe.Dispatched. | Lumps & Fines of various grade dispatched as per market requirement. |
| 7d | Any beneficiation process at mines | No proposal | No banification process carried out except dry crushing & screening | Nil |

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| 7e | General remarks of inspecting officer on Mineral conservation and beneficiation issues | Mineral conservation aspects were carried out as per the approved modified RMP. |
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Environment:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|---|---|---|--|
| 8a | Separate removal and utilization of topsoil (Rule 32) | No proposal | No generation of Top soil | Working with in the Brocken up area |
| 8b | Concurrent use or storage of topsoil | No proposal | NA | No top soil is generated |
| 8c | Separate dumps for overburden, waste rock, rejects and fines (Rule 33) | Separate temporary dump of O/B proposed | Separate O/B dump carried out in North western part of the M.L. Area. | Nil |
| 8d | Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use | No proposal | Nil | Entire M.L.area is mineralized & no part of the mining pit is matured for back filling |
| 8e | Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc) | No proposal | Nil | Backfilling proposed in the conceptual stage of mining |
| 8f | Baseline information on existence of plantation and additional plantation done (Rule 41) | Not specified | Entire M.L. area falls under forest. 250 sapling planted during 2018-19 with in the M.L.area. | Nil |
| 8g | Survival rate | Not specified | 80% | Nil |

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| 8h | Water sprinkling on roads to control airborne dust | Water sprinkling proposed on haul road to control airborne dust | Regular water sprinkling is done by water tanks to suppress the dust | 7 No's of 10 K.L. capacity of water tanker deployed in mine. |
| 8i | General remarks of inspecting officer on aesthetic beauty in and around mines area | | | The aesthetic beauty in and around the mine was good as lessee had carried out afforestation & other environmental protective measures as per the approved modified RMP. |

Compliance of Rule 45:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|---|--|--|---------|
| 9a | Status of submission of Monthly and Annual returns | Monthly Returns Submitted up to Sep-2019 Annual Returns submitted for FY: 2018-19 | AR submitted as on 6-6-2019 | |
| 9b | Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager | Manager . Sri.M.R.K.Baga wan Mining engineer : Sri.Dhruvaraj S Geologist : Sri.T.Ramkrish na | Same Manager & Geologist were present during the inspection. Violation issued for insufficient experience of the Mining Engineer, Sri. Sharanandan | |
| 9c | Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc. | Mining - 47.73 Ha., Waste dump - 2.79 Ha., Reclaimed/Rehabilitated - 3.71 Ha., Infrastructure - 0.55 Ha., Untouched area - 25.280 Ha., | Appears to be correct. | |

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|----|---|--|------------------------|
| 9d | Scrutiny of Annual return on afforestation | With in M.L.Area- 250Nos.of saplings @ 80% survival rate. | Appears to be correct. |
| 9e | Scrutiny of Annual return on mineral reject generation (Grade and quantity) | Nil | Nil |
| 9f | Scrutiny of Annual return on ROM stock and/or graded ore | ROM Stock:- Opening stock- 193142 Tonnes, Production - 792053 Tonnes, Closing stock - 416697 Tonnes. | Appears to be correct. |
| 9g | Scrutiny of Annual return on sale value, Ex. Mine price and production cost | Sale Value average = Rs. 3300.705 /- tonnes Ex. Mine price average = Rs. 3300.705 /- tonnes Production cost Rs.223.00/- | Appears to be correct. |
| 9h | Scrutiny of Annual return on fixed assets | 7.71Crores including land, industrial, plant- machinery & capitalized expenditure. | Appears to be correct. |
| 9k | Scrutiny of Annual return on mining machineries | 1.Excavators = 8Nos. 2.Wheel loaders = 3Nos. 3.Water Tankers = 7 Nos. 4.Tippers/Dumpers = 18Nos. 5.Crusher/Screening = 5Nos. 6. JCB = 2Nos. | Appears to be correct. |

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 |
| MCDR17 | Rule 11(1) | 02/12/2019 | | | |
| MCDR17 | Rule 11(4) | 02/12/2019 | | | |
| MCDR17 | Rule 55(1)(3) | 02/12/2019 | | | |

Date :

(ARUN KUMAR)

Indian Bureau of Mines