INDIAN BUREAU OF MINES MINERALS DEVELOPMENT AND REGULATION DIVISION

MCDR INSPECTION REPORT

Bhubaneshwar regional office

Mine file No : ORI/MN/SNG/MCDR-5/BBS-24.5.2K Mine code : 400RI13014

(i) Name of the Inspecting : U11) DAYANAND UPADHYAY

Officer and ID No.

(ii) Designation : Sr. Asst. Contrl. Mines

(iii) Accompaning mine : Mr. Manoj Kumar Manaw, Mines manager

Official with Designation

(iv) Date of Inspection : 10/01/2018
(v) Prev.inspection date : 26/11/2015

PART-I : GENERAL INFORMATION

1. (a) Mine Name : MAHULSUKHA

(b) Registration NO. : 5865

(c) Category : A Manual
(d) Type of Working : Opencast

(e) Postal address

State : ORISSA

District : SUNDARGARH
Village : BHUTRA
Taluka : BONAI
Post office : BHUTRA

Pin Code

FAX No. : 033-2325689

E-mail : contact@aryanmining.in

Phone : 033 - 2395661,09437005097

(f) Police Station

(g) First opening date : 03/02/1945

(h) Weekly day of rest : SUN

2. Address for : MAHULSUKHA MN MINES, M/S AMTC(P) LTD

correspondance P.O.BHUTRA, DIST:SUNDERGARH

ORISSA-770041

3. (a) Lease Number : ORIO169
(b) Lease area : 399.84

(c) Period of lease :

(d) Date of Expiry : 31/03/2020

4. Mineral worked : MANGANESE ORE Main

5. Name and Address of the

Lessee : M/S A.M.T.C.(P) Ltd.

61,Strand Road KOLKATA

WEST BENGAL

Phone: FAX:

Owner : Aryan Mining & Trading Corporation P ltd

Sri.H.Kakad 61,STRAND ROAD

KOLKATA WEST BENGAL Phone: 033-2395661 FAX : 033-2325689

Mining Engineer

Name : Narottam Kumar, Full Time

Qualification : BE(Mining)
Appointment/ : 16/09/2011

Termination date

Manager

Name : Manoj Kumar Manaw

Qualification : B.E(Mining)
Appointment/ : 02/02/2016

Termination date

6. Date of approval of Mining : Renewal under rule 22 MCR1960 25/05/2004 Plan/Scheme of Mining Modif.of approved Mining Plan 15/02/2007

Modif.of approved Mining Plan 15/02/2007 Mining Scheme rule 12 MCDR1988 11/06/2010 Mining Scheme rule 12 MCDR1988 26/06/2015

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PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
la	Backlog of previous year	2015-16, 35 bore holes and 2016-17, 45 bore holes	In 2015-16 no exploration has been undertaken due to want of forest permission for drilling. In 2016-17, 31 Bore Holes have been drilled by lessee.	Backlog exploration has not been undertaken due to want of forest permission.
1b	Exploration over lease area for geological axis 1 or 2	G1/G2 level of exploration over the area 360.838ha. during scheme period valid upto 2019-20.	In 2016-17, 31 Bore Holes have been drilled by lessee of metarage 1701.20m.	Backlog exploration has not been undertaken due to want of forest permission.
1c	Exploration Agencies and Expenditure in lakh rupees during the year	Not specified.	Exploration carried out by Orewin Engineers Pvt. Ltd. Expenditure incurred in drilling is Rs 15009305.00	Expenditure incurred in drilling is Rs 15009305.00
1d	Balance area to be explored to bring Geological axis in 1 or 2	G1/G2 level of exploration over the area 360.838ha. during scheme period valid upto 2019-20.	In 2016-17, 31 Bore Holes have been drilled by lessee of metarage 1701.20m.	Backlog exploration has not been undertaken due to want of forest permission.
1e	Balance reserve as on 01/04/20	Reserve and resources as furnished in approved scheme of mining are 318515T under 121 & 122 category and remaining resources 256404T under 333 category.	Balance reserves as on 01.04.2017 under Probable Mineral Reserve (121 & 122) - 2,77,112.47 MT.	

1f General remarks of inspecting officers on geology, exploration etc

The lease area explored In 2016-17, 31 is 18Ha under G1, Bore Holes have 28.97Ha under G2 & been drilled by 45.44Ha under G3.

In 2016-17, 31
Bore Holes have
been drilled by
lessee of metarage
1701.20m. Backlog
exploration has
not been
undertaken due to
want of forest
permission.

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	· -	Development is concentrated in Nandagira Block Q-1N between co-ordinate E-308291 to 308675, N-2410750 to 2411070.	Other quarries Q-5Top, Rajabasa Block Q-6 & Mahulsukha Block Q-1 as proposed have not been developed due to non availability of forest (DLC) permission.
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Separate benches in OB and ore with 6m height.	Separate benches in OB and ore with 8m height. There is 3 benches in Ore and 7 benches in OB in quarry Q-1N.	There is no top soil proposed in approved scheme of mining.
2c	Stripping ratio or ore to OB ratio	1:15	1:6.28	Manganese ore is pocket deposit in nature and their size and shape varries therefore stripping ratio is varry accordingly.
2d	Quantity of topsoil generation in m3	Not proposed.	Not applicable.	Top soil generated during mining operation is being utilised in plantation.

2e	Quantity of overburden generation in m3	265595 m³	122699.19 m³	Overburden generation is less than the proposal because of other quarries have not been developed due to non availability of forest (DLC) permission.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc		The development and excavation of ROM was proposed from four quarries, Nandagira Block Q-1N, Q-5Top, Rajabasa Block Q-6 & Mahulsukha Block Q-1. Only Nandagira Block Quarry-1N is in operation and working has not been carried out in other three quarries as proposed.	Other three quarries Q-5Top, Rajabasa Block Q-6 & Mahulsukha Block Q-1 as proposed have not been developed due to non availability of forest (DLC) permission.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	04 pits. Nandagira Block Q-1N, Q-5Top, Rajabasa Block Q-6 & Mahulsukha Block Q-1	Only Nandagira Block Quarry-1N is in operation and working has not been carried out in other three quarries as proposed.	Other three quarries Q-5Top, Rajabasa Block Q-6 & Mahulsukha Block Q-1 as proposed have not been developed due to non availability of forest (DLC) permission.
3b	Quantity of ROM mineral production proposed	44921 T	39455.591 T	The other 03 pits could not be worked due to want of forest permission.
3c	Recovery of sailable/usable mineral from ROM production	96%	100%	The sub grade/mineral reject generated during mining is being blended with high grade and dispatched.

3d	Quantity of mineral reject generation	4922T	The sub grade/mineral reject generated during mining is being blended with high grade and dispatched.	+10% Mn & -25%Mn sub grade/mineral reject generated during mining is being blended with high grade and dispatched.
3e	Grade of mineral rejects generation and threshold value declared.	+10% Mn & - 25%Mn	The sub grade/mineral reject generated during mining is being blended with high grade and dispatched.	+10% Mn & -25%Mn sub grade/mineral reject generated during mining is being blended with high grade.
3f	Quantity of sub grade mineral generation.	4922T	The sub grade/mineral reject generated during mining is being blended with high grade and dispatched.	+10% Mn & -25%Mn sub grade/mineral reject generated during mining is being blended with high grade.
3g	Grade of sub grade mineral generation	+10% Mn & - 25%Mn	The sub grade/mineral reject generated during mining is being blended with high grade and dispatched.	+10% Mn & -25%Mn sub grade/mineral reject generated during mining is being blended with high grade.
3h	Manual / Mechanised method adopted for segregating from ROM	Manual	Manual breaking, sorting, sizing, screening and blending are being practiced.	Manual breaking, sorting, sizing, screening and blending are being practiced.
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	Not proposed.	Not applicable.	
3ј	Provision of drilling and blasting in mineral benches	100mm DTH dia. drilling of blast hole.	DTH drilling of 100mm dia. Blast hole with emulsion/slurry exlposive alongwith delay detonator is being practiced for drilling and blasting.	100mm dia DTH drill will be utilized for drilling with burden 2.5m & spacing 3.0m.

3k	Provision of mining machineries in mineral benches	Drilling machine 100mm dia., Excavator 2.5 cu.m, Dumper 30T etc.	DTH of 100mm dia. is used for drilling blast hole. Ore & OB are handled by excavator of 0.9 cu.m to 2.5 cu.m capacity with dumper of 30 T capacity.	Excavation is practised through shovel and dumper combination at benches.
31	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Bench height- 6m.	Bench height is suitably matched with the loading excavator.	Bench height is suitably matched with the loading excavator.
3m	Total area covered under excavation/pits	37.016 Ha up to end of scheme period.	About 26.997 ha. area covered under pits	Working is concentrated in single pit.
3n	Ore to OB ratio for the pit/mine during the year.	1:15	1:6.28	Manganese ore is pocket deposit in nature and their size and shape varries therefore stripping ratio is varry accordingly.
30	Total area put in use under different heads at the end of year	105.631 ha during scheme period.	Total area covered under different heads include pit-26.99 ha, dump-19.023 ha, road-10.16 ha, infrastructure-3.894 ha, Others-41.40 ha.	Total area covered under different heads are about 105.631 ha.
3p	Production of ROM mineral during the last five year period as applicable	2012-13: 74880T 2013-14: 72150T 2014-15: 75036T 2015-16: 40464T 2016-17: 44921T	2012-13: 10559.867T 2013-14: 17103.164T 2014-15: 1947.262T 2015-16: Nil 2016-17: 39455.59T	

3q General remarks of inspecting officers on method of mining etc.

The excavation of ROM was proposed from four quarries, Nandagira Block Q-1N, Q-5Top, Rajabasa Block Q-6 & Mahulsukha Block Q-1. Only Nandagira Block Quarry-1N is in operation and working has not been carried out in other three quarries as proposed. Mineral rejects generated during the course of ROM excavation, has been blended with high grade ROM and processed manually to maintain the grade as per buyer's specifications.

The ROM production has been carried out from Quarry-1N. DTH drilling of 100mm dia. Blast hole with emulsion/ slurry exlposive alongwith delay detonator is being practiced for drilling and blasting.

Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)		There is separate dump for OB.	There is no top soil generation. Mineral reject generated during mining is blended with high grade.
4b	Location of topsoil, OB and mineral reject dumps	03nos of dumps Dump-4: E-308729- 308958 N-2411210- 2411300 Dump-7: E-308120- 308325 N-2411490- 2411570 Dump-8: E-308504- 308576 N-2410510- 2410560	OB has been dumped on Dump-4:E-308676-308927& N-2411050-2411420.	New dumps 7 & 8 could not be developed due to non working of proposed quarries Q-5Top, Rajabasa Block Q-6 & Mahulsukha Block Q-1.

of old dead dumps in the lease area. The dumps have stabilized by terracing, coir matting and plantation.

4c Number of dumps 03nos There is one active New dumps 7 & 8 within lease Dump-4: dump, Dump-4: E-308676could not be area and outside E-308729-308927 & N-2411050developed due to of lease area 308958 2411420. non working of N-2411210proposed quarries 2411300 Q-5Top, Rajabasa Block Q-6 & Dump-7: E-308120-Mahulsukha Block 308325 Q-1. N-2411490-2411570 Dump-8: E-308504-308576 N-2410510-2410560 4d Location of Dumps developed are Dumps developed Dumps are dumps w.r.t. proposed to be outside the UPL. are outside the outside the UPL. ultimate pit limit (Rule 16) UPL. Number of active 03nos of Dump-4: is active dump New dumps 7 & 8 4e and alive dumps. dumps: bounded by co-ordinate could not be Dump-4: E-308676-308927 & Ndeveloped due to E-308729-2411050-2411420. non working of 308958 proposed quarries N-2411210-Q-5Top, Rajabasa 2411300 Block Q-6 & Dump-7: Mahulsukha Block E-308120-0 - 1.308325 N-2411490-2411570 Dump-8: E-308504-308576 N-2410510-2410560 4f Number of dead There are 05 nos. Not proposed. Not applicable.

dumps.

4g Number of dumps Not proposed. Not applicable. established.

8.

4h Whether Retaining wall Retaining wall & garland Retaining wall and garland drain as proposed have or garland drain drain around not been made.

all along dumps new dump 7 &

4i Length of Propo Retaining wall Retai or garland drain 660m all along dumps

are there.

Proposed No Retaining wall and
Retaining wall garland drain have been
660m made due to non
New Dump- development of new dumps

7: 360m

New Dump-

and Mineral reject

stack.

8: 200m New Mineral

reject:100m

Proposed Garland drain 660m

NewDump-7:

360m

New Dump-

8: 200m New

Mineral reject:100m

4j Number of settling ponds

Not proposed. Not applicable.

There are 05 nos. of old dead dumps in the lease area. The dumps have stabilized by terracing, coir matting and plantation.

New dumps 7 & 8 could not be developed due to non working of proposed quarries Q-5Top, Rajabasa Block Q-6 & Mahulsukha Block Q-1.

New dumps 7 & 8 could not be developed due to non working of proposed quarries Q-5Top, Rajabasa Block Q-6 & Mahulsukha Block Q-1.

4k Specific comments of inspecting officer on waste dump management

New dumps 7 & 8 could not be developed due to non working of proposed quarries Q-5Top, Rajabasa Block Q-6 & Mahulsukha Block Q-1. Retaining wall and garland drains have been constructed around the existing dumps. Wash offs are channelized through settling ponds and check dams.

Dead dumps are stabilized by terracing, coir matting and plantation.

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.	Backfilling of Q-3.	No backfilling has been carried out.	Backfilling has not done as the waste proposed for backfilling not generated due to non working of Q-1 for want of forest permission.
5b	Area under backfilling of mined out area	0.7 Ha area for Backfilling of Q-3.	No backfilling has been carried out.	Backfilling has not done as the waste proposed for backfilling not generated due to non working of Q-1 for want of forest permission.
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	Not proposed.	Not applicable.	There is no topsoil in the mineable area. However, topsoil encountered incidentally during the course of mining will be scrapped off, transported and spread over the dead portion of the waste dump for concurrent rehabilitation.

5d	Total area fully reclaimed and rehabilitated	Proposed backfilling has not been carried out.	Backfilling has not done as the waste proposed for backfilling not generated due to non working of Q-1 for want of forest permission.
5e	General remarks of inspecting officers on backfilling and reclamation etc.	0.7 Ha area of Q-3 was proposed forbackfilling. The backfilling proposal could not be implemented due to non working of Q-1 at Mahulsukha block.	Backfilling has not done as the waste proposed for backfilling not generated due to non working of Q-1 for want of forest permission.

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).	Not specified.	Annual report on PMCP has been submitted.	Annual report on PMCP has been submitted.
6b	Area available for rehabilitation (ha) .	0.7Ha area back filling of Q-3.	Proposed backfilling has not been carried out.	Backfilling has not done as the waste proposed for backfilling not generated due to non working of Q-1 for want of forest permission.
6c	afforestation done (ha).		21175nos of saplings have been planted inside lease area about 1.5 Ha.	21175nos of saplings have been planted inside lease area about 1.5 Ha.
6d	No. of saplings planted during the year	800 saplings over dump.	21175nos of saplings have been planted inside lease area about 1.5 Ha.	21175nos of saplings have been planted inside lease area.
6e	Cumulative no .of plants	Not specified.	A cumulative of 186191 nos of sapling have been planted inside the lease and 5142 nos of sapling planted outside the lease area.	A cumulative of 186191 nos of sapling have been planted inside the lease .

6f	Any other method of	Not proposed.	Not applicable.	
	rehabilitation			
6g	Cost incurred on watch and care during the year	Not specified.	Cost incurred in watch and care is Rs 13500.00	
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	0.7 Ha area of Q-3 (only backfilling).	Proposed backfilling has not been carried out.	Backfilling has not done as the waste proposed for backfilling not generated due to non working of Q-1 for want of forest permission.
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	0.7 Ha area of Q-3 (only backfilling).	Proposed backfilling has not been carried out.	Backfilling has not done as the waste proposed for backfilling not generated due to non working of Q-1 for want of forest permission.
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestati on on backfilled area	0.7 Ha area of Q-3 (only backfilling).	Proposed backfilling has not been carried out.	Backfilling has not done as the waste proposed for backfilling not generated due to non working of Q-1 for want of forest permission.
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	Not proposed.	Not applicable.	
61	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	0.7 Ha area of Q-3 (only backfilling).	Proposed backfilling has not been carried out.	Backfilling has not done as the waste proposed for backfilling not generated due to non working of Q-1 for want of forest permission.

6m	Compliance of rehabilitation of waste land within lease (i)afforestation		Not applicable.	
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Not proposed.	Not applicable.	
60	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Not proposed.	Not applicable.	
бр	Compliance of environmental monitoring (core zone and buffer zone)	Quarterly monitoring.	Quarterly monitoring of air, water and noise level are being carried out.	Quarterly monitoring of air, water and noise level are being carried out.
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.		0.7 Ha area of Q-3 was proposed forbackfilling. Backfilling has not done as the waste proposed for backfilling not generated due to non working of Q-1 for want of forest permission.	In 2016-17, 21175 trees are planted by lessee in the lease area about 1.5 ha on waste dump and along slope of dump. Regular data of quarterly monitoring of air, water and noise level has been submitted to this office.

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Gadewise sorting.	Gradewise sorting.	Gradewise sorting is being practiced.

7b	Method of grade- wise mineral sorting i.e. manual or mechanical.	Manual.	Manual.	ROM ore raised from the mines have been marketed to the consumers after screening, sorting, sizing and blending.
7c	Different grade of mineral sorted out at mines.	•	25% to below 35% Mn and 35% to below 46% Mn.	25% to below 35% Mn and 35% to below 46% Mn.
7d	Any beneficiation process at mines .	Not proposed.	Not applicable.	ROM ore raised from the mines have been marketed to the consumers after screening, sorting, sizing and blending.
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues		ROM from the mine is stacked as per different grade specification 25% to below 35% Mn and 35% to below 46% Mn and dispatched to the byers as per requirement.	ROM ore raised from the mines have been marketed to the consumers after screening, sorting, sizing and blending.

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	Not proposed.	Not applicable.	There is no top soil proposed in approved scheme of mining.
8b	Concurrent use or storage of topsoil	Not proposed.	Not applicable.	Topsoil encountered incidentally during the course of mining will be scrapped off, transported and spread over the dead portion of the waste dump for plantation.

8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)		Separate dumps for overburden and mineral rejects.	New dumps 7 & 8 could not be developed due to non working of proposed quarries Q-5Top, Rajabasa Block Q-6 & Mahulsukha Block Q-1.
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	0.7 Ha area for Backfilling of Q-3.	No backfilling has been carried out.	Backfilling has not done as the waste proposed for backfilling not generated due to non working of Q-1 for want of forest permission.
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	0.7 Ha area for Backfilling of Q-3.	No backfilling has been carried out.	Backfilling has not done as the waste proposed for backfilling not generated due to non working of Q-1 for want of forest permission.
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	0.5ha with 800 saplings over dump.	In 2016-17, 21175 trees are planted by lessee in the lease area about 1.5 ha on waste dump and along slope of dump.	A cumulative of 186191 nos of sapling have been planted inside the lease and 5142 nos of sapling planted outside the lease area.
8g	Survival rate	Not specified.	Survival rate is 70%.	Survival rate is 70%.
8h	Water sprinkling on roads to control airborne dust	Water sprinkling.	Water sprinkling is being carried out by mobile water tanker with 10KL capacity.	Water sprinkling is being carried out by mobile water tanker with 10KL capacity.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area		Aesthic beauty in and aroun mined area is maintained by plantation. In 2016-17, 21175nos of saplings have been planted inside lease area about 1.5 Ha.	A cumulative of 186191 nos of sapling have been planted inside the lease and 5142 nos of sapling planted outside the lease area.

Compliance of Rule 45:

su Mc Ar	ubmission of onthly and nnual returns crutiny of nnual return	Monthly & Annual returns are being regularly submitted by lessee. Graduate	Monthly & Annual returns are being regularly submitted by lessee.	
9b Sc	nnual return	Craduata		
Ar fo or Er Ge	n Mining ngineer, eologist and	Mining Engineer-2,	Graduate Mining Engineer-2, Diploma mining Engineer-1, Geologist-1, Surveyor-1.	
Ar la fo pi	its, reclaimed rea, dumps etc.	different heads include	Total area covered under different heads include pit-41.224 ha, dump-19.023 ha, infrastructure- 3.894 ha, Others-41.40 ha.	
An	crutiny of nnual return on fforestation	21175nos of saplings.	21175nos of saplings.	
Ar mi ge (G	crutiny of nnual return on ineral reject eneration Grade and uantity)	232 T, Mn%- 18.52	The sub grade/mineral reject 232 T, Mn%-18.52 has been blended with high grade.	
Ar RC	nnual return on OM stock and/or raded ore		25% to below 35%: 34451.003MT 35% to below 46%: 5004.588MT	
Ar sa Mi	nnual return on ale value, Ex. ine price and roduction cost	25% to below 35%: Rs 5273.00 35% to below 46%: Rs 6654.00	25% to below 35%: Rs 5273.00 35% to below 46%: Rs 6654.00	
An	nnual return on ixed assets		Value of Fixed assets (in Rs.) 19468578.00	

9k	Scrutiny of	Drilling	Drilling machine 100mm
	Annual return on	machine 100mm	dia1, Excavator 2.5
	mining	dia1,	cu.m3, Dumper 30T-5,
	machineries	Excavator 2.5	Water Tanker 10KL-1 etc.
		cu.m3,	
		Dumper 30T-5,	
		Water Tanker	
		10KL-1 etc.	
		Water Tanker	

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Details of violations observed during current inspection and compliance position of violation pointed out

Violation observed			Show couse position		
Rule I	NO.	Issued on	Compliance on	Rule NO.	Issued on Compliance on
MCDR17	Rule 11(1)	12/01/2018			
MCDR17	Rule 14(1)	12/01/2018			
MCDR17	Rule 14(2)	12/01/2018			

Date: (DAYANAND UPADHYAY)

Indian Bureau of Mines