

Compliance Report With Regard to MoEF

A. Special Condition

Condition: *Topsoil shall be stacked properly with proper slope with adequate safeguards and shall be backfilled for reclamation and rehabilitation of mined out area*

Compliance: The working in 74. 843 hact has been started recently. One dump has been created till March 2009. The ML and surrounding areas have thin soil cover (05 to 3 M). Mostly it is composed of unfertile murrum. Therefore, wherever and whatever scarce fertile top black cotton soil is available, it is separately handled and stacked. It is immensely valuable for our plantation programme and special care is taken to conserve it 100% for useful purposes viz. afforestation, dump plantation, plantation, gardening , land scaping & beautification and for supplying to colony residents for kitchen gardening etc. Black cotton soil will be conserved as stated above and very judiciously utilized for the afforestation programme. The control measures shall be taken to prevent soil erosion and wash off of fines from freshly excavated benches will be adopted. The bench levels will be provided with water gradient against the general pit slope to decrease the speed of storm water and prevent its uncontrolled descent. Catch drains with baffles/ catch pits will be provided around the dumps to prevent any wash off during rains. Limited available top soil will be stacked at old ML. The height of stack will be preferably kept less than 3 meters. Garland drain will be made around the stack to prevent any wash offs.

Details of Top Soil Dump

Sr no.	Dump No	Dump Type TS/OB/MR/SGM	Within coordinates		Area Sq mt	Avg height mt	Angle	Capacity M³
1.	1 A	OB (Matured)	590N to 740N	1675E to 1732E	3440	5.0	Natural angle of repose	17200

Status of OB/Waste/Topsoil

Month	OB/Waste Quantity Generated	Utilized				(In tonnes) Top Soil		
		Dump location	Quantity	Backfill location	Area in Hact	Plantation	Dump	Backfilling
March 08 to June 08	29980		29980	B Block	-	-	20400	-
July'08	0	0	0	B Block	0	0	0	0
Aug.'08	0	0	0	B Block	0	0	0	0
Sept.'08	0	0	0	B Block	0	0	0	0
Oct.'08	0	0	0	B Block	0	0	0	0
Nov.'08	0	0	0	B Block	0	0	0	0
Dec.'08	0	0	0	B Block	0	0	0	0
Total July to Dec.08	0	0	0		0	0	0	0
Jan'09	0	0	0	B Block	0	0	0	0
Feb.'09	0	0	0	B Block	0	0	0	0
March.'09	0	0	0	B Block	0	0	0	0
April' 09	0	0	0	B Block	0	0	0	0
May' 09	0	0	0	B Block	0	0	0	0
June' 09	0	0	0	B Block	0	0	0	0
Total Jan' 09 to June.09	0	0	0		0	0	0	0

Condition: *Overburden shall be stacked at earmarked dump site(s) only and shall not be kept active for long period. The maximum height of the dump shall not exceed 30m, each stage shall, preferably, be of 10mt and overall slope of the dump shall exceed 28^o The mine pit area shall be reclaimed by backfilling the OB in a phased manner. The OB dumps shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the MoEF on six monthly basis.*

Compliance: Arising out of the mining activities, solid wastes generated are of following types: -

- a) Top soil consisting mainly murrum and small quantity of black cotton soil.
- b) Over-burden and mining rejects consisting of high magnesium and low calcium limestone, shale, clay and siliceous limestone.

Limited solid waste is available which will be utilised for backfilling now in adjacent ML & later on in this ML , systematically. The waste dump will be planted for stabilisation with bushes, grasses and trees. Toe walls will be provided at foot of the dumps to prevent any sliding. Catch drains with baffles/ catch pits will be provided around the dumps to prevent any wash off during rains.

Besides these wastes, other materials stacked are sub-grade and limestone stock. All these shall be dumped separately and following precautions shall be taken specially observed for maintaining these dumps.

- i) Location for dumps is so chosen that water; air and land are not polluted.
- ii) Topsoil, OB & mining rejects, sub-grade and feed able grade material shall be dumped separately.
- iii) At appropriate places, garland trenches shall be provided around the dumps to arrest the washouts, if any.
- iv) Where the height of External dump will more than 9 mts, terracing shall be done.

Stabilisation:

All the dumps whether active or inactive, shall be effectively stabilized. Following are the steps for stabilization of inactive and active dump

Dump Management

1. The slope angles of sides and ramp will be natural angle of repose of dumped materials. This will prevents danger of their instability due to landslides or roll-downs.
2. Along the periphery of Internal Dumps, **Silt-Trap** of at least 1.0 M will be provided to allow safe settling during repeated monsoons.

3. As soon as the dump will be rendered inactive, partly or fully, it will be taken up for plantation.
4. Fertile topsoil will be transported and spread over the surface and slopes of the dump.
5. Suitable species of trees will be planted for further stabilization.
6. Properly spaced plantation provide close root binding and close canopy of vegetation, prevents soil erosion from rain splash.

Details of Production of limestone and waste (Tonnes)

Month	Production of limestone	OB	Top Soil	Waste	Sub Total	Grand Total
1	2	3	4	5	6 (3+4+5)	7 (2+6)
March 08 to June 08	111889	29580	20400	-	49980	161869
July'08	8053.26	0	0	0	0	8053.26
Aug.'08	0	0	0	0	0	0
Sept.'08	0	0	0	0	0	0
Oct.'08	0	0	0	0	0	0
Nov.'08	0	0	0	0	0	0
Dec.'08	0	0	0	0	0	0
Total for 6 month	8053.26	29580	20400	0	0	8053.26
Jan'09	0	0	0	0	0	0
Feb.'09	0	0	0	0	0	0
March.'09	0	0	0	0	0	0
April' 09	34357.56	0	0	0	0	34357.56
May' 09	0	0	0	0	0	0
June' 09	42309.14	0	0	0	0	42309.14
Total for 6 month	76666.70	0	0	0	0	76666.70

House Keeping:

- Dumps on non-Mineralised area along the lease boundaries provide a curtain between mine working and outside environs.
- Ground & slopes around the dumps are kept dressed with clean berms around their peripheries.
- Dumps are numbered & the details thereof are displayed at site too.
- The dumps are inspected periodically by responsible officer, Eng., Agent, Sr. Mines Manager, Asstt. Managers , Geologist and necessary actions are taken for their proper maintenance.

Condition: *Garland drains of appropriate size shall be constructed to arrest silt and sediment flows from soil and mineral dumps. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drain shall be regularly desilted particularly after monsoon and maintained properly.*

Garland drain (size, gradient and length) shall be constructed for both mine pit and waste dump and sump capacity shall be designed keeping 50% safety margin over and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.

Compliance: Garland drain shall be constructed around mine pit and waste dump with proper size, gradient and length. Since the area originally had no water source, natural or man-made, to meet domestic and industrial requirement, management has undertaken extensive hydrological ground water survey, which revealed that requirements of water could be partly met from available ground water. In order to tap this source, number of tube wells has been drilled at different locations, mostly to meet the domestic requirement. These not only met part requirement of drinking water but also gave us naturally good potable water requiring no further treatment.

Size of the drain is as follows :

Length	–	267 m
Width	–	1.2 - 1.4 m
Depth	–	0.9 -1.1 m

Further, the ground water and the rainwater is also collected in quarry sumps, which is the main source of water supply for plant and partly for the domestic use. It is regularly pumped into water reservoir and then to treatment plant.



Condition: *Drilling and blasting shall be using dust extractors/wet drilling.*

Compliance: Sources generating airborne dust in any quarry area could be drilling, blasting, loading, transporting and crushing etc. Various control measures shall be adopted in mine are –

Drilling:

In-built water injection system shall be adopted in all the drills for 100% dust-free wet drilling.

Secondary Breaking:

Use of rock-breaker has almost eliminated for secondary blasting and the resultant dust and noise generation.

Placing, Charging And Firing Of Blast Holes

All precautions and provisions under Reg.162 of MMR 1961 shall be strictly followed. By laws framed under Reg.106 (2)(b) and approved for the system of deep-hole blasting shall also be strictly adhered to. As the subject mine is in continuation with the existing mines of 237.003 Hact mine, all the infrastructure is common for both mine.

- | | | |
|--|---|---|
| 1. Provision and use of siren and other warning system | - | Provided. |
| 2. Flags, barriers for entrances | - | Provided |
| 3. Display of notices of Blasting time | - | Prominently displayed |
| 4. Posting of sentries | - | Posted during blasting time at all entry and critical placed. |
| 5. Precautions after blasting | - | Done strictly as required. |

Measures to control air blast and its effect:

1. Shot holes are stemmed properly.
2. Surface detonating cords are buried with local soil.
3. As far as possible detonating cords with lighter core load are used.
4. Geological structures such as mud seams, voids or open bedding, which cause blowouts, are stemmed thoroughly.
5. Holes are drilled precisely to maintain proper burden on each hole.
6. Collar priming is avoided.
7. Blasting during period of temperature inversions are avoided.
8. As far as possible, blasting when wind is blowing towards built up areas is avoided.
9. Excessive long delays that may cause hole to become unburden are avoided.

Regarding Plantation

The management and infrastructure for both the mine i.e. 74.843 and 237.003 are common and both the mines are adjacent to each other. It is noteworthy to mention here that it was otherwise a total barren (Bhata) land. Environmental improvement of the treeless “Bhata Land” was made possible only with genuine commitment of the Century Cement to green the area and the surroundings.

The importance of plantation around a mine is quite well established. It acts as buffer between the mine and the surroundings.

The total area of the project site is 74.843 ha., about 43.143 ha. of land will be planted. Besides additional area outside ML has already been planted. Around 2000 trees will be planted per Ha. Hence the total trees that will be planted up to the end of 20th year will be 86000 trees.

During last six months total 0.212 hect of area with 410 number of plants has been planted within the ML area. Because of non-availability of water in the particular area , more no. of plantation could not be done. However, to compensate the shortfall , it will be compensated during the forth coming monsoon.

Plantation details of Lease Area as on 31.01.2009

Sr.	D e t a i l s	Within ML	Outside ML (Plant & Colony)	Total
1	Area planted in 2008-09 (H)	0.212	0	0.212
2	No. of trees planted in 2008-09	410	0	410

It is proposed to plant extensively on undisturbed non-mineralised area of the said ML and backfilling area of old mining lease . The stage wise details of plantation done sofar is given in the following Table

In the endeavor of massive afforestation, more than **440992 lakh trees** have already been planted within and outside the lease area. During 2008-09 , we have planted 4950 trees over 2.633 hectares area and in

monsoon season of 2009-10, we have planned to do the plantation of 4000 Nos. of sapling covering 2.00 hect of area.

Total area of plantation so far within ML is 73.360 hect. (both the leases taken together) .

Plantation details of Adjoining Lease Area as on 31.01.2009

Sr.	Details	Within ML	Outside ML (Plant & Colony)	Total
1	Area available (Hect)	311.846	204.524	516.37
2	Afforestation area (Hect.)	73.360	137.527	210.887
3	% Area afforested	24.00	67.00	40.00
4	No.of trees planted	142151	298841	440992
5	Trees planted/Hect.	1938	2173	2091
6	No.of trees survived	138709	291070	429779
7	Survival %	97.60	97.40	97.0
8	Density of survived trees/H	1822	2116	2038
9	Area planted in 2006-07 (H.)	2.3	0.6	2.9
10	Trees planted in 2006-07	4454	910	5364
11	Area planted in 2007-08 (H)	1.66	2.370	4.030
12	No. of trees planted in 2007-08	3120	4457	7577
13	Area planted in 2008-09 (H)	2.633	1.120	3.753
14	No. of trees planted in 2008-09	4950	3990	8940

Ratanjot (Jatropha), 6069 Nos. **Bio-Diesel** generating species have been planted in last three years on the inactive dumps and the results are encouraging.

OUTSIDE ML AREA :

1.	Factory area	134351	25148	24065
2.	Colony area	624937	152107	147728
3.	Temple area	114490	21423	21101
4.	Water Reservoir area	104706	20292	20028
5.	Road side and others	101900	21107	20642
6.	North East of Air Strip area	144483	28615	28185
7.	South of Magazine area	130403	24505	23826
8.	North of factory area	8800	1654	1609
	Total (B)	1364070	294851	287184
	Grand total (A+B)	2071340	432052	421092

SPECIES PLANTED:

Amaltas	Arjuna	Akesia	Ashok	Bakayan
Bamboo	Bel	Bogunvelia	Bottlebrush	Casurina
Gulmohar	Ganga Imli	Imli	Jamun	Kapok
Kathal	Kachnar	Karra	Khair	Kalptaru
Mango	Maulshree	Neem	Neelgiri	Parkiya
Peltafarm	Paras	Parijat	Pansutia	Raintree
Rohina	Royal Palm	Saja	Semal	Siris
Supari	Shahtut	Weeping Willow	Bargad	Badam
Pipal	Paras Pipal	Sisu	Karanj	Subabool
Ratanjot	Teak	Kesiasemiya		

OTHERS – FRAGRANT AND MEDICINAL SPECIES PLANTED:

Gotaran	Shikakai	Dhans	Mulbery	Bakranda
Amaltas	Dhawda	Karra	Mode	Gugul
Bel	Manhar	Asan	Bamboo	Dahiman
Falsa				

Condition: The project authority shall implement suitable conservation measures to augment ground water resources in the area in the area in consultation with the Regional Director, Central Ground Water Board.

Compliance: As submitted earlier, the subject lease is adjacent to the old lease of 237.003 hact and ground water conservation plan has already been in operation for the old lease. Ground water conservation has been augmented by creating water reservoirs in the area. The details of the reservoir are as follows :

For Block A (reservoir area is 10 hact with depth of 14 mtrs.)

The capacity of the reservoir has been increased from 1975 to 1996 ,as detailed below :-

From 1975-1980 : Capacity- 50 MG

From 1982 – 1985 : Capacity- 100 MG

From 1994-1996 : Capacity – 200 MG .

The average ground water fluctuation for the study area is 4.2 m. and has no threat to the ground water regime of the surrounding area. As the above mining operation will cut the water table during the mining and

therefore mine sump will receive the ground water seepage. Further quarry pit will receive accumulation of rainwater as direct precipitation. The mine water will be pumped and stored in separate well protected tank from where it will be pumped for different uses after due treatment.

Since the major cause of water pollution during the opencast mining activities in this mine is the wash off from the freshly excavated areas, the programme to prevent water pollution, therefore, shall focus on controlling wash off from these areas. To prevent degradation and maintain the quality as prescribed by MOEF, adequate control measures have been proposed to check, not only the wash off from the freshly excavated areas, dump and soil erosion, but also uncontrolled flow of mine water into the natural streams. Control measures to be adopted are:

- A water gradient of about 1 in 100 shall be kept at every bench towards inside of the bench to prevent formation of gullies in the bench slopes causing serious erosion.
- To prevent surface and ground water contamination by oil/grease, leak proof containers shall be used for storage and transportation of oil/grease. In the store also, the container containing oil/grease shall be kept in empty, safe open container of higher volume than the containers to avoid oil/grease spillage on the ground. The floors of the areas wherever oil/grease is handled shall be kept effectively impervious. Any wash off from the oil/grease handling area or workshop shall be drained through impervious drains, collected in specially constructed pit and treated appropriately before releasing it into the natural drains.
- During dewatering operations, the water pumped out will be used for fulfilling the needs of mine and plant related activities. However any make up of excess water in the mine will be pumped out and will be released into natural surface water drains. There will not be any discharge of turbid water to the natural water courses as the storm water will be first allowed to settle for adequate time in the mine bottom sump and surface settling pond.

Ground water

The quantity of ground water lost as mine seepage is quite low which will not have any adverse impact on the ground water storage. More so the rain water accumulated in reservoir will act as a source of artificial recharge to ground water storage and improving the ground water regime. No extra remedial measures would be required.

It is planned to use the water pumped out from mining area for the entire project requirement except drinking. Special sump is existing within the already operating mine which has been catering to the needs of the project. The same reservoir will be used in future. The water level in this reservoir will be made up from the precipitation. Further the voids left behind after backfilling in the mining areas will be developed as a water body (in case ML is not renewed otherwise after the reserves are exhausted) which will help to restore the eco balance of the area and provide water for plantation of the project.

There are two sources of mine water accumulation i.e. rainwater and ground water seepage. The ground water seepage is quite low and rainwater is the main source of mine water. The rainwater accumulation is about 1815 lakh gallons in the existing reservoir and the estimated quantity of water consumed annually is 2247 lakh gallon, therefore mine seepage will be 432-lakh gallon. Since the annual ground water seepage is quite low, hence no adverse impact is expected on ground water regime. No adverse impact is anticipated as the mining activity is confined to a depth having 252 mRL .It forms a common boundary with 237.003 Hact..

The ground water contour pattern matches conformably with surface topography and drainage of the area with uniform spacing for pre-monsoon and post-monsoon season. The range of ground water fluctuation between the pre-monsoon and post-monsoon season is in the range of 0.23m to 9.80 and the average groundwater fluctuation for the

study area is 4.20m. Small and medium reservoirs harness the rainwater surface runoff, which at time is used for irrigation supplies.

Further the average ground water potential in the range of 99 MCM to 108 MCM. The radius of influence due to mining activity on the ground water regime is in the radius of 800 to 1000m, which is well within the lease area and has no threat to the ground water regime of the surrounding area. Moreover the large number of rainwater surface runoff structures in the area helps in preventing surface runoff to the major drainage thus augmenting and maintaining the general ground water level. By pumping the excess water to maintain artificially made water reservoir outside the lease area, will also help to prevent lowering of water level around the mining area.

It is also planned that the voids left behind after backfilling in the mining areas will be developed as water body, which will help to restore the eco balance of the area.

Initially, this area was totally devoid of any dependable source of water and even the requirement for domestic consumption could not be met, leave aside the large requirement for major plant. Therefore, to meet the water requirements, the old mined out pit measuring about 6.2 hectare was converted into a water reservoir of 10 meters depth having storage capacity of 74 million gallons. Now, its capacity has been further enhanced to about 200 million gallons by deepening and increasing the height of bunds.

The aforesaid reservoir has established as water recharging structure for the area, the photograph of the same has been given below for ready reference. Further, the same has been shown to the Official of the Regional Office of MoEF which had been highly appreciated during the visit of the site.



Now, it is this reservoir which has proved to be the life line for Cement Plant, Thermal Power Plant and Colony throughout the year. Mine water from the present two quarries is pumped as per requirement into this reservoir from where it is pumped to water filtration plant and then used for domestic and industrial requirement. Due to massive plantation and creation of huge water reservoir, a lot of migratory fauna may be seen in this area providing additional attraction to the visitors.

Condition: Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year – pre monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data. Thus collected may be sent regularly to MOEF, Central Ground Water Authority and Regional Director Ground water Board.

Compliance: As submitted earlier, the subject lease is adjacent to the old lease of 237.003 hact and ground water quality has already been carried out regularly for the old mine. The same analysis report of the ground water has been enclosed as **Annexure-2**

Condition: *Prior permission from the competent authority shall be obtained for drawl of ground water if any.*

Compliance: As submitted earlier, water reservoir has been used for the requirement of plant and colony, therefore at this stage, there is no requirement of permission for drawl of ground water.

Condition: *Vehicular emission shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles shall be covered with a tarpaulin and shall not be overloaded.*

Compliance: As submitted earlier, infrastructure are common for both mine of 237.003 and 74.843 hact and transport management practices adopted for the old mines shall be implemented for new mine also. The management practice for the vehicles are as follows :

The vehicles if engaged in transportation of minerals outside the core zone will be provided with tarpaulin and no overloading will be allowed towards mineral transportation. Details has been given below:

Transport Of Mineral/Overburden Etc

Dumper Roads

Mineral/overburden is transported in LW-35 Haulpak rear dumpers, plying on well laid haul roads and ramps, either to the crusher or to dump yards. There are two types of dumper haul roads in the mines

1.	Concrete/Tar-surfaced Roads	From pit top to crushing plant.
2.	Roads on natural surface with	a. From quarry working to the pit well compacted murrum top b. From pit top to dump yards or to connect the concrete road.

Other features of dumper roads:

- | | | |
|----|---------------------------|--|
| a. | Width of roads | 14 mtrs or more |
| b. | Gradient of roads | 1 in 20 to 1 in 16 on the ramps and almost flat at other portions. |
| c. | Radius of curvature | More than adequate to ensure visibility 30 mtrs. ahead at any point on the curves |
| d. | Provision of drain | Provided on road/ramp sides |
| e. | Road signs | Standard road traffic signs displayed at all the critical places. |
| f. | Road surface | kept quite smooth by concrete/tar/ rejects and murrum top. Permanently installed sprinklers, portable and regular use of water tanker and road rollers is provided for effective dust suppression & compaction. |
| g. | Provision of parapet wall | Made along the roads on quarry – benches and ramps. |
| h. | Code of traffic rules | Adopted and prominently displayed
(Ref: DGMS Tech. Circular recommendations of the “Seventh No.1 of 89) Conference on Safety in Mines” is strictly adhered to. |
| i. | Condition and provisions | Roads are always maintained in good condition for maintenance of road by regular repairs & maintenance by road maintenance gang, dozer, road rollers, portable water tankers and permanently installed water sprinklers. |

Machineries:

Sr. No.	Name of Machinery & Equipment	Nos.
1.	Poclain 300CK Hyd.Excavator with 3.2 M ³ bucket front end attachment	5
2.	KRUPP HS.960-1 Hyd.Rock Breaker mounted on 90CK Poclain Excavator	1
3.	HM-2071 tyre-mounted loader, Cap. 4.6 M ³ (with tyre protection chains)	1
4.	35 Ton Haulpak (LW-35) rear dumpers	13
5.	BEML Bulldozer D-155 A-1	1
6.	Tyre mounted Atlas Copco BVB-25, 100mm DTH drills	1
7.	Crawler mounted, self contained Ingersoll-Rand IBH-10, 150mm/100mm DTH blast hole drills	2
8.	Truck mounted portable 9KL capacity water tanker with water spray arrangements	1
9.	Road Roller	1
10.	Road Sweeping Machine	1
11.	Truck with portable diesel cum water dispensing system	1
12.	Explosive Van	1
13.	Portable Compressor 550Cfm 10Kg/Sq.Cm pressure	1
14.	Water pumping units(Electrically driven) a) Total HP = 570 b) Capacity = 1,84,000 GPH	6
15.	Total Diesel power = 8807 HP	
16.	Total Electrical power= 570 HP	
For efficient, safe and proper use and maintenance of the above fleet of machines, well-trained operative and maintenance personnel have been employed.		

Conditions of Shovels/Dumpers, Dozer & Drills:

These are well maintained with excellent operating conditions, their average availability being 80-85%.

Provision of adequate repairs & maintenance facilities:

A well-equipped workshop headed by an experienced and Graduate Engineer assisted by team of four technical supervisors & sufficient number of mechanics, fitters, electricians & other artisans are provided for the repairs & maintenance of all the quarry equipments. The workshop is well equipped with;

1.	Stationery Service Unit	-	1 No.
2.	Portable Service Unit for Field equipments		1 No.
3.	Standard set of heavy-duty tools	-	3 Nos.
4.	Standard set of general tools	-	1 No. each
5.	5 Ton overhead movable crane	-	1 No.
6.	Mobile 8 Tonne crane	-	1 No.
7.	Fork lift – 3 Tonne	-	1 No.
8.	Tyre handling equipment	-	1 No.
9.	Steam jet-cleaning machine	-	1 No.
10.	High pressure washing pump	-	1 No.
11.	Stationery welding set	-	1 No.
12.	Portable welding set	-	2 Nos.
13.	Centrifuge unit	-	1 No.
14.	Lub.oil sensor	-	1 No.
15.	Lub.oil & fuel testing instrument	-	1 No.
16.	Lathes, Grinder and Drill	-	1 No.each
17.	Press & Hyd.jacks of various capacities	-	12 Nos.
18.	Hyd. Press stand, capacity 50 T	-	1 No.
19.	Tyre & Tube repairing kit/Electronic tyre-cut repairing machine	-	1 No.
20.	Bit Grinder 100mm/150mm	-	1 No.
21.	Tyre inflation unit	-	2 Nos.
22.	Battery charging unit	-	1 No.
23.	Auto electrical repair bench set (Lucas)	-	1 No.
24.	Engine Testing Stand	-	2 Nos.

- | | |
|--|---------|
| 25. Stationary & Portable Diesel dispensing unit | 1 No. |
| 26. Pipe threading machine | - 1 No. |

The workshop has been provided with separate storage for tools and tackles and various unit-wise spares & consumables. It is very well lighted for night working also. Sufficient office space has been provided for the officers and storage of records.

Most of the repairs and maintenance is completed during the general shift. Shift maintenance gang is also provided for promptly attending to any running repairs. The Preventive Maintenance Schedules as devised with the manufacturers for our local conditions are strictly adhered to. The Original Equipment Manufacturers are done certain highly specialized repair jobs or outside experts having adequate facilities. All capital repairs are also carried out departmentally.

Tyre Maintenance

1. Tyre Dismantling on Ground

- | | |
|------------------------------------|---|
| a) Time taken for tyre dismantling | 20 to 25 minutes |
| b) No.of persons used | 4 persons |
| c) Safety | Safety bracket, chains are in use |
| d) Tools handle | Tyre bid removal kit consisting of Hydraulic Jack |

2 Tyre Inflation System and apparatus -

Inflation is done after housing the tyre inside the safety cage.

Equipment & Tools

1. Inflation tool, locally developed, is used so that the person inflating the tyre is not exposed to the tyre/tyre rim.
2. Compressor
3. `Elgi' tyre inflating assly with dial gauge.
4. Straight push on gauge/ Swivel foot gauge.

5. Cage for tyre inflation.
6. Guard for inflation in tyre fitted on dumpers.

3 Random Checking of Tyre Inflation - It is done in cold tyre condition by straight push on gauge every Monday morning and in normal condition every day during maintenance shift.

- | | |
|--|---|
| 4 Tyre records | <ol style="list-style-type: none">1. Tyre movement card2. Master register is systematically maintained. |
| 5 Tyre life average | 6572 Hrs.
(Without any Retrading) |
| 6 Tyre condition fitted on dumper | Condition of tyres ie.
Matching of tyre pair are good and due care is taken for correct matching of tyre during fitment. |
| 7 Repairing | - Cut repairs is carried out by Hydro Electronic Tyre Vulcanizer.
- Retreading and repairing is also got done by outside agencies. |
| 8 Monitoring | Regular monitoring is done by the competent engineer assisted by a clerk. |

Condition: A final mine closure Plan, along with details of Corpus Fund, shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

Compliance: Final Mine closure plan alongwith the corpus fund details shall be submitted 5 years in advance to the Ministry of Environment & Forest