

# **GUIDELINES FOR PREPARATION OF MINE CLOSURE PLAN**

Preamble :

1. The Central Government vide Notification No. GSR 329 (E) dated 10.04.2003 and No. GSR 330 (E) dated 10.04.2003 amended the Mineral Concession Rules, 1960 and Mineral Conservation and Development Rules, 1988 respectively. As per these amendments all the existing mining lessees are required to submit the "Progressive Mine Closure Plan" along with prescribed financial sureties within 180 days from date of notification. Further, the mining lessee is required to submit "Final Mines Closure Plan" one year prior to the proposed closure of the mine. In the notification it has been enumerated that the "Progressive Closure Plan" and "Final Closure Plan" should be in the format and as per the guidelines issued by the Indian Bureau of Mines.

2. Mine closure encompasses rehabilitation process as an ongoing programme designed to restore physical, chemical and biological quality disturbed by the mining to a level acceptable to all concerned. It must aim at leaving the area in such a way that rehabilitation does not become a burden to the society after mining operation is over. It must also aim to create as self-sustained ecosystem.

3. Mine closure operation is a continuous series of activities starting from day one of the initiation of mining project. Therefore, progressive mine closure plan will be an additional chapter in the present mining plan and will be reviewed every five years in the Scheme of Mining. As progressive mine closure is a continuous series of activities, it is obvious that the proposals of scientific mining have had included most of the activities to be included in the progressive mine closure plan. Therefore, reference to relevant paragraphs and a gist of the same in progressive mine closure plan will be sufficient.

4. Final mine closure plan as per statute, shall be considered to have its approval at least nine months before the date of proposed closure of mine. This period of nine months is reckoned as preparatory period for final mine closure operations. Therefore, all proposals for activities which have to be carried out after production of mineral from the mine or mining is ceased, shall be included in the final mine closure plan. The final mine closure plan will thus be a separate document with detailed chapters as per guidelines given below.

The mine closure plan will be prepared as per the guidelines given as enclosure. The guidelines include the specific activities both in progressive mine closure plan and final mine closure plan.

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**ENCLOSURE**

# GUIDELINES FOR MINE CLOSURE PLAN

## 1. Introduction:

The name of the lessee, the location and extent of lease area, the type of lease area (forest, non-forest etc), the present land use pattern, the method of mining and mineral processing operations, should be given.

1.1 *Reasons for closure* : The reasons for closure of mining operations in relation to exhaustion of mineral, lack of demand, uneconomic operations, natural calamity, directives from statutory organisation or court etc. should be specified.

1.2 *Statutory obligations* : The legal obligations, if any which the lessee is bound to implement like special conditions imposed while execution of lease deed, approval of mining plan, directives issued by the Indian Bureau of Mines, conditions imposed by the Ministry of Environment and Forests, State of Central Pollution Control Board or by any other organisation describing the nature of conditions and compliance position thereof should be indicated here (the copies of relevant documents may be attached as Annexure).

1.3 *Closure plan preparation* : The names and addresses of the applicant and recognised qualified person who prepared the Mine Closure Plan and the name of the existing agency should be furnished. A copy of the resolution of the Board of Directors or any other appropriate administrative authority as the case may be on the decision of closure of mine should be submitted.

## 2. Mine Description:

2.1 *Geology*: Briefly describe the topography and general geology indicating rock types available, the chemical constituents of the rocks / minerals including toxic elements if any, at the mine site.

2.2 *Reserves* : Indicate the mineral reserves available category wise in the lease area estimated in the last mining plan / mining scheme approved along with the balance mineral reserves at the proposed mine closure including its quality available ( for final mine closure plan only).

2.3 *Mining Method* : Describe in brief the mining method followed to win the mineral, extent of mechanisation , mining machinery deployed, production level etc.

2.4 *Mineral Beneficiation* : Describe in brief the mineral beneficiation practice if any indicating the process description in short. Indicate discharge details of any tailings / middlings and their disposal / utilisation practice followed.

### 3. Review of Implementation of Mining Plan / Scheme of Mining including five years Progressive Closure Plan upto final closure of mine:

Indicate in detail the various proposals committed with special emphasis on the proposals for protection of environment in the approved Mining Plan / Scheme of Mining including five years Progressive Closure Plan upto the closure of mine vis-a-vis their status of implementation. Highlight the areas, which might have been contaminated by mining activities and type of contaminants that might be found there. The reasons for deviation from the proposals if any with corrective measures taken should also be given.

#### 4. Closure Plan :

4.1 *Mined-Out Land* : Describe the proposals to be implemented for reclamation and rehabilitation of mined-out land including the manner in which the actual site of the pit will be restored for future use. The proposals should be supported with relevant plans and sections depicting the method of land restoration / reclamation / rehabilitation.

4.2 *Water Quality Management* : Describe in detail the existing surface and ground water bodies available in the lease areas and the measures to be taken for protection of the same including control of erosion, sedimentation, siltation, water treatment, diversion of water courses , if any, measures for protection of contamination of ground water from leaching etc. Quantity and quality of surface water bodies should also be indicated and corrective measures proposed to meet the water quality conforming the permissible limits should also be described. Report of hydrological study carried out in the area may also be submitted. The water balance chart should be given. If there is potential of Acid Mine Drainage the treatment method should be given.

4.3 *Air Quality Management* : Describe the existing air quality status. The corrective measures to be taken for prevention of pollution of air should be described.

4.4. *Waste Management* : Describe the type, quality and quantity of overburden, mineral reject etc. available and their disposal practice. If no utilisation of waste material is proposed, the manner in which the waste material will be stabilised should be described. The protective measures to be taken for prevention of siltation, erosion and dust generation from these waste material should also be described. If toxic and hazardous elements are present in the waste material the protective measures to be taken for prevention of their dispersal in the air environment, leaching in the surface and ground water etc, should be described.

4.5 *Top Soil Management* : The top soil available at the site and its utilisation should be described.

4.6 *Tailing Dam Management* : The steps to be taken for protection and stability of tailing dam, stabilisation of tailing material and its utilisation, periodic desilting, measures to prevent water pollution from tailings etc., arrangement for surplus water

overflow alongwith detail design, structural stability studies, the embankment seepage loss into the receiving environment and ground water contaminant if any should be given.

*4.7 Infrastructure :* The existing infrastructural facilities available such as roads, aerial ropeways, conveyer belts, railways, power lines, buildings & structures, water treatment plant, transport, water supply sources in the area etc. and their future utilisation should be evaluated on case to case basis. If retained, the measures to be taken for their physical stability and maintenance should be described. If decommissioning proposed, dismantling and disposal of building structures, support facilities and other infrastructure like electric transmission line, water line, gas pipeline, water works, sewer line, telephone cables, underground tanks, transportation infrastructure like roads, rails, bridges, culverts etc., electrical equipments and infrastructures like electric cables, transformers to be described in connection with restoring land for further use.

*4.8 Disposal of Mining Machinery :* The decommissioning of mining machineries and their possible post mining utilisation, if any, to be described.

*4.9 Safety and Security :* Explain the safety measures implemented to prevent access to surface openings, excavations etc., and arrangements proposed during the mine abandonment plan and upto the site being opened for general public should be described.

*4.10 Disaster Management and Risk Assessment :* This should deal with action plan for high risk accidents like landslides, subsidence flood, inundation in underground mines, fire, seismic activities, tailing dam failure etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of lessee to meet such eventualities and the assistance to be required from the local authority should also be described.

*4.11 Care and maintenance during temporary discontinuance :* For every five yearly review ( as given in the mining scheme), an emergency plan for the situation of temporary discontinuance or incomplete programme due to court order or due to statutory requirements or any other unforeseen circumstances, should include a plan indicating measures of care, maintenance and monitoring of status of unplanned discontinued mining operations expected to re-open in near future. This should detail item wise status monitoring and maintenance with periodicity and objective.

## *5. Economic Repercussions of closure of mine and manpower retrenchments :*

Manpower retrenchment, compensation to be given, socio-economic repercussions and remedial measures consequent to the closure of mines should be described, specifically stating the following.

5.1 Number of local residents employed in the mine, status of the continuation of family occupation and scope of joining the occupation back.

5.2 Compensation given or to be given to the employees connecting with sustenance of himself and their family members.

5.3 Satellite occupations connected to the mining industry - number of persons engaged therein - continuance of such business after mine closes.

5.4 Continued engagement of employees in the rehabilitated status of mining lease area and any other remnant activities.

5.5 Envisaged repercussions on the expectation of the society around due to closure of mine.

**6. Time Scheduling for abandonment :** The details of time schedule of all abandonment operations as proposed in para 4 should be described here. The manpower and other resources required for completion of proposed job should be described. The schedule of such operations should also be supplemented by PERT ( Programme Evaluation & Review Technique ), Bar chart etc.

**7. Abandonment Cost :** Cost to be estimated based on the activities required for implementing the protective and rehabilitation measures including their maintenance and monitoring programme.

**8. Financial Assurance :** The financial assurance can be submitted in different forms as stated in Rule 23(F)(2) of Mineral Conservation and Development (amendment) Rules, 2003. In the mine closure plan, the manner in which financial assurance has been submitted and its particulars have to be indicated. [For Model Bank Guarantee Form, please click here.](#)

**9. Certificate :** The above mentioned actions have been taken to be stated clearly in the mine closure plan. A certificate duly signed by the lessee to the effect that said closure plan complies all statutory rules, regulations, orders made by the Central or State Government, statutory organisations, court etc. have been taken into consideration and wherever any specific permission is required the lessee will approach the concerned authorities. The lessee should also give an undertaking to the effect that all the measures proposed in this closure plan will be implemented in a time bound manner as proposed.

**10. Plans, Sections etc. :** The chapter 1,2,3 and 4 should be supported with Plans and Sections. The Closure Plan may also be submitted depicting photographs, satellite images on compact disc etc. wherever possible.

## **NOTE**

1. The mine closure plan in progressive stage will be prepared by paragraphs where sub-paragraphs may be added for detailed items whereas the final mine closure plan will be prepared in chapters with sub-chapters as necessary with adequate details.

2. The guidelines for the both the documents will be same as above.