

RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

All types of industries face certain types of hazards which can disrupt normal activities abruptly and to disaster like fires, inundation, failure of machinery, explosion, to name a few. Similarly, limestone mines also have impending dangers or risk which need be addressed for which a disaster management plan has been formulated with an aim of taking precautionary steps to avert disasters and also to take such action after the disaster which limits the damage to the minimum.

Nevertheless, the following natural/industrial problems may be encountered during the mining operation.

1. Inundation- filling of the mine pit due to excessive rains.
2. Slope failures at the mine faces or stacks.
3. Accident due to storage of explosive and blasting.
4. Accident due to fire.

As per proposal made under the mining plan, during proposed working period the area will be developed by means of mechanized opencast mining method with adoption of drilling and blasting. Exploitation and transportation of minerals are to be carried out by Mechanical means with the use of JCB for loading of overburden. Bench height is maintained at 6.0 m. Maximum depth of working is 11 m. Ground Water table is at 20 - 25 m below the surface depending upon the relief of areas. Water table will not be touched during processed working. No high risk accidents like landslides, subsidence flood etc. have been apprehended.

But possibility of accidental disaster is also not ruled out. Therefore, all the statutory precautions should be taken for quick evacuation as per the Mines Act 1952, the Mines Rules 1955, MMR-1961 and MCDR-1988.

Mining and allied activities are associated with several potential hazards to both the employees and the public at large. A worker in a mine should be able to work under condition, which are adequately safe and healthy. At the same time the environmental condition should be such as not to impair his

working efficiency. This is possible only when there is adequate safety in mines. Hence, safety is one of the most essential aspects of any working mine. safety of the mine and the employees will be taken care according to the mining rules & regulations, which are well defined with laid down procedure for safety, which when scrupulously followed safety is ensured not only to manpower but also to working environment.

Possible Risks Due To Inundation & Its Control

There is no perennial river on the surface of the Lease area only seasonal Nallah like Amrang nallah are flowing in the lease area and it's depend only on good monsoon rains. The possibility of the mine getting inundated due to water from the river is remote. In case, at any time in the future such an event occurs, the water will be allowed to stand and naturally percolate into the ground. In case, there is any need to empty out any particular pit for working, then pumps will be used to pump out the water.

It is anticipated that ground water seepage in the mine is not possible because at the end of lease period of the mine, the maximum depth of the mine floor will be 304 mRL from the ground level, which is above the ground water table in the workable area. In another case during possibility accumulation of water, preventive & management measures shall be planned as per Reg.127 of MMR 1961. The water can be pumped out using diesel operated pumps from the pits that requires to be worked. The pumped out water will be passed through a settlement tank for settling of suspended matter before releasing into the nearby natural drain.

Disasters Due To Failure of Slopes

The rocks are blasted to win the mineral causing cracks and opening in natural binding. Such loose rocks may fall at any time causing damage to human life and machinery. The only remedy to the affect to such situation is to dress the blasted part. All necessary precaution will be taken as per REG.115 (1) of MMR 1961 to avoid any disaster. Sliding of waste dump is an equally severe risk like quarry slope failure.

Possible Dangers Due To Storage of Explosives in the Magazine

The explosive will be slurry explosive which will be used as booster and the main explosive will be ANFO mixture (Ammonium Nitrate and Fuel Oil Mixture). Ammonium Nitrate is one of the principal ingredient used in manufacturing of explosives though normally not classified as an explosive, being relatively insensitive.

Required quantity of explosive will be obtained from the dealer who supplies at mine side through his approved explosive van. A magazine in the lease area is already constructed for storage of explosive. All precautions as per MMR 1961 will be observed.

Disaster Due To Fire

No surface fire is anticipated in the mining operation. In case of forest, fire may result due to dry leaves and wood in vegetated part and result in a disaster. In the area under reference, there is no such situation and there is no danger of forests fire. No oil, grease, canvas or other inflammable material will be stored in mine except in a fire-proof receptacle.

CARE AND MAINTENANCE DURING TEMPORARY DISCONTINUANCE

Mining lease is a continuous working mine. At the time of temporary discontinuance of mine, notice (as per Rule 24 of MCDR, 1988 & Reg.6 of MMR, 1961) will be sent to IBM and mines Safety authorities. Notice will be accompanied as per Rule 24 of MCDR, 1988, vide, Form no.D-1. All precautionary steps will be taken into account in respect of care and maintenance.

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures for care and maintenance and monitoring of status shall be taken.

Notice of temporary discontinuance of work in mine shall be given to the Controller General, Controller of Mine and the Regional Controller,

IBM and DGMS Officials under Rule 24 of MCDR 1988 and Reg. 6 of MMR 1961 respectively.

- All the mining machinery shall be shifted to a safe place.
- Entrance to the mines or part of the mines to be discontinued shall be fenced off as per DGMS Circular and security Guards shall be posted for the safety and, to restrict any unauthorized entry to the area.
- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out.
- Care and upkeep of plantation done shall be carried out on regular basis.
- Measures of care, maintenance and monitoring of status of unplanned, discontinued mining operations expected to re-open in future.
- All rules and regulations shall be followed in case of any temporary discontinuance of mine.
- No temporary discontinuance is anticipated during the closure plan period.

Protection of the pits:

The pit area of the lease will be protected by fence as per DGMS circular all around the open pit with caution board displaying the danger in local language.

Protection of area:

There will be protected by displaying a board at the entry with caption like “Entry in the premises without permission is strictly prohibited” in local language.

Maintenance and monitoring:

The area will be monitored every week by competent person and if maintenance is needed will be done as per requirement.

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- Care and upkeep of plantation done shall be carried out on regular basis.
- All rules and regulations shall be followed in case of any temporary discontinuance of mine.

DISASTER PREVENTION MEASURES

In order to take care of above hazard / disasters the following control measures have been envisaged :

- Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- Provision of high capacity pumps for pumping out water from the mining pit.
- Entry of unauthorized persons will be prohibited.
- Firefighting and first aid provision shall be kept in the mines office complex and mining area.
- Safety equipment such as safety boots, helmets, goggles etc. will be made available to the employees and regular checked for their use.
- Training and refresher courses for all the employees working in the mine.
- Working of mine as per approved plan and regularly updating the mine plans.
- Regular cleaning of mine faces.
- Regular maintenance and testing of all mining equipment as per manufacture's guidelines.
- Suppression of dust on the haulage roads.

- Increasing the awareness of safe practices through competitions, posters and other similar drive.

As a precautionary measures before onset of monsoon, garland drain will be maintained to divert water from outside the mining area. The rainwater thus diverted is coursed to natural nallahs or collected in the sumps. This helps to control the inflow of water from the virgin areas into the mine workings. The floors of different benches are gently sloped so that working remain water free.