RISK ASSESSMENT & HAZARD IDENTIFICATION METHODOLOGY

Mining are associated with several potential hazards that effect to the employee and environment. It would normally require the assistance of emergency services to handle it effectively. The mining operation shall be taken out under the well management & control by the qualified mine manager.

Therefore, all the statutory precautions shall be undertaken into account for quick evacuation as per Mine Act 1952, Mine Rules 1955, Reg. of MMR-1961 and Rules of MCDR -1988. Risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities.

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.
3. Accident due to trucks/fire

As per proposal made under the mining plan the area will be developed by means of opencast mining method with adaptation drilling and blasting method. Transportation of mineral is to be carried out by truck. Bench height is maintaining 8.0 m. Water table will not touch during proposed working.

SCENARIOS CONSIDERED FOR RISK ASSESSMENT

Knowledge of work

The application of risk assessment depends upon full understanding of all aspects of the job being undertaken. In carrying out a risk assessment in relation to a particular task, the evaluation must include a review of the knowledge, experience and training of those persons carrying out the work.

Personal Competence

It follows that the knowledge, experience and training of personnel involved in work is critical to evaluate any risk assessment. A knowledgeable, experienced
well-trained and competently supervised workforce will be at a lower risk of accidents occurring than a poorly trained and badly supervised workforce.

**Structural failure**

Structural failure is associated with the failure of slope, it can be bench fall, slope failure due to undercutting and fall of machinery and workers due to fall of bench/slope, any of the said activity can cause major injury and fatalities.

**Co-ordination**

It is essential that the coordinator ensures that everyone engaged in the work is capable and understands the role of others and their responsibility for each other.

**Health hazards**

Health hazards are associated with the dust and noise, it is necessary to quantify the key pollutants during surface mining operations that may result into health hazard.

**Inundation**

Mining will be done during the non-monsoon periods therefore problem of inundation is not likely to happen.

**Noise**

Noise is considered as a common occupational hazard in mine environment. Prolonged exposure to noise over a period of years may cause permanent damage to auditory nerves and its sensory components (Noise Induced Hearing Loss). In order to avoid Noise Induced Hearing Loss (NIHL) to the operators of the HEMMs, the cabins of these machines will be made sound proof. Also, the operators and other workers working in the high noise generating areas are being provided with ear plugs/ear muffs to protect their hearing. No worker will be allowed to enter high noise generating areas without wearing proper protection equipment’s.

**Surface Fire**

No surface fire is involved in the mining operation. The forest fire may occur 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 forest fire. No
oil, grease, canvas or other inflammable material shall be stored in mine except in a fire-proof receptacle. All precautionary measures will be taken to prevent the occurrence of such activity.

**Loading**

There will be no risk associated with the activity. However, precautions will be required to be taken to remove workers away from the loading operations, to avoid any fall of material on persons. Also, the loading operations will be supervised by a site supervisor for properly guiding the loading machine operator.

**Pit Slope Failure**

The sides of the mine benches will be suitably sloped to avoid bench failure. The bench height is planned to be kept 8m and width of the bench will be 21m and in no case less than the height of the bench. Ultimate pit slope shall be maintained at 45°. The bench sides and edges will be regularly inspected for any signs of failure, development of cracks, etc. Due precautionary measures will be adopted to avoid any bench or pit slope failure.

**Heavy Vehicles**

Proper care will be taken while loading and transportation of mineral and overburden. Good maintenance and regular testing will be done to avoid any mishap.

**Personal Protective Equipment (PPE)**

The PPE should be of good construction, where ever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particular hazardous dust and maintained to recommended standards.

**Traffic Movement**

The mining operation will be of small scale and the machinery proposed to be used for mining is less in number, therefore there will be no risk of accidents due to the traffic movement. However, haulage roads will be properly maintained and the speed limits shall be implied on the vehicles plying for mineral transport to avoid accidents.
DISASTER MANAGEMENT PLAN

The complete mining operation will be carried out under the management control and direction of qualified Mines Manager. The Directorate General of Mines Safety (DGMS), Dhanbad have issued a number of standing orders, model standing orders and circulars to be followed by the mine management:

- Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- Provision of pumps for pumping out water from the mining pit.
- Entry of unauthorized persons will be prohibited.
- Fire fighting 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 workers.
- Working of mine as per approved scheme and regular updating for the same.
- 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.

OUTLINE OF DISASTER MANAGEMENT PLAN

The purpose of disaster management plan is to restore the normalcy for early resumption of mining operation due to an unexpected, sudden occurrence resulting to abnormalities in the course of mining activity leading to a serious danger to workers or any machinery or the environment. The main objectives of preparing a disaster management plan in mining project include:

- To protect workers in mine from accident.
- To prevent or reduce the incidence and severity of injury during mining Operations.
- To respond immediately and adequately in case of a serious accident.
First Aid & medical facilities

The mine management will provide first aid facilities for use in emergency situation. All casualties would be registered and will be given first aid. The mine management will provide all facilities to evacuate the injured person from the accident site to the nearby hospital.

Care and maintenance during temporary discontinuance

In case of any temporarily discontinuance or if mine closes temporarily, then the mining working will be in the watch of a watchman. Before reopen of the mine maintenance working will be provide to all the machineries deployed at mine site. Before entering the laborers into the mine working/faces the workings and faces are proposed to be inspected by manager for safety purposes as Mines Act.