

## **7.1 Risk Assessment**

The proposed project involves Manganese mining is limited to a depth of to 19 m. The anticipated risks are mentioned below:

### **Fall of sides**

- Overall slopes angles of benches will be 37°.
- No disaster like land slide, flood or inundation or fire is anticipated as the height of benches will be 4 m and width will be more than 6-8 m.
- Unmanageable heights are not created.
- Loose rocks are properly dressed.
- Nature and structure of the rocks are properly studied for their slips.

### **Storage and use of explosives**

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper, safe and careful handling and use of explosives by competent Blasters having Blaster's Certificate of Competency issued by DGMS.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc.
- The explosives of class 2 shall be used in their original cartridge packing and such cartridge shall not be cut to remove explosive for making cartridge of different size.
- Explosives shall be conveyed in special containers.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.
- Before starting charging, clear audible warning signals by Sirens will be given so that people nearby can take shelter.

## **Water**

- Due care will be taken to provide retaining wall around the pits.
- Proper drainage will be maintained to eliminate inundation of working pits during rains from run-off water.
- There is no danger of flood or inundation as the ground level.
- Mining operations are not carried below the ground water table; therefore, there will be no disturbance to ground water quality due to mining activity.

## **Natural resource conservation**

- A green belt will be developed so that minimum soil erosion takes place.
- The excavated soil will be refilled in order to minimize the impact on environment.
- In any case the natural habitats of the existing flora and fauna will not be disturbed.
- Use of traditional knowledge in all aspects of conservation;
- Water conservation techniques will be employed.
- Time to time analysis of the soil, water resources etc will be done in order to analyze the negative impacts of mining activities on the environment.
- To prepare management plans for village landscapes. Villages to be seen as landscapes of diverse elements such as forests, scrub, grassland, streams/river, ponds etc. The dynamics of the village as an ecosystem to be assessed, corridors to be devised between major natural landscape elements, so as to facilitate movement of species.

## **Fire**

Sufficient fire extinguishers will be installed at selected locations such as mine office, garage, stores etc. Besides, sufficient water hydrants with sufficient length of hosepipes will be made available on the surface for fire protection.

### **Loading**

Loading of Manganese at the production site will be done manually/ by Hydraulic Excavator.

### **House keeping**

The provision and maintenance of a safe and healthy workplace is the most basic principle of health and safety. Dirty and untidy workplaces or walkways contribute to a very large proportion of trip and fall accidents. In the context of surface mining the provision of well defined roadways and walkways clear of obstruction and regular cleaning up of spillage will greatly reduce the potential risk for this type of accidents.

### **The Work**

The application of risk assessment depends upon a 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.

### **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.

This is particularly important when contract workers undertake part or all of the work to be carried out.

### **Health hazards**

For the purpose of this document, health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations.

### **Personal Protective Equipment (PPE)**

The PPE should be of good construction, wherever 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. As personal protective equipment only affords limited protection it should only be used as a last resort and then as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

### **Traffic Movement**

As the vehicles used are very less in number there is no risk of accidents due to the traffic movement.

## **7.2 DISASTER MANAGEMENT PLAN**

Manganese mining is a simple mining and there is hardly any risk in mining. However, as a precautionary measure if any disaster occurs within the mining area, the first aid committee of the mine consisting of following member will immediately handle the situation and if required victims will be shifted to the primary health centre.

### **Out Line of Disaster Management Plan**

The working is carried out at shallow depth so heavy blasting is not required so no risk assessment or disaster management is required.

High risk factors such as Earthquakes, Landslide, Subsidence, Flood, Fire etc are not encountered nor anticipated during proposed five years plan period. As such, emergency plan for quick evacuation, protective measures are not proposed. Also, no local habitant exists as the working area is far away from the locality.

### **System of communication**

An internal communication system for the department head and to their line of command should be maintained. Having the telephone nos. and addresses of adjoining mines, rescue station, police station, Fire service station, local hospital, electricity supply agency and standing consultative committee members is another essential aspect.

### **Consultative committee**

A standing consultative committee will be formed under the head of Mines manager.

### **Facilities & Accommodation**

Accommodation and facilities for medical aid, rescue room, etc will be provided.

### **First Aid & medical facilities**

The mine management is having first aid facilities for use in emergency situation. All casualties would be registered and will be given first aid. The mine management will have proper telephone/wireless set for quick communication with nearest hospitals where the complicated cases are to be sent.

### **Functions of public relations group**

A cordial relation with government officials and other social service organization and working groups shall be maintained. To liaise with representatives of the mine workers to ameliorate the situation of panic, tension, sentiments, grievances and misgivings created by any disaster. To ameliorate the injured, survivors and family members of affected persons by providing material, moral support, finance and establishing contact with relatives of victims.

### **Care and maintenance during temporary discontinuance**

In case of any unforeseen circumstances, if the mining operations are to be suspended temporary, following action will be initiated.

- ✓ Fencing of the pits
- ✓ Security on red alert for 24 hrs
- ✓ Display of notice at strategic points

### **Emergency Plan**

- ✓ On realizing anything serious happened anywhere in the mine, the foreman or the mate will immediately inform the nearest mining official & the manager of mines.
- ✓ On receiving information of emergency, Shift in-charge will ensure that all the materials and transport system to deal with emergency situation is kept under readiness.
- ✓ First aid facilities to be kept ready to receive the cases.

## **7.3 REHABILITATION & RESETTLEMENT (R&R)**

There will be no resettlement or rehabilitation involved in the project. Proposed expenses on Corporate Social Responsibility will be given.

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