

## **RISK AND DISASTER ANGEMENT PLAN**

### **1.1 RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN**

#### **1.2 DEFINITION**

A major emergency in a work is one, which has the intensity to cause serious injury or loss of life. It may cause extensive damage to property and serious disruption both inside and outside the work. It would normally require the assistance of emergency services to handle it effectively.

Emergency may be caused by a number of different factors; it will normally manifest itself in two basic forms viz fire, explosion or toxic release.

Mining equipment carries on-board fire fighting devices and are equipped with automatic fire extinguishers. A mobile service van takes care of maintenance operations and a mobile diesel tanker supplies fuel to the machinery. Personal protective equipment like safety helmets, safety shoes, safety belts, goggles, dust respirator, gloves and earmuffs etc. are also regularly used by workers during mining operations. A security check post has been created and entry of unauthorized persons is prohibited.

Mine Personnel are regularly provided adequate training pertaining to likely safety hazards in mining and plant operations. The company organizes and participates in Mines safety week, Mines Environment and Mineral Conservation Week, etc. from time to time. The latest developments are discussed on such occasions and their implementation programs are chalked out.

##### **1.2.1 SCOPE**

An important element of mitigation is emergency planning i.e. recognizing that accidents are possible, assessing the consequences of such accidents and deciding on the emergency procedures, both on site and off site that would need to be implemented in the event of an emergency.

Emergency planning is just one aspect of safety and cannot be considered in isolation.

##### **1.2.2 OBJECTIVE**

The purpose the emergency plan is to create alertness and awareness among the personnel so that emergency situations can be effectively controlled, thereby reducing the damage to the mining equipment, personnel and surrounding population or the environment. The objectives of the On Site Emergency Plan are:

- To contain and ultimately control the incident, reduce rescue time.
- To minimize damage to property, personnel and environment.
- To give treatment and secure the safe rehabilitation of the affected person.
- To speed up the rescue operation
- To safe guard other personnel in the premises.
- To inform and assist relatives of the affected persons.
- To inform the press media and statutory authorities, if so required.
- To preserve relevant records and equipment for subsequent investigation of the causes and circumstances of emergency.
- To take step to prevent recurrence and

- To restore normalcy.

### **1.2.3 IDENTIFICATION OF HAZARDS**

The possibility of the following may be there for such projects:

- (a) Fire associated with storage of combustible material, lubricants, oil. Fire in magazine premises and nearby area.
- (b) Accidents in the mine

To deal with the above emergencies, the Emergency Plan is prepared.

#### **1.2.3.1 DISASTER DUE TO SURFACE FIRE**

The fire could be a surface fire. Such case has so far not been reported. Likewise equipment sometimes catches fire which needs to be dealt.

##### ***Code of Practice in Case of Fire at Mines***

##### **Objective:**

To deal with fire efficiently and quickly at different locations of mine.

##### **Source of Fire:**

- i) Electrical Sub Station.
- ii) Oil & Lubricant Room.
- iii) Mine machineries.

##### **Line of Action:**

- i) Sufficient fire extinguishers will be installed at selected locations on site. Besides, numbers of water hydrants with sufficient length of hosepipes will be made available at the surface for fire protection.
- ii) Any person when notices any sign of fire shall immediately take steps to give warning by blowing the siren continuously and take steps to extinguish the fire by using appliances available near the site.
- iii) Duties of Primary Controller: - The Primary Controller after receiving the warning will forthwith inform at following places:
  - a) Fire Fighting Station
  - b) Security Gate
  - c) Section In charge (Communication Officer)
  - d) Shift In charge (Accident Controller)
  - e) Head of Department (Site Controller)

After intimating he should reach the spot, remove Men & Machinery and take steps to tackle the fire in accordance with the fire fighting instructions. Inform the security office to get an Ambulance if required.

Duties of Fire Fighting Team: - On receiving warning, the team shall reach the site of fire and depending on its nature, class and extent shall take steps to extinguish it and rescue persons who may be caught in fire.

#### **1.2.3.2 EMERGENCY RESPONSE ORGANIZATION**

The key person of the mines will be responsible for co-ordination in case of emergency situated in any section of the mine are given below:

Person	Responsibility
Mines Manager	Site Controller
Shift Incharge / Section In Charge	Accident Controller/ Communication Officer
Employee who gives the first information about the incident/ accident	Primary Controller
Chief Security Officer	HR and ADMINISTRATION

### 1.2.3.3 KEY PERSONNEL AND THEIR RESPONSIBILITY

The appointment of all the key personnel i.e. Site Controller, Accident Controller/Communication Officer, Primary Controller and Liaison Officer will be taken up after the execution of mining lease and will be intimated to IBM and other concerned authorities as per statute.

#### (i) Site Controller

The Site Controller has an overall responsibility for controlling the incident/ accident and directing the personnel.

- To prepare a foolproof plan for control of accident like, landslides, subsidence, flood, fire and other natural calamities
- To inform statutory bodies of the State and Central Government.
- To inform Communication Officer about the emergency, Control Centre and assembly point.
- To provide all assistance and call for Fire Squad, Security Officer and other services required for removing/ control of danger.
- To ensure that all necessary personnel assemble at assembly point.
- Make arrangements for medical treatment to the personnel injured

#### (ii) Accident Controller

- Mock rehearsal of management plan prepared for accident.
- To withdraw men/ machines from the affected area with priority for safety of personnel, minimize damage to the machines, environment and loss of material.
- To make a report based on the facts and figures and submit to the Site Controller
- To communicate to the Site in charge and make arrangement for transportation of the injured personnel.

#### (iii) Primary Controller

- To inform the Accident Controller/ shift In-charge from the nearest means of communication about the location and the nature of accident.
- To assist in clearing any obstruction in relief of accident. To carry out all instructions of Accident Controller.
- To provide first aid treatment and communicate to the Shift in charge.

### 1.2.3.4 CODE OF PRACTICE IN CASE OF EXPLOSION & ACCIDENTS

#### Objective

To deal with accidents efficiently and quickly.

**Line of Action**

Any person, who notices any explosion or accident, should immediately take steps to give warning by suitable means and at the same time take necessary action for withdrawal of men from the site. He shall also inform the Mines Owner and other officials without any delay.

**Duties of Head of Department (Site Controller) & Shift In charge (Accident Controllre):**

- a) On receipt of information about explosion or accident, site controller and accident controller shall forthwith rush to the spot shall make the arrangements for withdrawal of affected persons, if any.
- b) Inform the security officers and statutory bodies of State and Central Government.
- c) Inform the hospital for Ambulance for affected persons, if any.
- d) Provide First aid to affected persons.

**1.2.3.5 ACTION IN EMERGENCY**

If any emergency like fire arises in the mine one should immediately inform Security Supervisor and inform the key personnel and act as detailed above and blow the Alarm. The emergency alarm will be wailing sound for two minutes on hearing telephone or alarm; the key personnel will act as per responsibilities. The procedure for all emergency situations as mentioned above would be same.

**1.2.3.6 SITE RESTORATION**

The incident controller will check the areas thoroughly for possible hazards such as toxic fumes or live wires after emergency and will inform site controller accordingly.

The key personnel will meet to evaluate their individuals and overall performance in responding to situation after the emergency is over. The review shall determine.

- Effectiveness of emergency response plan.
- Mine crew performance.
- Any need for updating or revision of the emergency response plan.
- Suitable arrangement for restart of the work.
- Evaluation and control of efficient arising out of mitigating measures like foam discharge & overflow of oil in water.
- Rehabilitate evacuated area.
- Adopt measures to prevent similar recurrence.

**1.2.3.7 PRECAUTIONS**

To avoid all these disasters at working place and to minimize their effects following precautions shall be taken and arrangement shall be made at the working place.

- (i) Periodical maintenance of mine machineries.
- (ii) The persons shall be trained properly to handle the situation.
- (iii) Detailed warning system, implementation procedure, emergency control centre shall be maintained at the mine with names of trained persons.

(iv) Details and availability of heavy machinery, fire-fighting equipment shall be available at the site.

(v) Proper arrangements shall be made for treatment of injured person, if any.

All the safety equipment shall be available at the mine.

#### **1.2.3.8 POST DISASTER ANALYSIS AND EVALUATION**

When the emergency is over, the team will carry out a detailed analysis of cause of accident/occurrence, evaluate the influence of various factors and find out the procedures to minimize them in future. At the same time adequacy of disaster management plan shall be evaluated and shortcomings shall be rectified to improve the plan.

#### **1.2.4 OFF-SITE EMERGENCY PLANNING**

##### **1.2.4.1 INTRODUCTION**

The off-site emergency plan is an integral part of any hazard control system. It would be based on those accidents identified by the works management, which could affect people and the environment outside the works. Thus, the off-site plan follows logically from the analysis that took place to provide the basis for the on-site plan and the two plans should, therefore, complement each other. The key feature of a good off-site emergency plan is flexibility in its application to emergencies other than those specifically included in the formation of the plan. The roles of the various parties that may be involved in the implementation of an off-site plan are described below. The responsibility for the off-site plan will be likely to rest either with the works management or with the local authority.

Either way, the plan must identify an emergency coordinating officer who would take overall command of the off-site activities. As with the on-site plan, an emergency control center will be required within which the emergency coordinating officer can operate. An early decision will be required in many cases on the advice to be given to people living "within range" of the accident – in particular whether they should be evacuated or told to go indoors. Consideration of evacuation may include the following factors:

- a. In the case of a major fire but without explosion risk (e.g. an oil storage tank), only houses close to the fire are likely to need evacuation, although a severe smoke hazard may require this to be reviewed periodically.
- b. But if the fire escalates it might be necessary to evacuate people nearby, but only if there is time; if insufficient time exists, people would be advised to stay indoors and shield themselves from the fire while measures are taken by those outside to douse fire

##### **1.2.4.2 ASPECTS TO BE INCLUDED IN AN OFF-SITE EMERGENCY PLAN**

Some of the aspects to be included in off-site emergency plan are as follows:

###### **a) Organization**

Details of command structure, warning systems, implementation procedures, emergency control centers, name and appointments of incident controller, site main controller, their deputies and other key personnel.

###### **b) Communications**

Identification of personnel involved, communication center, call signs, network, list of telephone numbers.

**c) Special Emergency Equipment**

Details of availability and location of heavy lifting gear, bulldozers, specified fire-fighting equipment, fireboats.

**d) Voluntary Organizations**

Details of organizers, telephone numbers, resources, etc.

**e) Meteorological information**

Arrangements for obtaining details of weather conditions prevailing at the time and weather forecasts will be made.

**f) Humanitarian Arrangements**

Transport, evacuation centers, emergency feeding, treatment of injured, first aid, ambulances, temporary mortuaries.

**g) Public Information**

Arrangements for: -

- (i) Dealing with the media-press office
- (ii) Informing relatives, etc.

**h) Assessment**

Arrangements for: -

- (i) Collecting information on the causes of the emergency
- (ii) Reviewing the efficiency and effectiveness of all aspects of the emergency plan.

**1.2.4.3 ROLE OF THE EMERGENCY COORDINATING OFFICER**

The various emergency services will be coordinated by an Emergency Coordinating Officer (ECO) who is likely to be a senior police officer but, depending on the circumstances, could be a senior fire officer. The ECO will liaise closely with the site main controller. Again depending on local arrangements, for very severe incidents with major or prolonged off-site consequences, the external control may pass to a senior local authority administrator or even an administrator appointed by the Central or State Government.

**1.2.4.4 ROLES OF MAJOR HAZARD MANAGERMENTS**

Where the local authority has the organization to formulate the plan, the role of management in off-site emergency planning will be to establish liaison with those preparing the plans and to provide information appropriate to such plans. This will include a description of possible on-site accidents with potential for off-site harm, together with their consequences and an indication of the relative likelihood of the accidents.

Advice should be provided by works managements to all the outside organizations which may become involved in handling the emergency off-site and which will need previously to have familiarized themselves with some of the technical aspects of the works activities, e.g. emergency services, medical departments, etc.

#### **1.2.4.5 ROLE OF THE LOCAL AUTHORITY**

In some places the duty to prepare the off-site plan lies with the local authorities. They may have appointed an emergency planning officer (EPO) to carry out all this duty as part of the EPO's roles in preparing for a whole range of different emergencies within the local authority area. The EPO will need to obtain the information to provide the basis for the plan.

Rehearsals for off-site plans are important for the same reasons as on-site plans and will need to be organized by the EPO.

#### **1.2.4.6 ROLE OF THE POLICE**

The police normally assume the overall control of an emergency, with a senior officer designated as emergency coordinating officer.

Formal duties of the police during an emergency include protecting life and property and controlling traffic movements.

The functions include controlling bystanders, evacuating the public, identifying the dead and dealing with casualties and informing relatives of dead or injured.

#### **1.2.4.7 ROLE OF THE FIRE AUTHORITIES**

The control of a fire is normally the responsibility of the senior fire brigade officer who would take over the handling of the fire from the site incident controller on arrival at the site. The senior fire brigade officer may also have a similar responsibility for other events. Fire authorities having major hazard works in their area should have familiarized themselves with the location on site of all stores of flammable materials, water and foam supply points and fire-fighting equipments.

#### **1.2.4.8 ROLE OF THE HEALTH AUTHORITIES**

Health authorities, including doctors, surgeons, hospitals, ambulances and so on, have a vital part to play following a major accident and they should form an integral part of any emergency plan.

For major fires, injuries will be the result of the effects of thermal radiation to a varying degree and the knowledge and experience to handle this in all, but extreme, cases may be generally available in most hospitals.

#### **1.2.4.9 ROLES OF THE GOVERNMENT SAFETY AUTHORITY**

The Inspectors of Director General of Mines Safety may want to satisfy themselves that the organization responsible for including the off-site plan has made adequate arrangements for handling emergencies of all types including major emergencies.

In the event of an accident, local arrangements regarding the role of the factory inspector will apply. In the aftermath, factory inspectors may wish to ensure that the affected areas are rehabilitated safely.

As per Risk Assessment studies the possibility of "Offsite" emergency situation is ruled out as the mine is not likely to pose any off-site emergency, hence does not call for any preparation of an off-site emergency plan. Further the residential quarters and living area are in the plant premises close to the mine. However, considering extreme situation, District authority including police would be informed about any offsite emergency, if situation so arises.

### **1.2.5 CARE AND MAINTENANCE DURING TEMPORARY DISCONTINUANCE**

In case of any temporary discontinuation of mining operation due to unforeseen circumstances, proper care of mine pit, mining machinery and the manpower becomes essential. For safety & security of the community and animals, additional watch & ward arrangement would be made in addition to the existing facilities. The machinery deployed at the mine would be regularly checked and maintained for future utilization. The manpower employed at the mine would also be suitably utilized in other vocations. Further it would be ensured that reclamation measures which have been undertaken or are proposed to be undertaken would continue.

Ambuja Cements Limited (ACL) has established an NGO called Ambuja Cement Foundation (ACF) which is working towards the improvement of the quality of life of surrounding communities for sustainable development of the region. It has had a tremendous effect on the social environment and culture of the local area since its inception. Community development programs, concerned with increasing the strength and effectiveness of communities in determining and managing their own futures, provide an important mechanism through which the company contributes to social sustainability. It involves planning and implementing initiatives, often in partnership with other stakeholders to provide long-term positive outcomes. Further, ACL's mining operations provide training and employment opportunities across the professions, skills and services. The company is extending its commitment to local economic development and capacity building by requiring that contractors also target their training and employment opportunities to the local community, and by giving preference to a local supply chain. ACL is also seeking to provide appropriate skills-transfer and employment opportunities through the development of local business enterprises.

The commitment of ACL to contribute to the economic development of the communities in which it operates, shows a commitment to do as much as possible to maintain or improve the economic well being of affected communities, and to leave a positive legacy to the regional economy from its operations. It is therefore envisaged that there will be no social unrest due to temporary discontinuance of the existing mine as the community developmental measures by the company would continue in the long run.

