7.1 RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

7.1.1 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.

7.1.2 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.

7.1.3 OBJECTIVE

The overall objectives of the emergency plan are:

(a) To localize the emergency and, if possible eliminate it; and
(b) To minimize the effect of the accident on people and property.

Elimination requires well planned process/technology and its effective implementation, so that such situation should either not arise or if it comes, a pre warning is received for timely action in built or by preparedness for zeroing the effects.

Minimizing the effects may include prompt action, rescue, first aid, and evacuation, fire fighting and also passing on information promptly to people living nearby.

7.1.4 IDENTIFICATION OF HAZARDS

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

(a) Inundation of pit during excessive rains.
(b) Falling of the persons in the pit.
(c) Accidents due to machinery.
(d) Fire in the machinery, accidents due to explosives related explosion in the Explosives Magazine.

7.1.5 DISASTER MANAGEMENT

- The mining shall be started from the existing pit. For the systematic working of open cast mine, benching will be made. During any of the above hazards, the incharge on duty will immediately inform the mines manger and remove all the persons form the disaster site.
- The mines manager will make the arrangements to deal with disaster.
- If the disaster is of higher magnitude, he will inform the same to Police, District Collector, DGMS and IBM. The following arrangements will be made at the mine.
a. Availability of high capacity pumps, firefighting equipment, ambulances etc.

b. Formation of team to deal with the hazards.

c. Arrangements for removal of employed persons from disaster site.

d. Telephone Nos. of District Collector, Police and Hospital.

7.1.6 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.

(vi) All the safety equipment shall be available at the mine.

7.1.7 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 will be evaluated and shortcomings will be rectified to improve the plan.

7.1.8 OFF-SITE EMERGENCY PLANNING

7.1.8.1 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 –

Risk & Disaster Management Plan

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 persons 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 do use fire

7.1.8.2 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

Telephone Nos. of District Collector, Police, Fire station and Hospital is given below:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Office</th>
<th>P&amp;T Office</th>
<th>P&amp;T Residence</th>
<th>Mobile No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Collector, Bhilwara</td>
<td>01482-232601</td>
<td>01482-232602</td>
<td>--</td>
</tr>
<tr>
<td>(ii)</td>
<td>Superintendent Of Police (Bhilwara)</td>
<td>01482-23200</td>
<td>01482-232002</td>
<td>--</td>
</tr>
<tr>
<td>(iii)</td>
<td>Regional Director of Mines Safety, Bhilwara</td>
<td>240262</td>
<td>-</td>
<td>--</td>
</tr>
<tr>
<td>(iv)</td>
<td>Chief Medical Officer, Bhilwara</td>
<td>01482-232643</td>
<td>-</td>
<td>9414923143</td>
</tr>
<tr>
<td>(v)</td>
<td>Fire Brigade</td>
<td>101,</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>(vi)</td>
<td>Police Control Room</td>
<td>100,</td>
<td>--</td>
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</tr>
</tbody>
</table>

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.

7.1.8.3 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.

7.1.8.4 ROLES OF MAJOR HAZARD MANAGEMENTS

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 the Mine Management 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.

7.1.8.4.1 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.

7.1.8.4.2 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.

7.1.8.4.3 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 equipment’s.

7.1.8.4.4 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.

7.1.8.4.5 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.