

## **RISK ASSESSMENT**

Hazard analysis involves the identification and quantification of the various hazards (unsafe conditions) that exist in the plant. On the other hand, risk analysis deals with the identification and quantification of risks. The workers are exposed to, accidents resulting from the hazards due to accident occur in the plant area.

Risk analysis follows an extensive hazard analysis. It involves the identification and assessment of risks the neighbouring populations are exposed to as a result of hazards present. This requires a thorough knowledge of failure probability, maximum credible accident scenario, vulnerability of population etc. Consequently, the risk analysis is often confined to maximum credible accident studies.

In the sections below, the identification of various hazards, probable risks in the proposed plant, maximum credible accident analysis, consequence analysis are addressed which gives a broad identification of risks involved in the plant. Based on the risk estimation for fuel and chemical storage Disaster Management Plan (DMP) has been prepared.

### **Approaches to the Study**

Risk involves the occurrence or potential occurrence of some accidents consisting of an event or sequence of events. The risk assessment study covers the following:

- Identification of potential hazard areas.
- Identification of representative failure cases.
- Visualization of the resulting scenarios in terms of fire (thermal radiation) and explosion.
- Assess the overall damage potential of the identified hazardous events and the impact zones from the accidental scenarios.
- Assess the overall suitability of the site for hazard minimization and disaster mitigation points of view.
- Furnish specific recommendations on the minimization of the worst accident possibilities

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- Preparation of broad Disaster Management Plan (DMP), On-site and Off-site Emergency Plan, which includes Occupational and Health Safety Plan.

**Hazard Identification**

**Risk analysis and possible hazards details**

| S.No. | Operation process Equipment /areas              | Possible Hazardous                              | Precautionary measures  | Measures to be taken if any hazard occurs   |
|-------|---|---|---|---|
| 1     | Control Rooms                                   | Electrical Shock possible due to short-circuit. | Earth leakage circuit breaker is installed.   | In an event of electric leakage main supply should be immediately shut off.   |
| 2     | Welding Gas Oxygen LPG and /Acetylene cylinders | Fire hazards caused by flames and leakage.      | <ol style="list-style-type: none"> <li>1. Emergency kit is kept readily available in store and working place.</li> <li>2. Fire fighting equipments powder / Foam type extinguishers on vehicle and mounting on walls are kept readily available.</li> <li>3. Hydrant system provided at conspicuous place.</li> <li>4. Fire fighting trained man is employed.</li> <li>5. Cylinders are handled carefully without dropping or rolling.</li> <li>6. Precaution to ensure that cylinders are not allowed to dash with each other.</li> <li>7. Sand bed cushion available for the purpose of unloading cylinders.</li> <li>8. Periodic inspection done to avoid accident of any kind.</li> </ol> | <ol style="list-style-type: none"> <li>1 Installation of inert gas Nitrogen, Carbon dioxide. Equipments to take care of fire hazards in the factory are being installed.</li> <li>2. Hydrant point will be for gas cylinders stores and point where welding operation is done.</li> </ol> |
| 3     | Electrical transformer                          | Electrical power                                | Shock proof insulated PCC Platform.   | Immediate Cut off the power supply, treat the   |

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| S.No. | Operation process Equipment /areas                 | Possible Hazardous   | Precautionary measures  | Measures to be taken if any hazard occurs   |
|-------|--|--|---|---|
|       |  |  |   | injured for electrical shock  |
|       |  | Fire 1   | Firefighting equipment<br>(i) Sand buckets.<br>(ii) Fire extinguisher.  | Immediately fight fire with available resources, summon outside help if necessary.  |
| 4     | Diesel Oil/<br>Transformer<br>Oil etc.<br>storage. | Fire hazard may be possible if directly comes in contact.                                    | 1. Fire proof system made available and fighting equipment like Foam, extinguishers and hydrant system, etc., are kept.   | Proper care is to be taken while storing and keeping the oil drums.   |
| 5     | Lab<br>Chemicals                                   | In case of bottle breakage, causes burns and damage to respirator systems due to inhalation. | 1. Proper care should be taken while handling the chemicals.<br>2. First Aid Box should be available at Site with all necessary and required medicines.<br>3. Firefighting equipment like Extinguishers, sand buckets should be available always. | Instruction Boards to be displaced for knowledge of other workers to take care of the situation in the event of occurrence. |

### DISASTER MANAGEMENT PLAN

The word 'disaster' is synonymous with 'emergency' as defined by the Ministry of Environment and Forests (MoEF). An emergency occurring in proposed expansion project of 2,14,000 TPA rolling mill is one that may affect several sections within it and/or may cause serious injuries, loss of lives, extensive damage to environment or property or serious disruption outside the plant. It will require the best use of internal resources and the use of outside resources to handle it effectively. It may happen usually as the result of a malfunction of the normal operating procedures.

The project is in its formative stage and detail engineering is yet to be done, so the DMP are based on the following concepts.

#### Capabilities of DMP

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The emergency plan envisaged will be designed to intercept full range of hazards specific to proposed plant such as fire, explosion, major spill etc. In particular, the DMP will be designed and conducted to mitigate those losses of containment situations, which have potentials to escalate into major perils.

Another measure of the DMP's capability will be to combat small and large fires due to ignition, of flammable materials either from storage or from process streams and evacuate people from the affected areas speedily to safe locations to prevent irreversible injury.

Emergency medical aids to those who might be affected by incident heat radiation flux, shock wave overpressures and toxic exposure will be inherent in the basic capabilities.

The most important capability of this DMP will be the required speed of response to intercept a developing emergency in good time so that disasters such as explosion, major fire etc. are never allowed to happen.

### **Disaster Control Philosophy**

The principal strategy of DMP is "Prevention" of identified major hazards. The "Identification" of the hazards will employ one or more of the techniques [e.g. Hazard and Operability Study (HAZOP), accident consequence analysis etc.]. Since these hazards can occur only in the event of loss of containment, one of the key objectives of technology selection, project engineering, construction, commissioning and operation is "Total and Consistent Quality Assurance". The Project Authority will be committed to this strategy right from the conceptual stage of the plant so that the objective of prevention can have ample opportunities to mature and be realized in practice.

The DMP or Emergency Preparedness Plan (EPP) will consist of:

- On-site Emergency Plan
- Off-site Emergency Plan

Disaster Management Plan preparation under the headlines of On-site Emergency Plan and Off-site Emergency Plan is in consonance with the guidelines laid by the Ministry of Environment and Forests (MoEF) which states that the "Occupier" of the facility is responsible for the development of the On-site Emergency Plan.

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The off-site Emergency Plan should be developed by the Government (District Authorities).

### **On-Site Emergency Plan**

#### **Objectives**

The objective of the On-site Emergency Plan should be to make maximum use of the combined resources of the plant and the outside services to

- Effect the rescue and treatment of casualties
- Safeguard other personnel in the premises
- Minimize damage to property and environment
- Initially contain and ultimately bring the incident under control
- Identify any dead
- Provide for the needs of relatives
- Provide authoritative information to the news media
- Secure the safe rehabilitation of affected areas
- Preserve relevant records and equipment for the subsequent enquiry into the cause and circumstances of emergency

#### **Action Plans**

The Action Plan should consist of:

- Identification of Key Personnel
- Defining Responsibilities of Key Personnel
- Designating Emergency Control Centers and Assembly Points
- Declaration of Emergency
- Sending All Clear Signal
- Defining actions to be taken by non-key personnel during Emergency

#### **Key Personnel**

The actions necessary in an emergency will clearly depend upon the prevailing circumstances. Nevertheless, it is imperative that the required actions are initiated and

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directed by nominated people, each having specified responsibilities as part of co-ordinated plan. Such nominated personnel are known as Key Personnel.

The Key Personnel are:

- Site Controller (SC)
- Incidental Controller (IC)
- Liaison and Communication Officer (LCO)
- Fire and Security Officer (FSO)
- Team Leaders (TL)

### **Site Controller (SC)**

In the emergency situation, decisions have to be taken which may affect the whole or a substantial part of the plant and surrounding area. Many of these decisions will be taken in collaboration with the other officers at the plant and the staff. It is essential that the authority to make decision be invested in one individual. In this plan, he is referred to as the 'Site Controller'. The Plant Manager (however called) or his nominated deputy will assume responsibility as SC.

### **Incident Controller (IC)**

In the emergency situation, someone has to direct the operations in the plant area and co-ordinate the actions of outside emergency services at the scene of incident. The one who will shoulder this responsibility is known as 'Incident Controller' in this plan.

A Senior Operations Officer or an officer of similar rank of the unit may be nominated to act as the IC.

### **Liaison and Communication Officer (LCO)**

Operations Officer or any other officer of deputy rank will work as LCO and will be stationed at the main entrance during emergency to handle Police, Press and other enquiries. He will maintain communication with the IC

**Fire and Safety officer (FSO)**

The Fire and Safety Officer will be responsible for fire fighting. On hearing the fire alarm he shall contact the fire station immediately and advise the security staff in the plant and cancel the alarm. He will also announce on PAS (public Address System) or convey through telephones or messengers to the SC, IC and LCO about the incident zone. He will open the gates nearest to the incident and stand by to direct the emergency services. He will also be responsible for isolation of equipment from the affected zone.

**Team Leaders (TL)**

A number of special activities may have to be carried out by specified personnel to control as well as minimize the damage and loss. For this purpose designated teams would be available. Each team will be headed by a Team Leader (TL).

Following teams are suggested:

- Repair Team
- Fire Fighting Team
- Communication Team
- Security Team
- Safety Team
- Medical Team

**Responsibilities of Key Personnel**

**Site Controller (SC)**

- On getting information about emergency, proceed to Main Control Centre
- Call in outside emergency services
- Take control of areas outside the plant, which are affected
- Maintain continuous communication, review situation and assess possible course of events
- Direct evacuation of nearby settlements, if necessary
- Ensure that casualties are getting enough help

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- Arrange for additional medical help and inform relatives
- Liaison with Fire and Police Services and Provide advice on possible effects on outside areas
- Arrange for chronological recording of the emergency
- Where emergency is prolonged, arrange for relieving personnel, their catering needs etc.
- Inform higher officials in head office
- Ensure preservation of evidence
- Direct rehabilitation work on termination of emergency

### **Incident Controller (IC)**

- On getting emergency information, proceed to Main Control Centre
- Activate emergency procedure such as calling in various teams
- Direct all operations within plant with following priorities:
  - a) Control and contain emergency
  - b) Secure safety of personnel
  - c) Minimize damage to plant, property and the environment
  - d) Minimize loss of material
- Direct rescue and repair activities
- Guide fire-fighting teams
- Arrange to search affected area and rescue trapped persons
- Arrange to evacuate non-essential personnel to safe area/assembly point
- Set up communications network and establish communication with SC
- Arrange for additional help/equipment to key personnel of various teams
- Consider need for preserving all records, information for subsequent enquiries

### **Liaison and Communications Officer**

- To ensure that casualties receive adequate attention, arrange additional help if required and inform relatives

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- To control traffic movements into the plant and ensure that alternative transport is available when need arises
- When emergency is prolonged, arrange for the relief of personnel and organize refreshments/catering facility
- Advise the Site Controller of the situation, recommending (if necessary) evacuation of staff from assembly points
- Recruit suitable staff to act as runners between the Incident Controller and himself if the telephone and other system of communication fail. -Maintain contact with congregation points
- Maintain prior agreed inventory in the Control Room
- Maintain a log of the incident on tape
- In case of a prolonged emergency involving risk to outside areas by windblown materials - contact local meteorological office to receive early notification of changes in weather conditions.

### **Fire and Safety Officer**

- Announce over the PAS in which zone the incident has occurred and on the advice of the Shift Officer informs the staff to evacuate the assembly
- Inform the Shift Officer In-charge, if there is any large escape of products
- Call out in the following order:
  - 1) Incident Controller or his nominated deputy
  - 2) Maintenance Officer
  - 3) Personnel and Administrative Officer
  - 4) Departmental Head in whose area the incident occurred
  - 5) Team Leaders (TL)

### **Emergency Control Centre**

The Emergency Control Centre will be the focal point in case of an emergency from where the operations to handle the emergency are directed and coordinated. It will control site activities.

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Emergency management measures in this case have been proposed to be carried from single control Centre designated as Main Control Centre (MCC)

MCC is the place from which messages to outside agencies will be sent and mutual aids and other helps for the management of emergency will be arranged. It will be located in the safe area. It will be equipped with every facility for external and internal communication, with relevant data, personal protective equipments to assist those manning the centre to enable them to co-ordinate emergency control activities. CC will be attended by SC.

Following facilities would be available in the MCC:

- P&T phones, mobile phones, intercoms, and wireless
- Emergency manuals
- Blown up area maps
- District telephone directories
- Emergency lights
- Wind direction and speed indicator
- Requisite sets of personal protective equipment such as gloves, gumboots and aprons

MCC will be furnished with call out list of key persons, fire, safety, first aid, medical, security, police and district administrative authorities. MCC will also contain safety data pertaining to all hazardous materials likely to cause emergency and well-defined procedures of fire fighting, rescue operations, first aid etc.

### **Assembly Point**

In an emergency, it will certainly be necessary to evacuate personnel from affected areas and as precautionary measure, to further evacuate non-essential workers, in the first instance, from areas likely to be affected, should the emergency escalate. The evacuation will be effected on getting necessary message from i.e. on evacuation, employees would be directed to a predetermined safe place called Assembly Point.

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Proposed Location: Area opposite to service building will be the Assembly Point where all non-key personnel would assemble on getting direction over Public-Address System.

Outdoor assembly points, predetermined and premarked, will also be provided to accommodate evacuees from affected plant area(s). Roll call of personnel collected at these assembly points, indoor and outdoor will be carried out by roll call crew of safety team to account for any missing person(s) and to initiate search and rescue operations if necessary.

### **Declaration of Emergency**

An emergency may arise in the terminal due to major leakage of oil or major outbreak of fire/explosion. In case of major leak or major outbreak of fire the state of emergency has to be declared by the concerned by sounding Emergency Siren.

Upon manual or sensor detection of a major loss of containment of volatile hazardous substance, the DMP is activated by raising an audible and visual alarm through a network of geographically dispersed gas/vapour and heat detectors and also "break glass" type fire alarm call points with telephone handsets to inform the Central Control Room.

A separate siren audible to a distance of 5 km range will be available for this purpose. The alarm is coded such that the nature of emergency can be distinguished as a leakage or major fire.

The Control Centre and Assembly point will be located at an area of the minimum risk or vulnerability in the premises concerned, taking into account the wind direction, areas which might be affected by fire/explosion, leakage etc.

After cessation of emergency, FSO will communicate to IC. After verification of status, IC will communicate with SC and then announce the "All Clear" by instructing the Time Office to sound the "All Clear Signal".

Alarms would be followed by an announcement over Public Address System (PAS). In case of failure of alarm system, communication would be by telephone operator who will make announcement in the complex through PAS. Walkie-talkie system is very

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useful for communication during emergency with predetermined codes of communication. If everything fails, a messenger could be used for sending the information. Two 5 km, range variable pitch electric sirens (one in service and the other standby) will generate the main alarm for the entire site as well as for the district fire brigade. The alarm is coded such that the nature of emergency can be distinguished as a leakage or major fire. Fire and Gas alarm matrices are provided at the Central Control room, security gate, on-site fire station and main administrative office corridor to indicate location of the site of emergency and its nature.

### **Mutual Aid**

#### **Procedure**

All factories may not be equipped with an exhaustive stock of equipment/materials required during an emergency. Further, there may be a need to augment supplies if an emergency is prolonged.

It would be ideal to pool all resources available in the and nearby outside agencies especially factories during an emergency, for which a formal Mutual Aid scheme should be made among industries in the region.

#### **Essential Elements**

Essential elements of this scheme are given below:

- Mutual aid must be a written document, signed by Location In-charge of all the industries concerned
- It should specify available quantity of materials/ equipment that can be spared (not that which is in stock)
- Mode of requisition during an emergency.
- It should authorize the shift-in-charge to quickly deploy available material/equipment without waiting for formalities like gate pass etc.
- It should spell out mode of payment/replacement of material given during an emergency
- It should specify key personnel who are authorized to requisition materials from other industries or who can send materials to other industries
- It should state clearly mode of receipt of materials at the affected unit without waiting for quantity/quality verification etc.

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- Revision number and validity of agreement should be mentioned.
- This may be updated from time to time based on experience gained.

### **Emergency Management Training**

- The Key Personnel would undergo special courses on disaster management. This may preferably be in-plant training. The Managers, Senior Officers and Staff would undergo a course on the use of personal protective equipment.
- The Key Personnel belonging to various Teams would undergo special courses as per their expected nature of work at the time of emergency.
- The plant management should conduct special courses to outside agencies like district fire services to make them familiar with the plant layout and other aspects, which will be helpful to them during an emergency.

### **Mock Drills**

- It is imperative that the procedures laid in this Plan are put to the test by conducting Mock Drills. To avoid any lethality, the emergency response time would be clocked below 2 minutes during the mock drill.
- 1st Step: Test the effectiveness of communication system
- 2nd Step: Test the speed of mobilization of the plant emergency teams
- 3rd Step: Test the effectiveness of search, rescue and treatment of casualties
- 4th Step: Test emergency isolation and shut down and remedial measures taken on the system
- 5th Step: Conduct a full rehearsal of all the actions to be taken during an emergency

The Disaster Management Plan would be periodically revised based on experiences gained from the mock drills.

### **Proposed Communication System**

The instrument and control system will take care of the following operating philosophy of the plant

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- The project will be provided with a control system located in a central control room.
- The shift engineer will operate the plant from his console panel.
- All operations will be represented in a graphic panel on the console and every operation will be depicted as operating sequences.
- All operating parameters will be displayed in digital format.
- Alarms will be provided for all parameters, when they exceed set values.
- High-High/Low-Low alarms and trip functions will be provided to trip
- Pumps/compressors to bring the entire system to a safe shutdown.

### **Proposed Fire Fighting System**

Elaborate fire fighting system will be available for fighting fires in any corner of the plant. A comprehensive fire detection and protection system is envisaged

- Fire water storage tanks of adequate capacity.
- Fire water pump house containing combination of diesel and electrically driven pumps.
- Hydrant system complete with suitable size piping, valves, instrumentation, hoses, nozzles, hose boxes/stations, monitors etc.
- Foam injection system for fuel oil/storage tanks consisting of foam concentrate tanks, foam pumps, in-line inductors, valves, piping and instrumentation etc.
- Automatic high velocity water spray system consisting of detectors, deluge valves projectors, valves, piping and instrumentation.
- Automatic medium velocity water spray system consisting of QB
- Detectors/smoke detectors, linear heat sensing cable detectors, deluge valves, isolation valves, nozzles, piping, instrumentation etc.
- Suitable "Halon Substitutes" such as INERGEN or FM..: 200 or AGGONITE for protection of control room, equipment room, computer room and other electric and electronic equipment rooms.
- Computerized analogue, addressable, early warning type fire detection and alarm system consisting various types of fire detection such as ionization type smoke detection system, photo electric type smoke detection system, linear heat sensing

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cable detector, quartzoid bulb (QB) heat detection system, infrared heat detectors and spot type electrical heat detectors.

- Portable and mobile extinguishers, such as pressurized water type, carbon dioxide type, foam type, dry chemical powder (DCP) type located at strategic locations throughout the plant.
- Fire tenders/engines of water type, DCP type/foam type, trailer pump with fire jeep etc. provided in the fire station.
- Complete instrumentation and control system for the entire fire detection and protection system for safe operation of the complete system.

### **Other safety Measures**

Considering that fire and explosion is the most likely hazard in such installations, the plant is being provided with systems to guard against such hazards. Salient among these are:

- A proper layout to prevent and minimize the effects of any hazardous situation
- Design of storage vessels and all components to codes and standards to withstand the rigorous duty
- Provision of operating systems to conduct the process through well established safe operating procedures
- A control system, which monitors all, plant parameters and give alarms
- Control system, which has trip provisions to prevent hazard conditions escalating
- A gas detection system which will provide early warning of any leaks
- Provision of a fire protection system to control fire
- Provision of flame-proof lighting system in the fire prone areas

### **First Aid and Medical Facilities**

The First Aid Medical Centre has been proposed. It will be fully equipped with emergency facilities. It will be open round the clock. A Medical Officer with Compounder will always be available in the centre. Emergency cars will be available in all the shifts. Adequate number of first aid boxes will be kept at strategic locations.

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Required stock of first aid medicines will be maintained. Trained first aiders will be available in all departments.

Facilities to be kept in the Medical Room along with others will include: Oxygen Cylinders, Injection Coramine, Glucose Saline, LV. Sets, Syringes, Injection Needles, Stretchers and medicines.

### **Emergency Power Supply**

Strategic areas will be provided with emergency lights fed through stationed battery system. Portable emergency lamps will be also available at required points. A Diesel Driven Generator of adequate capacity will be available to keep the operations running in case of power failure. Diesel Engine operated fire pumps will be available.

### **Off Site Emergency Plan**

#### **Objective**

If the effects of the accident or disaster inside the plant are felt outside of its premises, it calls for an off-site emergency plan, which should be prepared and documented in advance in consultation with the District Authorities.

#### **Key Personnel**

The ultimate responsibility for the management of the off-site emergencies rests on the Collector / District Magistrate / Deputy Commissioner. He will be assisted by representatives from all concerned organizations, departments and services at the District level. This core group of officers would be called the District Crisis Management Group (CMG). The members of the group will include:

- 1) Collector/District Magistrate Deputy Commissioner
- 2) Commissioner of Police
- 3) Municipal Commissioner, if municipalities are involved
- 4) Deputy Director, Health
- 5) Pollution Control Board Representative

An Operation Response Group (ORG) will then be constituted to implement the directives of the CMG.

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The various government departments, some or all of which will be concerned, depending on the nature of the emergency, could include:

- Police
- Health & Fami Welfare
- Medical
- Revenue
- Fire Service
- Transport
- Electricity
- Animal Husbandry
- Agriculture
- Civil Defense
- PWD
- Civil Supplies
- Panchayats

The SC and IC, of the on-site emergency team, will also be responsible for communications with the CMG during the off-site emergency.

### **Education to Public**

People living within the influence zone should be educated on the emergency in a suitable manner. This can be achieved only through the Local and District Authorities. However, the Project Authority can extend necessary information to the Authorities.

### **Disaster Management Plan for the R.R. Ispat**

The main objectives of this disaster management plan are to:

- To identify type of major disaster which may occur in the plant
- To prepare an action plan to handle disaster.

**Severity of accidents have been categorized as** Category I - Operator Level and Category II - Local / Community Level

### **Category—I**

In category-I, disasters may occur due to fire, explosion, oil spillage, mall function of the machines and spontaneous ignition of inflammable materials. The severity of this category depends upon the disaster type and nature of it. It may affect the work force

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health that involves the operation at that facility and even may be on the facilities of the plant.

### **Category—II**

In case of complete failure of all automatic control / warning systems of the different units then it may leads to disaster which may have the high severity on inside work force and facilities of its own and even may effects on the others facilities surrounding plant. Probability of these disasters occurrences will be very less because of the plant alternative systems and well qualified and trained work force which will be placed in respective areas.

### **Disaster Preventive Measures**

- Design, construction of all facilities and machineries will be as per national and international codes as applicable in specific cases and lay down by statutory authorities
- The operations of the plant will be as per applicable standards laid by the statutory authorities
- Provision of adequate access ways for the movement of equipment and work force will provide
- Minimum two numbers of gates for escape during disaster will take place
- All the storage facilities will be marked properly and protected by providing the fencing around to the storage systems
- Water spraying in coal storage facility
- Well established fire fighting system

### **Safety and Training**

In the plant all the workforce will be provided with necessary safety protective equipments. Instrument the like safety valves, safety controls system. Safety department will look after the safety awareness programs by different means like posters, messages on the notice boards, etc and safety trainings in the plant as per requirement of the

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criticality. Safety training and practical demos to the selected individuals in each department will provided.

### **Functions of Disaster Controller**

- To declare “ Disaster Emergency ” after consulting the Sr. Officer available and inform Fire Station Control Room to sound the sirens accordingly and arrange to convey the message in public addresses system
- To report to DCR immediately
- To receive message from the communication centre
- To take decision in consultation with the commanding Officer of different services and convey them to the disaster point
- To be responsible for planning and provision of assistance from township and from local authorities
- Decision of the Disaster Controller on any matter will be final to met the objective of disaster control plan .
- To assist Disaster Controller for provision of material and man power concerning his services
- To convey message to his services team through communication centre after consulting Disaster Controller
- To consult between themselves on matters related to more than one services and to decide on the action to be taken

### **Repair Services**

This section will look after mainly for the following areas after disaster takes place.

- To take up quick repairs of the damaged machinery
- To take up repair of damaged building roads and culverts.
- To maintain essential public utility services viz. water, electricity and sewages system.

### **Traffic Control**

During the disaster, the movement of the safety vehicles and fire fighting vehicles will be monitored and make the emergency ways to be free from vehicles to attend the disaster

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works by the security of the plant. Persons arriving by motor transport at the location of fire / emergency must not park their vehicle within 100 meters of fire, near fire hydrants, at road junction and at access roads. The ignition key should be left in the vehicles.

### **Security Services**

In the plant security department will be responsible for the plant security by keeping security checks at different locations based on the sensitivity of the area. During the disasters the functions of security will be follows:

- Alert the all workforce about the disaster and its location
- Update the developments and status of the disaster to the higher officials to take necessary actions
- Co-ordinate the disaster status to the local authorities to get necessary support from them
- Control the vehicular traffic inside the plant to get way to the safety and fire fighting vehicles to attend the disaster works immediately
- Assist the different divisions like fire fighting, safety, local authorities etc. to make the process easy to handle the disaster works